

INSTRUMENTATION CABLES

PRODUCT CATALOGUE



Tai Sin[®]

INTRODUCTION	2
HOW TO READ THIS CATALOGUE / VARIOUS TYPES OF INSTRUMENTATION CABLES FOUND IN THIS CATALOGUE	3
APPLICABLE STANDARDS	4
PVC & XLPE INSULATED INSTRUMENTATION CABLES	
IN-POP CU / PVC / OS / PVC (PAIRS & TRIADS) <i>PVC Insulated, Overall Aluminium Foil Screened, PVC Sheathed Cable, 300 / 500V, BS EN50288-7</i>	
IN-XOP CU / PVC / OS / PVC (PAIRS & TRIADS) <i>XLPE Insulated, Overall Aluminium Foil Screened, PVC Sheathed Cable, 300 / 500V, BS EN50288-7</i>	5
IN-PIOP CU / PVC / IS / OS / PVC (PAIRS & TRIADS) <i>PVC Insulated, Individual Aluminium Foil Screened, Overall Aluminium Foil Screened, PVC Sheathed Cable, 300 / 500V, BS EN50288-7</i>	
IN-XIOP CU / XLPE / IS / OS / PVC (PAIRS & TRIADS) <i>XLPE Insulated, Individual Aluminium Foil Screened, Overall Aluminium Foil Screened, PVC Sheathed Cable, 300 / 500V, BS EN50288-7</i>	8
IN-POSP CU / PVC / OS / PVC / SWA / PVC (PAIRS & TRIADS) <i>PVC Insulated, Overall Aluminium Foil Screened, PVC Bedded, Galvanised Steel Wire Armoured, PVC Sheathed Cable, 300 / 500V, BS EN50288-7</i>	
IN-XOSP CU / XLPE / OS / PVC / SWA / PVC (PAIRS & TRIADS) <i>XLPE Insulated, Overall Aluminium Foil Screened, PVC Bedded, Galvanised Steel Wire Armoured, PVC Sheathed Cable, 300 / 500V, BS EN50288-7</i>	11
IN-PIOSP CU / PVC / IS / OS / PVC / SWA / PVC (PAIRS & TRIADS) <i>PVC Insulated, Individual Aluminium Foil Screened, Overall Aluminium Foil Screened, PVC Bedded, Galvanised Steel Wire Armoured, PVC Sheathed Cable, 300 / 500V, BS EN50288-7</i>	
IN-XIOSP CU / XLPE / IS / OS / PVC / SWA / PVC (PAIRS & TRIADS) <i>XLPE Insulated, Individual Aluminium Foil Screened, Overall Aluminium Foil Screened, PVC Bedded, Galvanised Steel Wire Armoured, PVC Sheathed Cable, 300 / 500V, BS EN50288-7</i>	14
LOW SMOKE ZERO HALOGEN FLAME RETARDANT INSTRUMENTATION CABLES	
FRT-XOL CU / XLPE / OS / LSZH (PAIRS & TRIADS) <i>XLPE Insulated, Overall Aluminium Foil Screened, LSZH Sheathed Cable, 300 / 500V, BS EN50288-7</i>	17
FRT-XIOL CU / XLPE / IS / OS / LSZH (PAIRS & TRIADS) <i>XLPE Insulated, Individual Aluminium Foil Screened, Overall Aluminium Foil Screened, LSZH Sheathed Cable, 300 / 500V, BS EN50288-7</i>	20
FRT-XOSL CU / XLPE / OS / LSZH / SWA / LSZH (PAIRS & TRIADS) <i>XLPE Insulated, Overall Aluminium Foil Screened, LSZH bedded, Galvanised Steel Wire Armoured, LSZH Sheathed Cable, 300 / 500V, BS EN50288-7</i>	23
FRT-XIOSL CU / XLPE / IS / OS / LSZH / SWA / LSZH (PAIRS & TRIADS) <i>XLPE Insulated, Individual Aluminium Foil Screened, Overall Aluminium Foil Screened, LSZH Bedded, Galvanised Steel Wire Armoured, LSZH Sheathed Cable, 300 / 500V, BS EN50288-7</i>	26
LOW SMOKE ZERO HALOGEN FLAME RETARDANT FIRE RESISTANT INSTRUMENTATION CABLES	
FR-XOL CU / MGT / XLPE / OS / LSZH (PAIRS & TRIADS) <i>Mica Taped, XLPE Insulated, Overall Aluminium Foil Screened, LSZH Sheathed Cable, 300 / 500V, BS EN50288-7</i>	29
FR-XIOL CU / MGT / XLPE / IS / OS / LSZH (PAIRS & TRIADS) <i>Mica Taped, XLPE Insulated, Individual Aluminium Foil Screened, Overall Aluminium Foil Screened, LSZH Sheathed Cable, 300 / 500V, BS EN50288-7</i>	32
FR-XOSL CU / MGT / XLPE / OS / LSZH / SWA / LSZH (PAIRS & TRIADS) <i>Mica Taped, XLPE Insulated, Overall Aluminium Foil Screened, LSZH bedded, Galvanised Steel Wire Armoured, LSZH Sheathed Cable, 300 / 500V, BS EN50288-7</i>	35
FR-XIOSL CU / MGT / XLPE / IS / OS / LSZH / SWA / LSZH (PAIRS & TRIADS) <i>Mica Taped, XLPE Insulated, Individual Aluminium Foil Screened, Overall Aluminium Foil Screened, LSZH Bedded, Galvanised Steel Wire Armoured, LSZH Sheathed Cable, 300 / 500V, BS EN50288-7</i>	38
APPENDIX A	41
TERMS & CONDITIONS OF SALES	43

INTRODUCTION



Tai Sin Electric Limited ("Tai Sin") was founded in 1980 as a cable manufacturing company and has since expanded and diversified to become the Tai Sin Group of Companies, listed on the Main Board of the Singapore Stock Exchange (SGX). Over the years, our product portfolio has grown to include busbar trunking systems, branch cable systems and distribution transformers, allowing us to meet a wide variety of electrical power distribution needs.

Tai Sin has built a reputation for manufacturing quality cables and wires, not just in Singapore, but also throughout Southeast Asia. Our dedication to quality is reflected in our ISO 9001, ISO 14001, ISO 45001, bizSAFE STAR and KEMA KEUR certifications, which attest to our commitment to safety, environmental guidelines, and product excellence.

In addition to our main office and factories located in Singapore, Malaysia, and Vietnam, Tai Sin has sales offices and a network of distributors across Southeast Asia, including Brunei, Cambodia, Indonesia, Myanmar, and Thailand. We work closely with our distributors to provide fast and reliable service to our customers, maintaining our reputation as a trusted supplier in the region.

At Tai Sin, we understand the importance of innovation and technology, which is why we are constantly exploring new solutions to meet the evolving needs of our customers. We are passionate about creating a better world for future generations and believe that sustainability and social responsibility are integral to our business philosophy.

Tai Sin's Quality, Environmental, and Occupational Health & Safety Management Systems are solid testimonies to our commitment to achieving excellent quality in both our manufacturing process and products, while ensuring the welfare of our employees. We believe that success is not just about profits but also about making a positive impact on society, which is why we strive to be a socially responsible corporate citizen in all that we do.

We are proud to be part of a community of forward-thinking organizations that are dedicated to creating a better future. Our sound business philosophy of providing quality products using leading edge technology, backed by unflinching excellence in customer service and faster turnaround time to maintain customer loyalty, has allowed us to steadily grow and succeed. These beliefs and values give us the strength and confidence to continue to excel and innovate in the future.



In this catalogue we have given each cable a name accompanied with the various short and long descriptions based on its material used.

For example:

FRT-XOL

CU / XLPE / OS / LSZH (PAIRS & TRIADS) ← *This is the short description*
XLPE Insulated, Overall Aluminum Foil Screened, LSZH Sheathed Cable ← *Full description on the third line*

To better understand the contents of the cable, we have included a 3-dimensional image plus a cross-sectional image of the cable for easy reference of its structure and components. The technical specifications and figures are provided by our quality team to ensure the accurate use of our products.

Electrical properties such as Insulation Resistance and Mutual Capacitance and other essential technical details are provided in the Appendices at the last section of this catalogue.

For all other enquiries, please feel free to contact our friendly customer service hotline for further assistance.

VARIOUS TYPES OF INSTRUMENTATION CABLES FOUND IN THIS CATALOGUE

Overall Screened Cores (Armoured & Non-Armoured)

Cables for this range are customarily used in the process industries (steel, pharmaceutical, petrochemical, paper, mining, etc.) providing control connections for DC or AC networks with an option of a fixed potential, with respect to earth. Applications are found in valve and motor control units, auxiliary station controls, circuit breaker indications and operations, etc. Cables in this category come in the armoured and non-armoured type for indoor applications.

Overall Screened Pairs / Traids (Armoured & Non-Armoured)

The cables mentioned here are overall screened to oppose static & crosstalk noises ensuring precise and flawless signals to be transmitted. These cables are recommended where signals transmitted are in excess of 100 millivolts in instrumentation and control applications. Cables of this classification are mainly used for interconnections between sensors, monitors and instruments where 100% shield effectiveness is ensured through our aluminum foil/PET shield with drain wires. Instrumentation cables that are used for indoor applications and unarmoured and cables for direct underground burials are those with steel wire armouring.

Individual & Overall Screened Pairs / Traids (Armoured & Non-Armoured)

Where noise rejection is essential, individually shielded pairs or triads with an overall shield are recommended. To provide optimal protection from crosstalk and common mode interference, individual pair & triad shields are separated from each other and each contains independent drain wires for grounding. These cables also come with an overall shield for additional electrostatic noise protection.

The various types of Instrumentation Cables manufactured may be insulated with our standard PVC, XLPE materials or with our Eco-friendly Non-Toxic Low Smoke Zero Halogen Flame Retardant materials with or without Fire Resistant characteristics.

Additionally, our instrumentation cables are available with standard or reduced flame propagation and low acid gas emission PVC sheaths as well as Low Smoke Zero Halogen Flame Retardant materials.

Our instrumentation cables are generally manufactured to BS EN50288-7. Should you need alternative constructions for different conductor sizes or pair combinations, we can also manufacture to your specific needs, installation and operating requirements. Our technical personnel will provide the necessary guidance and assistance in designing the cables that will meet your requirements.

APPLICABLE STANDARDS

Below are the applicable standards that are used as reference in the construction of our instrumentation cables.



ASTM D 2863

Measuring the minimum oxygen concentration to support candle-like combustion of plastic (oxygen index).

BS6387 / SS299

Performance requirements for cables required to maintain circuit integrity under fire conditions.

BS6724

600 / 1000V armoured electric cables having thermosetting insulation and low emission of smoke and corrosive gases when affect by fire.

BS7211

Thermosetting insulated cables (non-armoured) for electric power and lighting with low emission of smoke and corrosive gases when affected by fire.

BS7629-1

300 / 500V fire-resistant screened cables having low emission of smoke and corrosive gases when affect by fire.

Part 1: Multicore and multi-pair cables.

BS7846

600 / 1000V armoured fire-resistant electric cables having low emission of smoke and corrosive gases when affected by fire.

BS EN50288-7

Multi-element metallic cables use in analogue and digital communication and control.

Part 7: Sectional specification for instrumentation and control Cables.

BS EN60228

Conductors of insulated cables.

IEC60331

Fire-resistant characteristics of electric cables.

IEC60332-1 / BS4066-1 / BS EN50266-1

Tests in electric cables under fire conditions.

Part 1: Method of test on a single vertical insulated wire or cable.

IEC60332-3 / BS4066-3 / BS EN50266-2

Tests on electric cables under fire conditions.

Part 3: Methods of classification of flame propagation characteristics of bunched cables.

IEC60502-1

Power cables with extruded insulation and their accessories for rated voltages from 1kV up to 30kV.

Part 1: Cables for rated voltage of 1kV and 3kV.

IEC60754-1 / BS6425-1 / BS EN50267-2-1

Tests on gases evolved during the combustion of materials from cables.

Part 1: Methods of determination of amount of halogen acid gas evolved during combustion of polymeric materials taken from cables.

IEC60754-2 / BS6425-2 / BS EN50267-2-2

Tests on gases evolved during combustion of materials from cables.

Part 2: Determination of degree of acidity (corrosive) of gases by measuring pH and conductivity.

IEC61034-2 / BS7622-2 / BS EN61034-2

Measurement of smoke density of electric cables burning under defined conditions.

Part 2: Test procedure and requirements.

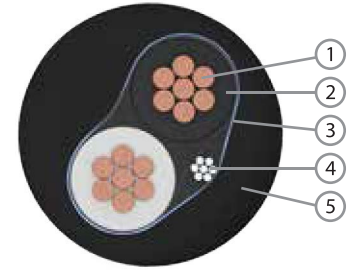
IN-POP CU / PVC / OS / PVC (PAIRS & TRIADS)

PVC Insulated, Overall Aluminium Foil Screened, PVC Sheathed Cable, 300 / 500V, BS EN50288-7



IN-XOP CU / XLPE / OS / PVC (PAIRS & TRIADS)

XLPE Insulated, Overall Aluminium Foil Screened, PVC Sheathed Cable, 300 / 500V, BS EN50288-7



- Component**
1. Plain Annealed Copper Wire
 2. PVC Compound or XLPE Compound
 3. Aluminium / Polyester Tape
 4. Tinned Copper Drain Wire
 5. PVC Compound

CONSTRUCTION

Conductor:	Plain Annealed Copper, Class 2 Stranded Circular
Insulation:	(1) Polyvinyl Chloride (PVC) Compound Type TI51 or (2) Cross-linked Polyethylene (XLPE) Compound
Insulation Colour:	Pair/s - Black/White with Black numberings Triad/s - Red/Black/White with Black numberings
Cores Twisted:	Cores twisted to form a pair, triad or quad
Lay Up:	Multi-pairs, triads or quads are assembled together in concentric layers to form the cable core
Wrap Film:	Polyester Binder Tape
Overall Screen:	Aluminium/Polyester Tape, with a Tinned Copper Drain Wire 0.5mm ² (7/0.3mm) (OS)
Outer Sheath:	Flame Retardancy Polyvinyl Chloride (PVC) Compound Type ST2 FR
Outer Sheath Colour:	Black or Blue

ELECTRICAL CHARACTERISTICS

Operating Voltage, U _o /U:	300/500V
Operating Temperature:	-15°C to 70°C (PVC Insulated) -15°C to 90°C (XLPE Insulated)
Final Short Circuit Temperature:	160°C (PVC Insulated) 250°C (XLPE Insulated)
Test Voltage:	2kV for 1 minute

REFERENCE STANDARDS

Design Specification:	BS EN50288-7
Conductor:	IEC60228, BS EN60228
Flame Retardancy:	IEC60332-3

INSTALLATION REFERENCE

Min. Bending Radius (mm):	8 x cable overall diameter
Max. Pulling Tension (N/mm ²):	50

	No. of Pairs	Nominal Conductor Area (mm ²)	No. and Diameter of Wires (no./mm)	Radial Thickness of Insulation (mm)	IN-XOP		IN-POP	
					Cable Overall Diameter (mm)	Approximate Weight (kg/km)	Cable Overall Diameter (mm)	Approximate Weight (kg/km)
SINGLE & MULTI-PAIRS	1P	0.5	7 / 0.3	0.6	7.1	58	7.1	63
	2P (Quad)		7 / 0.3	0.6	8.0	81	8.0	90
	2P		7 / 0.3	0.6	10.7	98	10.7	108
	3P		7 / 0.3	0.6	11.5	126	11.5	141
	4P		7 / 0.3	0.6	12.6	152	12.6	171
	5P		7 / 0.3	0.6	13.7	177	13.7	202
	6P		7 / 0.3	0.6	15.1	211	15.1	240
	8P		7 / 0.3	0.6	16.9	260	16.9	300
	10P		7 / 0.3	0.6	19.3	322	19.3	371
	12P		7 / 0.3	0.6	19.9	364	19.9	423
	16P		7 / 0.3	0.6	22.1	465	22.1	533
	20P		7 / 0.3	0.6	24.8	560	24.8	659
	24P		7 / 0.3	0.6	27.7	669	27.7	787
	36P		7 / 0.3	0.6	31.9	943	31.9	1121

* Other pairs, triads and quads configurations are available upon request.
* Class 5 conductors are available upon request.

Table 1

IN-POP CU / PVC / OS / PVC (PAIRS & TRIADS)

PVC Insulated, Overall Aluminium Foil Screened, PVC Sheathed Cable, 300 / 500V, BS EN50288-7



IN-XOP CU / XLPE / OS / PVC (PAIRS & TRIADS)

XLPE Insulated, Overall Aluminium Foil Screened, PVC Sheathed Cable, 300 / 500V, BS EN50288-7

No. of Pairs	Nominal Conductor Area (mm ²)	No. and Diameter of Wires (no./mm)	Radial Thickness of Insulation (mm)	IN-XOP		IN-POP		
				Cable Overall Diameter (mm)	Approximate Weight (kg/km)	Cable Overall Diameter (mm)	Approximate Weight (kg/km)	
1P	0.75	7 / 0.37	0.6	7.5	66	7.5	72	
2P (Quad)		7 / 0.37	0.6	8.5	95	8.5	105	
2P		7 / 0.37	0.6	11.6	119	11.6	130	
3P		7 / 0.37	0.6	12.3	148	12.3	165	
4P		7 / 0.37	0.6	13.5	180	13.5	202	
5P		7 / 0.37	0.6	14.9	220	14.9	247	
6P		7 / 0.37	0.6	16.2	253	16.2	285	
8P		7 / 0.37	0.6	18.2	315	18.2	358	
10P		7 / 0.37	0.6	20.8	390	20.8	444	
12P		7 / 0.37	0.6	21.5	444	21.5	509	
16P		7 / 0.37	0.6	24.0	571	24.0	658	
20P		7 / 0.37	0.6	27.0	704	27.0	812	
24P		7 / 0.37	0.6	30.1	840	30.1	970	
36P		7 / 0.37	0.6	34.7	1215	34.7	1384	
1P		1.0	7 / 0.43	0.6	7.9	74	7.9	80
2P (Quad)			7 / 0.43	0.6	9.0	108	9.0	120
2P	7 / 0.43		0.6	12.3	135	12.3	147	
3P	7 / 0.43		0.6	13.0	170	13.0	187	
4P	7 / 0.43		0.6	14.2	207	14.2	231	
5P	7 / 0.43		0.6	15.8	254	15.8	283	
6P	7 / 0.43		0.6	17.2	293	17.2	328	
8P	7 / 0.43		0.6	19.5	378	19.5	424	
10P	7 / 0.43		0.6	22.1	456	22.1	514	
12P	7 / 0.43		0.6	23.0	534	23.0	604	
16P	7 / 0.43		0.6	25.5	674	25.5	767	
20P	7 / 0.43		0.6	28.7	832	28.7	948	
24P	7 / 0.43		0.6	32.0	994	32.0	1133	
36P	7 / 0.43		0.6	36.9	1416	36.9	1626	
1P	1.5		7 / 0.53	0.6	8.5	89	8.5	95
2P (Quad)			7 / 0.53	0.6	9.7	134	9.7	147
2P		7 / 0.53	0.6	13.3	164	13.3	177	
3P		7 / 0.53	0.6	14.2	211	14.2	230	
4P		7 / 0.53	0.6	15.7	268	15.7	294	
5P		7 / 0.53	0.6	17.2	319	17.2	352	
6P		7 / 0.53	0.6	19.0	381	19.0	420	
8P		7 / 0.53	0.6	21.3	480	21.3	532	
10P		7 / 0.53	0.6	24.4	595	24.4	660	
12P		7 / 0.53	0.6	25.2	685	25.2	763	
16P		7 / 0.53	0.6	28.2	886	28.2	990	
20P		7 / 0.53	0.6	31.7	1094	31.7	1224	
24P		7 / 0.53	0.6	35.4	1308	35.4	1464	
36P		7 / 0.53	0.6	41.1	1895	41.1	2128	

* Other pairs, triads and quads configurations are available upon request.
 * Class 5 conductors are available upon request.

Table 2

IN-POP CU / PVC / OS / PVC (PAIRS & TRIADS)

PVC Insulated, Overall Aluminium Foil Screened, PVC Sheathed Cable, 300 / 500V, BS EN50288-7



IN-XOP CU / XLPE / OS / PVC (PAIRS & TRIADS)

XLPE Insulated, Overall Aluminium Foil Screened, PVC Sheathed Cable, 300 / 500V, BS EN50288-7

	No. of Pairs	Nominal Conductor Area (mm ²)	No. and Diameter of Wires (no./mm)	Radial Thickness of Insulation (mm)	IN-XOP		IN-POP	
					Cable Overall Diameter (mm)	Approximate Weight (kg/km)	Cable Overall Diameter (mm)	Approximate Weight (kg/km)
SINGLE & MULTI-PAIRS	1P	2.5	7 / 0.67	0.7	9.7	117	9.7	126
	2P (Quad)		7 / 0.67	0.7	11.4	191	11.4	209
	2P		7 / 0.67	0.7	15.7	229	15.7	247
	3P		7 / 0.67	0.7	16.8	300	16.8	327
	4P		7 / 0.67	0.7	18.6	384	18.6	420
	5P		7 / 0.67	0.7	20.4	460	20.4	505
	6P		7 / 0.67	0.7	22.5	548	22.4	602
	8P		7 / 0.67	0.7	22.5	709	25.5	782
	10P		7 / 0.67	0.7	29.2	879	29.2	970
	12P		7 / 0.67	0.7	30.2	1015	30.2	1124
	16P		7 / 0.67	0.7	33.8	1315	33.8	1461
	20P		7 / 0.67	0.7	38.0	1625	38.0	1807
	24P		7 / 0.67	0.7	42.5	1941	42.5	2159
	36P		7 / 0.67	0.7	49.2	2817	49.2	3144

* Other pairs, triads and quads configurations are available upon request.
* Class 5 conductors are available upon request.

Table 3

	No. of Triads	Nominal Conductor Area (mm ²)	No. and Diameter of Wires (no./mm)	Radial Thickness of Insulation (mm)	IN-XOP		IN-POP	
					Cable Overall Diameter (mm)	Approximate Weight (kg/km)	Cable Overall Diameter (mm)	Approximate Weight (kg/km)
SINGLE & MULTI-TRIADS	1T	0.5	7 / 0.3	0.6	7.4	69	7.4	77
	6T		7 / 0.3	0.6	16.8	276	16.8	320
	16T		7 / 0.3	0.6	24.9	630	24.9	748
	24T		7 / 0.3	0.6	31.2	927	31.2	1105
	1T	0.75	7 / 0.37	0.6	7.9	80	7.9	88
	6T		7 / 0.37	0.6	18.0	335	18.0	384
	16T		7 / 0.37	0.6	27.1	796	27.1	926
	24T		7 / 0.37	0.6	34.0	1172	34.0	1367
	1T	1.0	7 / 0.43	0.6	8.3	91	8.3	100
	6T		7 / 0.43	0.6	19.3	404	19.3	456
	16T		7 / 0.43	0.6	28.8	946	28.8	1086
	24T		7 / 0.43	0.6	36.2	1398	36.2	1607
	1T	1.5	7 / 0.53	0.6	8.9	111	8.9	121
	6T		7 / 0.53	0.6	21.2	518	21.2	576
	16T		7 / 0.53	0.6	31.9	1254	31.9	1410
	24T		7 / 0.53	0.6	40.0	1853	40.0	2087
	1T	2.5	7 / 0.67	0.7	10.5	157	10.5	171
	6T		7 / 0.67	0.7	25.3	768	25.3	850
	16T		7 / 0.67	0.7	38.2	1872	38.2	2090
	24T		7 / 0.67	0.7	48.2	2790	48.2	3117

* Other pairs, triads and quads configurations are available upon request.
* Class 5 conductors are available upon request.

Table 4

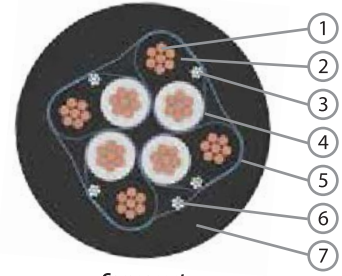
IN-PIOP CU / PVC / IS / OS / PVC (PAIRS & TRIADS)

PVC Insulated, Individual Aluminium Foil Screened, Overall Aluminium Foil Screened, PVC Sheathed Cable, 300 / 500V, BS EN50288-7



IN-XIOP CU / XLPE / IS / OS / PVC (PAIRS & TRIADS)

XLPE Insulated, Individual Aluminium Foil Screened, Overall Aluminium Foil Screened, PVC Sheathed Cable, 300 / 500V, BS EN50288-7



- Component**
1. Plain Annealed Copper Wire
 2. PVC Compound or XLPE Compound
 3. Tinned Copper Drain Wire
 4. Aluminium / Polyester Tape (IS)
 5. Aluminium / Polyester Tape (OS)
 6. Tinned Copper Drain Wire
 7. PVC Compound

CONSTRUCTION

Conductor:	Plain Annealed Copper, Class 2 Stranded Circular
Insulation:	(1) Polyvinyl Chloride (PVC) Compound Type TI51 or (2) Cross-linked Polyethylene (XLPE) Compound
Insulation Colour:	Pair/s - Black/White with Black numberings Triad/s - Red/Black/White with Black numberings
Cores Twisted:	Cores twisted to form a pair, triad or quad
Wrap Film:	Polyester Binder Tape
Individual Screen:	Aluminium/Polyester Tape, with a Tinned Copper Drain Wire 0.5mm ² (7/0.3mm) (IS)
Lay Up:	Multi-pairs, triads or quads are assembled together in concentric layers to form the cable core
Wrap Film:	Polyester Binder Tape
Overall Screen:	Aluminium/Polyester Tape, with a Tinned Copper Drain Wire 0.5mm ² (7/0.3mm) (OS)

Outer Sheath: Flame Retardancy Polyvinyl Chloride (PVC) Compound Type ST2 FR

Outer Sheath Colour: Black or Blue

ELECTRICAL CHARACTERISTICS

Operating Voltage, U ₀ /U:	300/500V
Operating Temperature:	-15°C to 70°C (PVC Insulated) -15°C to 90°C (XLPE Insulated)
Final Short Circuit Temperature:	160°C (PVC Insulated) 250°C (XLPE Insulated)
Test Voltage:	2kV for 1 minute

REFERENCE STANDARDS

Design Specification:	BS EN50288-7
Conductor:	IEC60228, BS EN60228
Flame Retardancy:	IEC60332-3

INSTALLATION REFERENCE

Min. Bending Radius (mm):	8 x cable overall diameter
Max. Pulling Tension (N/mm ²):	50

	No. of Pairs	Nominal Conductor Area (mm ²)	No. and Diameter of Wires (no./mm)	Radial Thickness of Insulation (mm)	IN-XIOP		IN-PIOP	
					Cable Overall Diameter (mm)	Approximate Weight (kg/km)	Cable Overall Diameter (mm)	Approximate Weight (kg/km)
SINGLE & MULTI-PAIRS	2P	0.5	7 / 0.3	0.6	11.3	121	11.3	128
	3P		7 / 0.3	0.6	11.9	151	11.9	161
	4P		7 / 0.3	0.6	13.0	184	13.0	197
	5P		7 / 0.3	0.6	14.4	225	14.4	241
	6P		7 / 0.3	0.6	15.6	259	15.6	279
	8P		7 / 0.3	0.6	17.7	333	17.7	360
	10P		7 / 0.3	0.6	20.2	411	20.2	445
	12P		7 / 0.3	0.6	20.9	469	20.9	509
	16P		7 / 0.3	0.6	23.1	591	23.1	645
	20P		7 / 0.3	0.6	26.0	729	26.0	795
	24P		7 / 0.3	0.6	29.0	870	29.0	951
	36P		7 / 0.3	0.6	33.5	1254	33.5	1375

* Other pairs, triads and quads configurations are available upon request.
* Class 5 conductors are available upon request.

Table 5

IN-PIOP CU / PVC / IS / OS / PVC (PAIRS & TRIADS)

PVC Insulated, Individual Aluminium Foil Screened, Overall Aluminium Foil Screened, PVC Sheathed Cable, 300 / 500V, BS EN50288-7



IN-XIOP CU / XLPE / IS / OS / PVC (PAIRS & TRIADS)

XLPE Insulated, Individual Aluminium Foil Screened, Overall Aluminium Foil Screened, PVC Sheathed Cable, 300 / 500V, BS EN50288-7

No. of Pairs	Nominal Conductor Area (mm ²)	No. and Diameter of Wires (no./mm)	Radial Thickness of Insulation (mm)	IN-XIOP		IN-PIOP		
				Cable Overall Diameter (mm)	Approximate Weight (kg/km)	Cable Overall Diameter (mm)	Approximate Weight (kg/km)	
2P	0.75	7 / 0.37	0.6	12.0	137	12.0	145	
3P		7 / 0.37	0.6	12.7	174	12.7	185	
4P		7 / 0.37	0.6	14.1	221	14.1	236	
5P		7 / 0.37	0.6	15.4	261	15.4	280	
6P		7 / 0.37	0.6	17.0	311	17.0	333	
8P		7 / 0.37	0.6	19.0	390	19.0	420	
10P		7 / 0.37	0.6	21.7	483	21.7	520	
12P		7 / 0.37	0.6	22.4	553	22.4	598	
16P		7 / 0.37	0.6	25.1	713	25.1	773	
20P		7 / 0.37	0.6	28.2	879	28.2	953	
24P		7 / 0.37	0.6	31.4	1049	31.4	1139	
36P		7 / 0.37	0.6	36.4	1514	36.4	1648	
SINGLE & MULTI-PAIRS		1.0	7 / 0.43	0.6	12.6	153	12.6	161
	3P		7 / 0.43	0.6	13.6	203	13.6	215
	4P		7 / 0.43	0.6	14.9	250	14.9	266
	5P		7 / 0.43	0.6	16.2	296	16.3	317
	6P		7 / 0.43	0.6	17.9	353	17.9	378
	8P		7 / 0.43	0.6	20.3	456	20.3	488
	10P		7 / 0.43	0.6	23.0	552	23.0	592
	12P		7 / 0.43	0.6	24.0	647	24.0	695
	16P		7 / 0.43	0.6	26.6	820	26.6	885
	20P		7 / 0.43	0.6	29.9	1013	29.9	1093
	24P		7 / 0.43	0.6	33.5	1226	33.5	1324
	36P		7 / 0.43	0.6	38.6	1751	38.6	1896
	SINGLE & MULTI-PAIRS		1.5	7 / 0.53	0.6	13.9	190	13.9
3P		7 / 0.53		0.6	14.8	245	14.8	259
4P		7 / 0.53		0.6	16.2	304	16.2	323
5P		7 / 0.53		0.6	17.9	373	17.9	396
6P		7 / 0.53		0.6	19.5	434	19.5	462
8P		7 / 0.53		0.6	22.1	562	22.1	599
10P		7 / 0.53		0.6	25.3	696	25.3	742
12P		7 / 0.53		0.6	26.4	817	26.4	872
16P		7 / 0.53		0.6	29.3	1041	29.3	1114
20P		7 / 0.53		0.6	33.1	1302	33.1	1393
24P		7 / 0.53		0.6	36.9	1553	36.9	1663
36P		7 / 0.53		0.6	42.7	2248	42.7	2413

* Other pairs, triads and quads configurations are available upon request.
 * Class 5 conductors are available upon request.

Table 6

IN-PIOP CU / PVC / IS / OS / PVC (PAIRS & TRIADS)

PVC Insulated, Individual Aluminium Foil Screened, Overall Aluminium Foil Screened, PVC Sheathed Cable, 300 / 500V, BS EN50288-7



IN-XIOP CU / XLPE / IS / OS / PVC (PAIRS & TRIADS)

XLPE Insulated, Individual Aluminium Foil Screened, Overall Aluminium Foil Screened, PVC Sheathed Cable, 300 / 500V, BS EN50288-7

	No. of Pairs	Nominal Conductor Area (mm ²)	No. and Diameter of Wires (no./mm)	Radial Thickness of Insulation (mm)	IN-XIOP		IN-PIOP	
					Cable Overall Diameter (mm)	Approximate Weight (kg/km)	Cable Overall Diameter (mm)	Approximate Weight (kg/km)
SINGLE & MULTI-PAIRS	2P	2.5	7 / 0.67	0.7	16.3	258	16.3	272
	3P		7 / 0.67	0.7	17.4	339	17.4	359
	4P		7 / 0.67	0.7	19.0	423	19.0	450
	5P		7 / 0.67	0.7	21.1	519	21.1	553
	6P		7 / 0.67	0.7	23.2	618	23.2	659
	8P		7 / 0.67	0.7	26.3	800	26.4	855
	10P		7 / 0.67	0.7	30.1	990	30.1	1059
	12P		7 / 0.67	0.7	31.2	1146	31.2	1228
	16P		7 / 0.67	0.7	34.9	1486	34.9	1595
	20P		7 / 0.67	0.7	39.4	1855	39.4	1990
	24P		7 / 0.67	0.7	43.9	2212	43.9	2376
	36P		7 / 0.67	0.7	50.8	3207	50.8	3452

* Other pairs, triads and quads configurations are available upon request.
* Class 5 conductors are available upon request.

Table 7

	No. of Triads	Nominal Conductor Area (mm ²)	No. and Diameter of Wires (no./mm)	Radial Thickness of Insulation (mm)	IN-XIOP		IN-PIOP	
					Cable Overall Diameter (mm)	Approximate Weight (kg/km)	Cable Overall Diameter (mm)	Approximate Weight (kg/km)
SINGLE & MULTI-TRIADS	2T	0.5	7 / 0.3	0.6	11.6	121	11.6	131
	6T		7 / 0.3	0.6	16.5	317	16.5	356
	16T		7 / 0.3	0.6	24.4	730	24.4	835
	24T		7 / 0.3	0.6	30.6	1076	30.6	1233
	2T	0.75	7 / 0.37	0.6	12.8	149	12.8	161
	6T		7 / 0.37	0.6	17.7	377	17.7	421
	16T		7 / 0.37	0.6	26.5	899	26.5	1014
	24T		7 / 0.37	0.6	33.1	1324	33.1	1497
	2T	1.0	7 / 0.43	0.6	13.5	172	13.5	184
	6T		7 / 0.43	0.6	18.7	437	18.7	483
	16T		7 / 0.43	0.6	28.1	1052	28.1	1176
	24T		7 / 0.43	0.6	35.4	1673	35.4	1756
	2T	1.5	7 / 0.53	0.6	14.6	213	14.6	228
	6T		7 / 0.53	0.6	20.6	561	20.6	614
	16T		7 / 0.53	0.6	31.1	1378	31.1	1517
	24T		7 / 0.53	0.6	39.0	2031	39.0	2240
	2T	2.5	7 / 0.67	0.7	17.3	300	17.3	321
	6T		7 / 0.67	0.7	24.5	813	24.5	888
	16T		7 / 0.67	0.7	37.0	2002	37.0	2201
	24T		7 / 0.67	0.7	46.5	2977	46.5	3275

* Other pairs, triads and quads configurations are available upon request.
* Class 5 conductors are available upon request.

Table 8

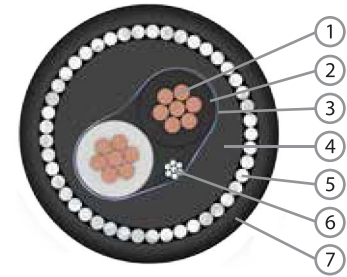
IN-POSP CU / PVC / OS / PVC / SWA / PVC (PAIRS & TRIADS)

PVC Insulated, Overall Aluminium Foil Screened, PVC Bedded, Galvanised Steel Wire Armoured, PVC Sheathed Cable, 300 / 500V, BS EN50288-7



IN-XOSP CU / XLPE / OS / PVC / SWA / PVC (PAIRS & TRIADS)

XLPE Insulated, Overall Aluminium Foil Screened, PVC Bedded, Galvanised Steel Wire Armoured, PVC Sheathed Cable, 300 / 500V, BS EN50288-7



Component

1. Plain Annealed Copper Wire
2. PVC Compound or XLPE Compound
3. Aluminium / Polyester Tape
4. PVC Compound
5. Galvanised Steel Wire Armoured
6. Tinned Copper Drain Wire
7. PVC Compound

CONSTRUCTION

Conductor:	Plain Annealed Copper, Class 2 Stranded Circular
Insulation:	(1) Polyvinyl Chloride (PVC) Compound Type T151 or (2) Cross-linked Polyethylene (XLPE) Compound
Insulation Colour:	Pair/s - Black/White with Black numberings Triad/s - Red/Black/White with Black numberings
Cores Twisted:	Cores twisted to form a pair, triad or quad
Lay Up:	Multi-pairs, triads or quads are assembled together in concentric layers to form the cable core
Wrap Film:	Polyester Binder Tape
Overall Screen:	Aluminium/Polyester Tape, with a Tinned Copper Drain Wire 0.5mm ² (7/0.3mm) (OS)
Bedding:	Polyvinyl Chloride (PVC) Compound Type ST2
Bedding Colour:	Black

Armour:	Galvanized Steel Wire Armoured (SWA)
Outer Sheath:	Flame Retardancy Polyvinyl Chloride (PVC) Compound Type ST2 FR
Outer Sheath Colour:	Black or Blue

ELECTRICAL CHARACTERISTICS

Operating Voltage, U _o /U:	300/500V
Operating Temperature:	-15°C to 70°C (PVC Insulated) -15°C to 90°C (XLPE Insulated)
Final Short Circuit Temperature:	160°C (PVC Insulated) 250°C (XLPE Insulated)
Test Voltage:	2kV for 1 minute

REFERENCE STANDARDS

Design Specification:	BS EN50288-7
Conductor:	IEC60228, BS EN60228
Flame Retardancy:	IEC60332-3

INSTALLATION REFERENCE

Min. Bending Radius (mm):	10 x cable overall diameter
Max. Pulling Tension (N/mm ²):	70

No. of Pairs	Nominal Conductor Area (mm ²)	No. and Diameter of Wires (no./mm)	Radial Thickness of Insulation (mm)	Diameter Under Armour (mm)	Armour Wire Diameter (mm)	IN-XOSP		IN-POSP	
						Cable Overall Diameter (mm)	Approx. Weight (kg/km)	Cable Overall Diameter (mm)	Approx. Weight (kg/km)
1P	0.5	7 / 0.3	0.6	7.2	0.9	11.9	264	11.9	269
2P (Quad)		7 / 0.3	0.6	8.1	0.9	12.7	308	12.7	318
2P		7 / 0.3	0.6	10.8	0.9	15.7	398	15.7	408
3P		7 / 0.3	0.6	11.4	0.9	16.3	434	16.3	449
4P		7 / 0.3	0.6	12.5	0.9	17.4	487	17.4	507
5P		7 / 0.3	0.6	13.6	0.9	18.5	541	18.5	565
6P		7 / 0.3	0.6	14.8	1.25	20.6	714	20.6	743
8P		7 / 0.3	0.6	16.6	1.25	22.4	814	22.4	854
10P		7 / 0.3	0.6	18.8	1.25	24.6	940	24.6	989
12P		7 / 0.3	0.6	19.4	1.25	25.4	1008	25.4	1068
16P		7 / 0.3	0.6	21.6	1.25	27.6	1175	27.6	1252
20P		7 / 0.3	0.6	24.1	1.25	30.3	1357	30.3	1455
24P		7 / 0.3	0.6	26.8	1.25	33.0	1539	33.0	1657
36P		7 / 0.3	0.6	30.8	1.25	37.2	1939	37.2	2116

* Other pairs, triads and quads configurations are available upon request.
* Class 5 conductors are available upon request.

Table 9

IN-POSP CU / PVC / OS / PVC / SWA / PVC (PAIRS & TRIADS)

PVC Insulated, Overall Aluminium Foil Screened, PVC Bedded, Galvanised Steel Wire Armoured, PVC Sheathed Cable, 300 / 500V, BS EN50288-7



IN-XOSP CU / XLPE / OS / PVC / SWA / PVC (PAIRS & TRIADS)

XLPE Insulated, Overall Aluminium Foil Screened, PVC Bedded, Galvanised Steel Wire Armoured, PVC Sheathed Cable, 300 / 500V, BS EN50288-7

No. of Pairs	Nominal Conductor Area (mm ²)	No. and Diameter of Wires (no./mm)	Radial Thickness of Insulation (mm)	Diameter Under Armour (mm)	Armour Wire Diameter (mm)	IN-XOSP		IN-POSP		
						Cable Overall Diameter (mm)	Approx. Weight (kg/km)	Cable Overall Diameter (mm)	Approx. Weight (kg/km)	
1P	0.75	7 / 0.37	0.6	7.6	0.9	12.3	280	12.3	286	
2P (Quad)		7 / 0.37	0.6	8.6	0.9	13.2	336	13.2	346	
2P		7 / 0.37	0.6	11.5	0.9	16.4	433	16.4	444	
3P		7 / 0.37	0.6	12.2	0.9	17.1	477	17.1	493	
4P		7 / 0.37	0.6	13.4	0.9	18.3	537	18.3	559	
5P		7 / 0.37	0.6	14.6	1.25	20.4	711	20.4	738	
6P		7 / 0.37	0.6	15.9	1.25	21.7	782	21.7	815	
8P		7 / 0.37	0.6	17.9	1.25	23.7	907	23.7	950	
10P		7 / 0.37	0.6	20.3	1.25	26.3	1070	26.3	1124	
12P		7 / 0.37	0.6	21.0	1.25	27.0	1139	27.0	1204	
16P		7 / 0.37	0.6	23.3	1.25	21.3	1327	29.3	1414	
20P		7 / 0.37	0.6	26.1	1.25	32.3	1549	32.3	1657	
24P		7 / 0.37	0.6	29.0	1.25	35.4	1775	35.4	1905	
36P		7 / 0.37	0.6	33.4	1.6	40.7	2499	40.7	2694	
1P		1.0	7 / 0.43	0.6	8.0	0.9	12.7	296	12.7	302
2P (Quad)			7 / 0.43	0.6	9.1	0.9	13.9	365	13.9	376
2P	7 / 0.43		0.6	12.2	0.9	17.1	464	17.1	475	
3P	7 / 0.43		0.6	12.9	0.9	17.8	518	17.8	536	
4P	7 / 0.43		0.6	14.1	1.25	19.9	693	19.9	717	
5P	7 / 0.43		0.6	15.5	1.25	21.3	771	21.3	801	
6P	7 / 0.43		0.6	16.9	1.25	22.7	859	22.7	894	
8P	7 / 0.43		0.6	19.0	1.25	25.0	1010	25.0	1056	
10P	7 / 0.43		0.6	21.6	1.25	27.6	1174	27.6	1233	
12P	7 / 0.43		0.6	22.3	1.25	28.3	1265	28.3	1334	
16P	7 / 0.43		0.6	24.8	1.25	31.0	1495	31.0	1588	
20P	7 / 0.43		0.6	27.8	1.25	34.0	1727	34.0	1844	
24P	7 / 0.43		0.6	30.9	1.25	37.3	1990	37.3	2129	
36P	7 / 0.43		0.6	35.6	1.6	42.9	2803	42.9	3013	
1P	1.5		7 / 0.53	0.6	8.6	0.9	13.3	329	13.3	336
2P (Quad)			7 / 0.53	0.6	9.8	0.9	14.6	411	14.6	424
2P		7 / 0.53	0.6	13.2	0.9	18.1	519	18.1	532	
3P		7 / 0.53	0.6	14.1	1.25	19.9	696	19.9	716	
4P		7 / 0.53	0.6	15.4	1.25	21.2	785	21.2	811	
5P		7 / 0.53	0.6	16.9	1.25	22.7	885	22.7	918	
6P		7 / 0.53	0.6	18.5	1.25	24.5	1000	24.5	1039	
8P		7 / 0.53	0.6	20.8	1.25	26.8	1173	26.8	1225	
10P		7 / 0.53	0.6	23.7	1.25	29.9	1380	29.9	1445	
12P		7 / 0.53	0.6	24.5	1.25	30.7	1494	30.7	1572	
16P		7 / 0.53	0.6	27.3	1.25	33.5	1769	33.5	1873	
20P		7 / 0.53	0.6	30.6	1.25	37.0	2209	37.0	2079	
24P		7 / 0.53	0.6	34.1	1.6	41.4	2637	41.4	2793	
36P		7 / 0.53	0.6	39.8	1.6	47.3	3475	47.3	3709	

* Other pairs, triads and quads configurations are available upon request.
* Class 5 conductors are available upon request.

Table 10

IN-POSP CU / PVC / OS / PVC / SWA / PVC (PAIRS & TRIADS)

PVC Insulated, Overall Aluminium Foil Screened, PVC Bedded, Galvanised Steel Wire Armoured, PVC Sheathed Cable, 300 / 500V, BS EN50288-7



IN-XOSP CU / XLPE / OS / PVC / SWA / PVC (PAIRS & TRIADS)

XLPE Insulated, Overall Aluminium Foil Screened, PVC Bedded, Galvanised Steel Wire Armoured, PVC Sheathed Cable, 300 / 500V, BS EN50288-7

	No. of Pairs	Nominal Conductor Area (mm ²)	No. and Diameter of Wires (no./mm)	Radial Thickness of Insulation (mm)	Diameter Under Armour (mm)	Armour Wire Diameter (mm)	IN-XOSP		IN-POSP	
							Cable Overall Diameter (mm)	Approx. Weight (kg/km)	Cable Overall Diameter (mm)	Approx. Weight (kg/km)
SINGLE & MULTI-PAIRS	1P	2.5	7 / 0.67	0.7	9.8	0.9	14.7	394	14.7	403
	2P (Quad)		7 / 0.67	0.7	11.3	0.9	16.1	499	16.1	516
	2P		7 / 0.67	0.7	15.4	1.25	21.2	746	21.2	764
	3P		7 / 0.67	0.7	16.5	1.25	22.3	853	22.3	881
	4P		7 / 0.67	0.7	18.1	1.25	24.1	990	24.1	1026
	5P		7 / 0.67	0.7	19.9	1.25	25.9	1127	25.9	1173
	6P		7 / 0.67	0.7	21.8	1.25	27.8	1256	27.8	1311
	8P		7 / 0.67	0.7	24.6	1.25	30.8	1506	30.8	1579
	10P		7 / 0.67	0.7	28.1	1.25	34.5	1789	34.5	1880
	12P		7 / 0.67	0.7	29.1	1.25	35.5	1960	35.5	2070
	16P		7 / 0.67	0.7	32.5	1.6	39.8	2587	39.8	2733
	20P		7 / 0.67	0.7	36.9	1.6	44.4	3108	44.4	3209
	24P		7 / 0.67	0.7	41.2	1.6	48.9	3586	48.9	3805
	36P		7 / 0.67	0.7	47.5	2.0	56.2	5066	56.2	5394

* Other pairs, triads and quads configurations are available upon request.
* Class 5 conductors are available upon request.

Table 11

	No. of Triads	Nominal Conductor Area (mm ²)	No. and Diameter of Wires (no./mm)	Radial Thickness of Insulation (mm)	IN-XOSP		IN-POSP	
					Cable Overall Diameter (mm)	Approximate Weight (kg/km)	Cable Overall Diameter (mm)	Approximate Weight (kg/km)
SINGLE & MULTI-TRIADS	1T	0.5	7 / 0.3	0.6	12.2	282	12.2	290
	6T		7 / 0.3	0.6	22.3	830	22.3	877
	16T		7 / 0.3	0.6	30.4	1427	30.4	1554
	24T		7 / 0.3	0.6	36.5	1899	36.5	2090
	1T	0.75	7 / 0.37	0.6	12.7	302	12.7	310
	6T		7 / 0.37	0.6	23.5	926	23.5	979
	16T		7 / 0.37	0.6	32.4	1642	32.4	1781
	24T		7 / 0.37	0.6	39.8	2441	39.8	2650
	1T	1.0	7 / 0.43	0.6	13.1	325	13.1	334
	6T		7 / 0.43	0.6	24.8	1035	24.8	1091
	16T		7 / 0.43	0.6	34.1	1853	34.1	2002
	24T		7 / 0.43	0.6	42.2	2765	42.2	2990
	1T	1.5	7 / 0.53	0.6	13.9	367	13.9	377
	6T		7 / 0.53	0.6	26.7	1210	26.7	1273
	16T		7 / 0.53	0.6	37.2	2250	37.2	2417
	24T		7 / 0.53	0.6	46.4	3415	46.4	3666
1T	2.5	7 / 0.67	0.7	15.3	443	15.3	457	
6T		7 / 0.67	0.7	30.6	1563	30.6	1651	
16T		7 / 0.67	0.7	44.6	3357	44.6	3589	
24T		7 / 0.67	0.7	55.2	5007	55.2	5356	

* Other pairs, triads and quads configurations are available upon request.
* Class 5 conductors are available upon request.

Table 12

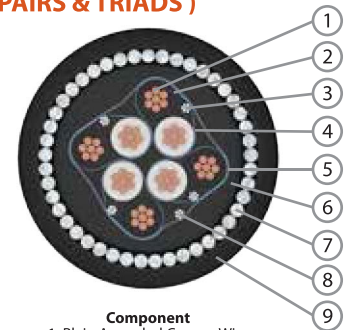
IN-PIOSP CU / PVC / IS / OS / PVC / SWA / PVC (PAIRS & TRIADS)

PVC Insulated, Individual Aluminium Foil Screened, Overall Aluminium Foil Screened, PVC Bedded, Galvanised Steel Wire Armoured, PVC Sheathed Cable, 300 / 500V, BS EN50288-7



IN-XIOSP CU / XLPE / IS / OS / PVC / SWA / PVC (PAIRS & TRIADS)

XLPE Insulated, Individual Aluminium Foil Screened, Overall Aluminium Foil Screened, PVC Bedded, Galvanised Steel Wire Armoured, PVC Sheathed Cable, 300 / 500V, BS EN50288-7



- Component**
1. Plain Annealed Copper Wire
 2. PVC Compound or XLPE Compound
 3. Tinned Copper Drain Wire
 4. Aluminium / Polyester Tape
 5. Aluminium / Polyester Tape (OS)
 6. PVC Compound
 7. Galvanised Steel Wire Armoured
 8. Tinned Copper Drain Wire
 9. PVC Compound

CONSTRUCTION

Conductor:	Plain Annealed Copper, Class 2 Stranded Circular
Insulation:	(1) Polyvinyl Chloride (PVC) Compound Type TI51 or (2) Cross-linked Polyethylene (XLPE) Compound
Insulation Colour:	Pair/s - Black/White with Black numberings Triad/s - Red/Black/White with Black numberings
Cores Twisted:	Cores twisted to form a pair, triad or quad
Wrap Film:	Polyester Binder Tape
Individual Screen:	Aluminium/Polyester Tape, with a Tinned Copper Drain Wire 0.5mm ² (7/0.3mm) (IS)
Lay Up:	Multi-pairs, triads or quads are assembled together in concentric layers to form the cable core
Wrap Film:	Polyester Binder Tape
Overall Screen:	Aluminium/Polyester Tape, with a Tinned Copper Drain Wire 0.5mm ² (7/0.3mm) (OS)
Bedding:	Polyvinyl Chloride (PVC) Compound Type ST2

Bedding Colour:	Black
Armour:	Galvanized Steel Wire Armoured (SWA)
Outer Sheath:	Flame Retardancy Polyvinyl Chloride (PVC) Compound Type ST2 FR
Outer Sheath Colour:	Black or Blue

ELECTRICAL CHARACTERISTICS

Operating Voltage, U ₀ /U:	300/500V
Operating Temperature:	-15°C to 70°C (PVC Insulated) -15°C to 90°C (XLPE Insulated)
Final Short Circuit Temperature:	160°C (PVC Insulated) 250°C (XLPE Insulated)
Test Voltage:	2kV for 1 minute

REFERENCE STANDARDS

Design Specification:	BS EN50288-7
Conductor:	IEC60228, BS EN60228
Flame Retardancy:	IEC60332-3

INSTALLATION REFERENCE

Min. Bending Radius (mm):	10 x cable overall diameter
Max. Pulling Tension (N/mm ²):	70

	No. of Pairs	Nominal Conductor Area (mm ²)	No. and Diameter of Wires (no./mm)	Radial Thickness of Insulation (mm)	Diameter Under Armour (mm)	Armour Wire Diameter (mm)	IN-XIOSP		IN-PIOSP	
							Cable Overall Diameter (mm)	Approx. Weight (kg/km)	Cable Overall Diameter (mm)	Approx. Weight (kg/km)
SINGLE & MULTI-PAIRS	2P		7 / 0.3	0.6	11.2	0.9	16.1	428	16.1	438
	3P		7 / 0.3	0.6	11.8	0.9	16.7	472	16.7	487
	4P		7 / 0.3	0.6	12.9	0.9	17.8	533	17.8	553
	5P		7 / 0.3	0.6	14.1	1.25	19.9	703	19.9	728
	6P		7 / 0.3	0.6	15.3	1.25	21.1	775	21.1	805
	8P	0.5	7 / 0.3	0.6	17.2	1.25	23.2	913	23.2	954
	10P		7 / 0.3	0.6	19.5	1.25	25.5	1056	25.5	1106
	12P		7 / 0.3	0.6	20.2	1.25	26.2	1128	26.2	1188
	16P		7 / 0.3	0.6	22.4	1.25	28.6	1337	28.6	1417
	20P		7 / 0.3	0.6	25.1	1.25	31.3	1549	31.3	1649
	24P		7 / 0.3	0.6	27.9	1.25	34.3	1779	34.3	1900
	36P		7 / 0.3	0.6	32.0	1.6	39.3	2490	39.3	2670

* Other pairs, triads and quads configurations are available upon request.
* Class 5 conductors are available upon request.

Table 13

IN-PIOSP CU / PVC / IS / OS / PVC / SWA / PVC (PAIRS & TRIADS)

PVC Insulated, Individual Aluminium Foil Screened, Overall Aluminium Foil Screened, PVC Bedded, Galvanised Steel Wire Armoured, PVC Sheathed Cable, 300 / 500V, BS EN50288-7



IN-XIOSP CU / XLPE / IS / OS / PVC / SWA / PVC (PAIRS & TRIADS)

XLPE Insulated, Individual Aluminium Foil Screened, Overall Aluminium Foil Screened, PVC Bedded, Galvanised Steel Wire Armoured, PVC Sheathed Cable, 300 / 500V, BS EN50288-7

No. of Pairs	Nominal Conductor Area (mm ²)	No. and Diameter of Wires (no./mm)	Radial Thickness of Insulation (mm)	Diameter Under Armour (mm)	Armour Wire Diameter (mm)	IN-XIOSP		IN-PIOSP	
						Cable Overall Diameter (mm)	Approx. Weight (kg/km)	Cable Overall Diameter (mm)	Approx. Weight (kg/km)
2P	0.75	7 / 0.37	0.6	11.9	0.9	16.8	459	16.8	470
3P		7 / 0.37	0.6	12.6	0.9	17.5	510	17.5	527
4P		7 / 0.37	0.6	13.8	0.9	18.9	593	18.9	615
5P		7 / 0.37	0.6	15.1	1.25	20.9	766	20.9	794
6P		7 / 0.37	0.6	16.5	1.25	22.5	868	22.5	901
8P		7 / 0.37	0.6	18.5	1.25	24.5	1009	24.5	1053
10P		7 / 0.37	0.6	21.0	1.25	27.2	1180	27.2	1235
12P		7 / 0.37	0.6	21.7	1.25	27.9	1274	27.9	1340
16P		7 / 0.37	0.6	24.2	1.25	30.4	1498	30.4	1586
20P		7 / 0.37	0.6	27.1	1.25	33.5	1763	33.5	1873
24P		7 / 0.37	0.6	30.1	1.25	36.7	2024	36.7	2155
36P		7 / 0.37	0.6	35.1	1.6	42.6	2902	42.6	3100
SINGLE & MULTI-PAIRS									
2P	1.0	7 / 0.43	0.6	12.5	0.9	17.4	489	17.4	500
3P		7 / 0.43	0.6	13.3	0.9	18.4	562	18.4	580
4P		7 / 0.43	0.6	14.6	1.25	20.4	741	20.4	765
5P		7 / 0.43	0.6	15.9	1.25	21.7	826	21.7	856
6P		7 / 0.43	0.6	17.4	1.25	23.4	936	23.4	971
8P		7 / 0.43	0.6	19.6	1.25	25.6	1101	25.6	1148
10P		7 / 0.43	0.6	22.3	1.25	28.5	1297	28.5	1356
12P		7 / 0.43	0.6	23.1	1.25	29.3	1405	29.3	1476
16P		7 / 0.43	0.6	25.7	1.25	32.1	1670	32.1	1765
20P		7 / 0.43	0.6	28.8	1.25	35.2	1947	35.2	2065
24P		7 / 0.43	0.6	32.0	1.6	39.3	2462	39.3	2603
36P		7 / 0.43	0.6	37.3	1.6	44.8	3234	44.8	3447
2P	1.5	7 / 0.53	0.6	13.6	0.9	18.7	556	18.7	569
3P		7 / 0.53	0.6	14.5	1.25	20.3	737	20.3	756
4P		7 / 0.53	0.6	15.9	1.25	21.7	834	21.7	861
5P		7 / 0.53	0.6	17.4	1.25	23.4	955	23.4	988
6P		7 / 0.53	0.6	19.0	1.25	25.0	1066	25.0	1106
8P		7 / 0.53	0.6	21.4	1.25	27.6	1272	27.6	1324
10P		7 / 0.53	0.6	24.4	1.25	30.6	1492	30.6	1558
12P		7 / 0.53	0.6	25.3	1.25	31.7	1641	31.7	1720
16P		7 / 0.53	0.6	28.2	1.25	34.6	1951	34.6	2057
20P		7 / 0.53	0.6	31.6	1.6	38.9	2535	38.9	2666
24P		7 / 0.53	0.6	35.6	1.6	43.1	2961	43.1	3118
36P		7 / 0.53	0.6	41.0	1.6	48.7	3850	48.7	4087

* Other pairs, triads and quads configurations are available upon request.
* Class 5 conductors are available upon request.

Table 14

IN-PIOSP CU / PVC / IS / OS / PVC / SWA / PVC (PAIRS & TRIADS)

PVC Insulated, Individual Aluminium Foil Screened, Overall Aluminium Foil Screened, PVC Bedded, Galvanised Steel Wire Armoured, PVC Sheathed Cable, 300 / 500V, BS EN50288-7



IN-XIOSP CU / XLPE / IS / OS / PVC / SWA / PVC (PAIRS & TRIADS)

XLPE Insulated, Individual Aluminium Foil Screened, Overall Aluminium Foil Screened, PVC Bedded, Galvanised Steel Wire Armoured, PVC Sheathed Cable, 300 / 500V, BS EN50288-7

	No. of Pairs	Nominal Conductor Area (mm ²)	No. and Diameter of Wires (no./mm)	Radial Thickness of Insulation (mm)	Diameter Under Armour (mm)	Armour Wire Diameter (mm)	IN-XIOSP		IN-PIOSP	
							Cable Overall Diameter (mm)	Approx. Weight (kg/km)	Cable Overall Diameter (mm)	Approx. Weight (kg/km)
SINGLE & MULTI-PAIRS	2P	2.5	7 / 0.67	0.7	15.8	1.25	21.6	779	21.6	797
	3P		7 / 0.67	0.7	16.9	1.25	22.9	908	22.9	935
	4P		7 / 0.67	0.7	18.5	1.25	24.5	1042	24.5	1078
	5P		7 / 0.67	0.7	20.4	1.25	26.6	1203	26.6	1249
	6P		7 / 0.67	0.7	22.3	1.25	28.5	1352	28.5	1407
	8P		7 / 0.67	0.7	25.2	1.25	31.6	1623	31.6	1697
	10P		7 / 0.67	0.7	28.8	1.25	35.2	1909	35.2	2001
	12P		7 / 0.67	0.7	29.9	1.6	37.2	2321	37.2	2431
	16P		7 / 0.67	0.7	33.8	1.6	41.3	2851	41.3	2998
	20P		7 / 0.67	0.7	37.9	1.6	45.6	3545	45.6	3545
	24P		7 / 0.67	0.7	42.2	2.0	50.9	4225	50.9	4445
	36P		7 / 0.67	0.7	49.1	2.0	58.2	5598	58.2	5928

* Other pairs, triads and quads configurations are available upon request.
* Class 5 conductors are available upon request.

Table 15

	No. of Triads	Nominal Conductor Area (mm ²)	No. and Diameter of Wires (no./mm)	Radial Thickness of Insulation (mm)	IN-XIOSP		IN-PIOSP	
					Cable Overall Diameter (mm)	Approximate Weight (kg/km)	Cable Overall Diameter (mm)	Approximate Weight (kg/km)
SINGLE & MULTI-TRIADS	2T	0.5	7 / 0.3	0.6	16.2	451	16.2	461
	6T		7 / 0.3	0.6	23.0	904	23.0	949
	16T		7 / 0.3	0.6	31.3	1593	31.3	1711
	24T		7 / 0.3	0.6	38.6	2370	38.6	2549
	2T	0.75	7 / 0.37	0.6	17.4	511	17.4	522
	6T		7 / 0.37	0.6	24.3	1005	24.3	1053
	16T		7 / 0.37	0.6	33.5	1829	33.5	1959
	24T		7 / 0.37	0.6	41.7	2776	41.7	2971
	2T	1.0	7 / 0.43	0.6	18.1	549	18.1	562
	6T		7 / 0.43	0.6	25.4	1102	25.4	1155
	16T		7 / 0.43	0.6	35.2	2034	35.2	2174
	24T		7 / 0.43	0.6	43.9	3088	43.9	3298
	2T	1.5	7 / 0.53	0.6	19.2	620	19.2	635
	6T		7 / 0.53	0.6	27.4	1293	27.4	1351
	16T		7 / 0.53	0.6	39.0	2667	39.0	2823
	24T		7 / 0.53	0.6	47.8	3698	47.8	3932
2T	2.5	7 / 0.67	0.7	22.6	915	22.6	936	
6T		7 / 0.67	0.7	31.4	1655	31.4	1737	
16T		7 / 0.67	0.7	45.7	3578	45.7	3797	
24T		7 / 0.67	0.7	56.9	5383	56.9	5711	

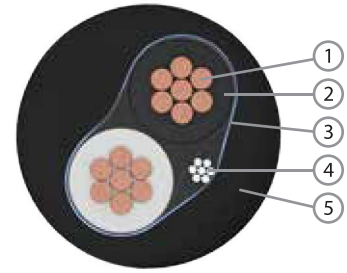
* Other pairs, triads and quads configurations are available upon request.
* Class 5 conductors are available upon request.

Table 16

FRT-XOL

CU / XLPE / OS / LSZH (PAIRS & TRIADS)

XLPE Insulated, Overall Aluminium Foil Screened, LSZH Sheathed Cable, 300/500V, BS EN50288-7



- Component**
1. Plain Annealed Copper Wire
 2. Cross-linked Polyethylene Compound
 3. Aluminium / Polyester Tape
 4. Tinned Copper Drain Wire
 5. Low Smoke Zero Halogen (LSZH) Compound

CONSTRUCTION

Conductor:	Plain Annealed Copper, Class 2 Stranded Circular
Insulation:	Cross-linked Polyethylene (XLPE) Compound
Insulation Colour:	Pair/s - Black/White with Black numberings Triad/s - Red/Black/White with Black numberings
Cores Twisted:	Cores twisted to form a pair, triad or quad
Lay Up:	Multi-pairs, triads or quads are assembled together in concentric layers to form the cable core
Wrap Film:	Polyester Binder Tape
Overall Screen:	Aluminium/Polyester Tape, with a Tinned Copper Drain Wire 0.5mm ² (7/0.3mm) (OS)
Outer Sheath:	Low Smoke Zero Halogen (LSZH) Compound
Outer Sheath Colour:	Black

ELECTRICAL CHARACTERISTICS

Operating Voltage, U ₀ /U:	300/500V
Operating Temperature:	-15°C to 90°C
Final Short Circuit Temperature:	250°C
Test Voltage:	2kV for 1 minute

REFERENCE STANDARDS

Design Specification:	BS EN50288-7
Conductor:	IEC60228, BS EN60228
Flame Retardancy:	IEC60332-3-22, BS EN60332-3-22
Low Smoke Zero Halogen:	IEC61034-2, BS EN61034-2 IEC60754-1, IEC60754-2 BS EN50267-2-1, BS EN50267-2-2

INSTALLATION REFERENCE

Min. Bending Radius (mm):	8 x cable overall diameter
Max. Pulling Tension (N/mm ²):	50

No. of Pairs	Nominal Conductor Area (mm ²)	No. and Diameter of Wires (no./mm)	Radial Thickness of Insulation (mm)	Cable Overall Diameter (mm)	Approximate Weight (kg/km)
1P	0.5	7 / 0.3	0.6	7.0	57
2P (Quad)		7 / 0.3	0.6	7.9	82
2P		7 / 0.3	0.6	10.4	94
3P		7 / 0.3	0.6	11.2	121
4P		7 / 0.3	0.6	12.3	145
5P		7 / 0.3	0.6	13.4	169
6P		7 / 0.3	0.6	14.7	202
8P		7 / 0.3	0.6	16.5	249
10P		7 / 0.3	0.6	18.8	308
12P		7 / 0.3	0.6	19.5	348
16P		7 / 0.3	0.6	21.6	434
20P		7 / 0.3	0.6	24.2	535
24P		7 / 0.3	0.6	27.1	640
36P		7 / 0.3	0.6	31.2	901

* Other pairs, triads and quads configurations are available upon request.
* Class 5 conductors are available upon request.

Table 17

FRT-XOL

CU / XLPE / OS / LSZH (PAIRS & TRIADS)

XLPE Insulated, Overall Aluminium Foil Screened, LSZH Sheathed Cable, 300 / 500V, BS EN50288-7



No. of Pairs	Nominal Conductor Area (mm ²)	No. and Diameter of Wires (no./mm)	Radial Thickness of Insulation (mm)	Cable Overall Diameter (mm)	Approximate Weight (kg/km)	
1P	0.75	7 / 0.37	0.6	7.4	65	
2P (Quad)		7 / 0.37	0.6	8.4	96	
2P		7 / 0.37	0.6	11.4	115	
3P		7 / 0.37	0.6	12.1	143	
4P		7 / 0.37	0.6	13.2	173	
5P		7 / 0.37	0.6	14.6	211	
6P		7 / 0.37	0.6	15.9	243	
8P		7 / 0.37	0.6	17.8	302	
10P		7 / 0.37	0.6	20.3	375	
12P		7 / 0.37	0.6	21.0	427	
16P		7 / 0.37	0.6	23.5	549	
20P		7 / 0.37	0.6	26.4	677	
24P		7 / 0.37	0.6	29.5	809	
36P		7 / 0.37	0.6	34.0	1144	
1P		1.0	7 / 0.43	0.6	7.8	73
2P (Quad)			7 / 0.43	0.6	8.9	110
2P	7 / 0.43		0.6	12.0	130	
3P	7 / 0.43		0.6	12.7	164	
4P	7 / 0.43		0.6	13.9	200	
5P	7 / 0.43		0.6	15.4	245	
6P	7 / 0.43		0.6	16.8	283	
8P	7 / 0.43		0.6	19.1	365	
10P	7 / 0.43		0.6	21.6	440	
12P	7 / 0.43		0.6	22.6	516	
16P	7 / 0.43		0.6	25.0	651	
20P	7 / 0.43		0.6	28.1	803	
24P	7 / 0.43		0.6	31.4	960	
36P	7 / 0.43		0.6	36.2	1368	
1P	1.5		7 / 0.53	0.6	8.4	87
2P (Quad)			7 / 0.53	0.6	9.6	135
2P		7 / 0.53	0.6	13.1	159	
3P		7 / 0.53	0.6	13.9	204	
4P		7 / 0.53	0.6	15.4	260	
5P		7 / 0.53	0.6	16.9	310	
6P		7 / 0.53	0.6	18.6	370	
8P		7 / 0.53	0.6	20.9	466	
10P		7 / 0.53	0.6	23.9	578	
12P		7 / 0.53	0.6	24.8	666	
16P		7 / 0.53	0.6	27.7	861	
20P		7 / 0.53	0.6	31.2	1064	
24P		7 / 0.53	0.6	34.8	1271	
36P		7 / 0.53	0.6	40.4	1843	
1P		2.5	7 / 0.67	0.7	9.6	116
2P (Quad)			7 / 0.67	0.7	11.3	193
2P	7 / 0.67		0.7	15.5	224	
3P	7 / 0.67		0.7	16.5	292	
4P	7 / 0.67		0.7	18.3	375	
5P	7 / 0.67		0.7	20.0	448	
6P	7 / 0.67		0.7	22.1	535	
8P	7 / 0.67		0.7	25.1	693	
10P	7 / 0.67		0.7	28.8	860	
12P	7 / 0.67		0.7	29.8	993	
16P	7 / 0.67		0.7	33.3	1286	
20P	7 / 0.67		0.7	37.5	1590	
24P	7 / 0.67		0.7	41.8	1898	
36P	7 / 0.67		0.7	48.5	2756	

SINGLE & MULTI-PAIRS

FRT-XOL

CU / XLPE / OS / LSZH (PAIRS & TRIADS)

XLPE Insulated, Overall Aluminium Foil Screened, LSZH Sheathed Cable, 300 / 500V, BS EN50288-7



No. of Triads	Nominal Conductor Area (mm ²)	No. and Diameter of Wires (no./mm)	Radial Thickness of Insulation (mm)	Cable Overall Diameter (mm)	Approximate Weight (kg/km)
1T	0.5	7 / 0.3	0.6	7.3	68
6T		7 / 0.3	0.6	16.7	275
16T		7 / 0.3	0.6	24.8	629
24T		7 / 0.3	0.6	31.1	927
1T	0.75	7 / 0.37	0.6	7.8	79
6T		7 / 0.37	0.6	17.9	334
16T		7 / 0.37	0.6	27.0	795
24T		7 / 0.37	0.6	33.9	1173
1T	1.0	7 / 0.43	0.6	8.2	90
6T		7 / 0.43	0.6	19.2	403
16T		7 / 0.43	0.6	28.7	946
24T		7 / 0.43	0.6	36.1	1398
1T	1.5	7 / 0.53	0.6	8.8	110
6T		7 / 0.53	0.6	21.1	516
16T		7 / 0.53	0.6	31.8	1254
24T		7 / 0.53	0.6	39.9	1854
1T	2.5	7 / 0.67	0.7	10.4	156
6T		7 / 0.67	0.7	25.2	767
16T		7 / 0.67	0.7	38.1	1873
24T		7 / 0.67	0.7	48.1	2794

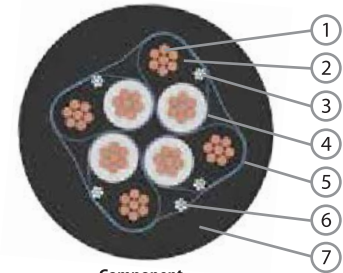
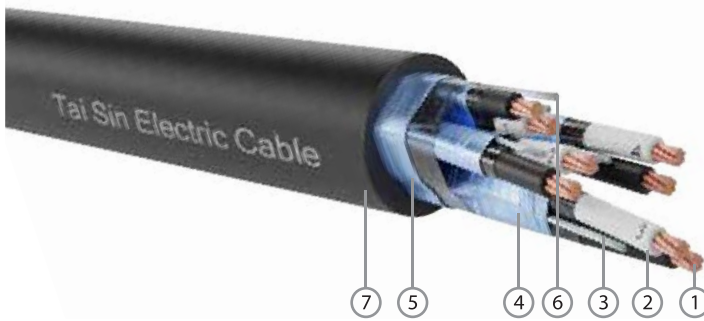
* Other pairs, triads and quads configurations are available upon request.
 * Class 5 conductors are available upon request.

Table 19

FRT-XIOL

CU / XLPE / IS / OS / LSZH (PAIRS & TRIADS)

XLPE Insulated, Individual Aluminium Foil Screened, Overall Aluminium Foil Screened, LSZH Sheathed Cable, 300 / 500V, BS EN50288-7



- Component**
1. Plain Annealed Copper Wire
 2. Cross-linked Polyethylene Compound
 3. Tinned Copper Drain Wire
 4. Aluminium / Polyester Tape (IS)
 5. Aluminium / Polyester Tape (OS)
 6. Tinned Copper Drain Wire
 7. Low Smoke Zero Halogen (LSZH) Compound

CONSTRUCTION

Conductor:	Plain Annealed Copper, Class 2 Stranded Circular
Insulation:	Cross-linked Polyethylene (XLPE) Compound
Insulation Colour:	Pair/s - Black/White with Black numberings Triad/s - Red/Black/White with Black numberings
Cores Twisted:	Cores twisted to form a pair, triad or quad
Wrap Film:	Polyester Binder Tape
Individual Screen:	Aluminium/Polyester Tape, with a Tinned Copper Drain Wire 0.5mm ² (7/0.3mm) (IS)
Lay Up:	Multi-pairs, triads or quads are assembled together in concentric layers to form the cable core
Wrap Film:	Polyester Binder Tape
Overall Screen:	Aluminium/Polyester Tape, with a Tinned Copper Drain Wire 0.5mm ² (7/0.3mm) (OS)
Outer Sheath:	Low Smoke Zero Halogen (LSZH) Compound
Outer Sheath Colour:	Black

ELECTRICAL CHARACTERISTICS

Operating Voltage, U ₀ /U:	300/500V
Operating Temperature:	-15°C to 90°C
Final Short Circuit Temperature:	250°C
Test Voltage:	2kV for 1 minute

REFERENCE STANDARDS

Design Specification:	BS EN50288-7
Conductor:	IEC60228, BS EN60228
Flame Retardancy:	IEC60332-3-22, BS EN60332-3-22
Low Smoke Zero Halogen:	IEC61034-2, BS EN61034-2 IEC60754-1, IEC60754-2 BS EN50267-2-1, BS EN50267-2-2

INSTALLATION REFERENCE

Min. Bending Radius (mm):	8 x cable overall diameter
Max. Pulling Tension (N/mm ²):	50

	No. of Pairs	Nominal Conductor Area (mm ²)	No. and Diameter of Wires (no./mm)	Radial Thickness of Insulation (mm)	Cable Overall Diameter (mm)	Approximate Weight (kg/km)
SINGLE & MULTI-PAIRS	2P	0.5	7 / 0.3	0.6	11.3	123
	3P		7 / 0.3	0.6	11.9	153
	4P		7 / 0.3	0.6	13.0	186
	5P		7 / 0.3	0.6	14.4	227
	6P		7 / 0.3	0.6	15.6	262
	8P		7 / 0.3	0.6	17.7	336
	10P		7 / 0.3	0.6	20.2	416
	12P		7 / 0.3	0.6	20.9	474
	16P		7 / 0.3	0.6	23.1	596
	20P		7 / 0.3	0.6	26.0	735
	24P		7 / 0.3	0.6	29.0	878
	36P		7 / 0.3	0.6	33.5	1263

* Other pairs, triads and quads configurations are available upon request.
* Class 5 conductors are available upon request.

Table 20

FRT-XIOL

CU / XLPE / IS / OS / LSZH (PAIRS & TRIADS)

XLPE Insulated, Individual Aluminium Foil Screened, Overall Aluminium Foil Screened, LSZH Sheathed Cable, 300 / 5 00V, BS EN50288-7



No. of Pairs	Nominal Conductor Area (mm ²)	No. and Diameter of Wires (no./mm)	Radial Thickness of Insulation (mm)	Cable Overall Diameter (mm)	Approximate Weight (kg/km)
2P	0.75	7 / 0.37	0.6	12.0	139
3P		7 / 0.37	0.6	12.7	176
4P		7 / 0.37	0.6	14.1	223
5P		7 / 0.37	0.6	15.4	264
6P		7 / 0.37	0.6	17.0	315
8P		7 / 0.37	0.6	19.0	394
10P		7 / 0.37	0.6	21.7	487
12P		7 / 0.37	0.6	22.4	558
16P		7 / 0.37	0.6	25.1	719
20P		7 / 0.37	0.6	28.2	886
24P		7 / 0.37	0.6	31.4	1058
36P		7 / 0.37	0.6	36.4	1525
2P		1.0	7 / 0.43	0.6	12.6
3P	7 / 0.43		0.6	13.6	206
4P	7 / 0.43		0.6	14.9	252
5P	7 / 0.43		0.6	16.2	299
6P	7 / 0.43		0.6	17.9	357
8P	7 / 0.43		0.6	20.3	460
10P	7 / 0.43		0.6	23.0	557
12P	7 / 0.43		0.6	24.0	652
16P	7 / 0.43		0.6	26.6	827
20P	7 / 0.43		0.6	29.9	1020
24P	7 / 0.43		0.6	33.5	1236
36P	7 / 0.43		0.6	38.6	1762
2P	1.5		7 / 0.53	0.6	13.9
3P		7 / 0.53	0.6	14.8	248
4P		7 / 0.53	0.6	16.2	307
5P		7 / 0.53	0.6	17.9	377
6P		7 / 0.53	0.6	19.5	438
8P		7 / 0.53	0.6	22.1	567
10P		7 / 0.53	0.6	25.3	702
12P		7 / 0.53	0.6	26.4	723
16P		7 / 0.53	0.6	29.3	1048
20P		7 / 0.53	0.6	33.1	1311
24P		7 / 0.53	0.6	36.9	1564
36P		7 / 0.53	0.6	42.7	2262
2P		2.5	7 / 0.67	0.7	16.3
3P	7 / 0.67		0.7	17.4	342
4P	7 / 0.67		0.7	19.0	427
5P	7 / 0.67		0.7	21.1	524
6P	7 / 0.67		0.7	23.2	623
8P	7 / 0.67		0.7	26.3	806
10P	7 / 0.67		0.7	30.1	999
12P	7 / 0.67		0.7	31.2	1154
16P	7 / 0.67		0.7	34.9	1496
20P	7 / 0.67		0.7	39.4	1867
24P	7 / 0.67		0.7	43.9	2226
36P	7 / 0.67		0.7	50.8	3225

* Other pairs, triads and quads configurations are available upon request.
* Class 5 conductors are available upon request.

Table 21

FRT-XIOL

CU / XLPE / IS / OS / LSZH (PAIRS & TRIADS)

XLPE Insulated, Individual Aluminium Foil Screened, Overall Aluminium Foil Screened, LSZH Sheathed Cable, 300 / 500V, BS EN50288-7



No. of Triads	Nominal Conductor Area (mm ²)	No. and Diameter of Wires (no./mm)	Radial Thickness of Insulation (mm)	Cable Overall Diameter (mm)	Approximate Weight (kg/km)
2T	0.5	7 / 0.3	0.6	11.6	123
6T		7 / 0.3	0.6	17.5	338
16T		7 / 0.3	0.6	26.0	778
24T		7 / 0.3	0.6	32.6	1146
2T	0.75	7 / 0.37	0.6	12.8	151
6T		7 / 0.37	0.6	18.8	400
16T		7 / 0.37	0.6	28.2	951
24T		7 / 0.37	0.6	35.3	1400
2T	1.0	7 / 0.43	0.6	13.5	174
6T		7 / 0.43	0.6	19.9	461
16T		7 / 0.43	0.6	29.9	1107
24T		7 / 0.43	0.6	37.7	1652
2T	1.5	7 / 0.53	0.6	14.6	215
6T		7 / 0.53	0.6	21.9	589
16T		7 / 0.53	0.6	33.2	1441
24T		7 / 0.53	0.6	41.6	2124
2T	2.5	7 / 0.67	0.7	17.3	303
6T		7 / 0.67	0.7	26.1	849
16T		7 / 0.67	0.7	39.5	2082
24T		7 / 0.67	0.7	49.7	3095

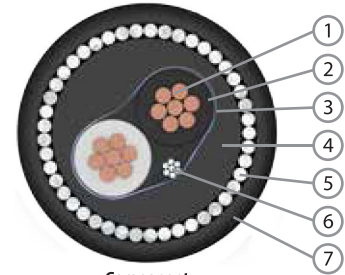
* Other pairs, triads and quads configurations are available upon request.
 * Class 5 conductors are available upon request.

Table 22

FRT-XOSL

CU / XLPE / OS / LSZH / SWA / LSZH (PAIRS & TRIADS)

XLPE Insulated, Overall Aluminium Foil Screened, LSZH Bedded, Galvanised Steel Wire Armoured, LSZH Sheathed Cable, 300 / 500V, BS EN50288-7



- Component**
1. Plain Annealed Copper Wire
 2. Cross-linked Polyethylene Compound
 3. Aluminium / Polyester Tape
 4. Low Smoke Zero Halogen (LSZH) Compound
 5. Galvanised Steel Wire Armoured
 6. Tinned Copper Drain Wire
 7. Low Smoke Zero Halogen (LSZH) Compound

CONSTRUCTION

Conductor:	Plain Annealed Copper, Class 2 Stranded Circular
Insulation:	Cross-linked Polyethylene (XLPE) Compound
Insulation Colour:	Pair/s - Black/White with Black numberings Triad/s - Red/Black/White with Black numberings
Cores Twisted:	Cores twisted to form a pair, triad or quad
Lay Up:	Multi-pairs, triads or quads are assembled together in concentric layers to form the cable core
Wrap Film:	Polyester Binder Tape
Overall Screen:	Aluminium/Polyester Tape, with a Tinned Copper Drain Wire 0.5mm ² (7/0.3mm) (OS)
Bedding:	Low Smoke Zero Halogen (LSZH) Compound
Bedding Colour:	Black
Armour:	Galvanized Steel Wire Armoured (SWA)

Outer Sheath: Low Smoke Zero Halogen (LSZH) Compound

Outer Sheath Colour: Black

ELECTRICAL CHARACTERISTICS

Operating Voltage, U ₀ /U:	300/500V
Operating Temperature:	-15°C to 90°C
Final Short Circuit Temperature:	250°C
Test Voltage:	2kV for 1 minute

REFERENCE STANDARDS

Design Specification:	BS EN50288-7
Conductor:	IEC60228, BS EN60228
Flame Retardancy:	IEC60332-3-22, BS EN60332-3-22
Low Smoke Zero Halogen:	IEC61034-2, BS EN61034-2 IEC60754-1, IEC60754-2 BS EN50267-2-1, BS EN50267-2-2

INSTALLATION REFERENCE

Min. Bending Radius (mm):	10 x cable overall diameter
Max. Pulling Tension (N/mm ²):	70

No. of Pairs	Nominal Conductor Area (mm ²)	No. and Diameter of Wires (no./mm)	Radial Thickness of Insulation (mm)	Diameter Under Armour (mm)	Armour Wire Diameter (mm)	Cable Overall Diameter (mm)	Approximate Weight (kg/km)
1P	0.5	7 / 0.3	0.6	7.2	0.9	11.9	268
2P (Quad)		7 / 0.3	0.6	8.1	0.9	12.7	312
2P		7 / 0.3	0.6	10.8	0.9	15.7	403
3P		7 / 0.3	0.6	11.4	0.9	16.3	440
4P		7 / 0.3	0.6	12.5	0.9	17.4	494
5P		7 / 0.3	0.6	13.6	0.9	18.5	547
6P		7 / 0.3	0.6	14.8	1.25	20.6	721
8P		7 / 0.3	0.6	16.6	1.25	22.4	823
10P		7 / 0.3	0.6	18.8	1.25	24.6	949
12P		7 / 0.3	0.6	19.4	1.25	25.4	1018
16P		7 / 0.3	0.6	21.6	1.25	27.6	1184
20P		7 / 0.3	0.6	24.1	1.25	30.3	1369
24P		7 / 0.3	0.6	26.8	1.25	33.0	1552
36P		7 / 0.3	0.6	30.8	1.25	37.2	1955

* Other pairs, triads and quads configurations are available upon request.
* Class 5 conductors are available upon request.

Table 23

FRT-XOSL

CU / XLPE / OS / LSZH / SWA / LSZH (PAIRS & TRIADS)

XLPE Insulated, Overall Aluminium Foil Screened, LSZH Bedded, Galvanised Steel Wire Armoured, LSZH Sheathed Cable, 300 / 500V, BS EN50288-7



No. of Pairs	Nominal Conductor Area (mm ²)	No. and Diameter of Wires (no./mm)	Radial Thickness of Insulation (mm)	Diameter Under Armour (mm)	Armour Wire Diameter (mm)	Cable Overall Diameter (mm)	Approximate Weight (kg/km)	
1P	0.75	7 / 0.37	0.6	7.6	0.9	12.3	284	
2P (Quad)		7 / 0.37	0.6	8.6	0.9	13.2	340	
2P		7 / 0.37	0.6	11.5	0.9	16.4	439	
3P		7 / 0.37	0.6	12.2	0.9	17.1	483	
4P		7 / 0.37	0.6	13.4	0.9	18.3	544	
5P		7 / 0.37	0.6	14.6	1.25	20.4	719	
6P		7 / 0.37	0.6	15.9	1.25	21.7	791	
8P		7 / 0.37	0.6	17.9	1.25	23.7	916	
10P		7 / 0.37	0.6	20.3	1.25	26.3	1080	
12P		7 / 0.37	0.6	21.0	1.25	27.0	1149	
16P		7 / 0.37	0.6	23.3	1.25	29.3	1339	
20P		7 / 0.37	0.6	26.1	1.25	32.3	1562	
24P		7 / 0.37	0.6	29.0	1.25	35.4	1790	
36P		7 / 0.37	0.6	33.4	1.6	40.7	2517	
<hr/>								
1P		1.0	7 / 0.43	0.6	8.0	0.9	12.7	300
2P (Quad)	7 / 0.43		0.6	9.1	0.9	13.9	370	
2P	7 / 0.43		0.6	12.2	0.9	17.1	470	
3P	7 / 0.43		0.6	12.9	0.9	17.8	525	
4P	7 / 0.43		0.6	14.1	1.25	19.9	701	
5P	7 / 0.43		0.6	15.5	1.25	21.3	779	
6P	7 / 0.43		0.6	16.9	1.25	22.7	868	
8P	7 / 0.43		0.6	19.0	1.25	25.0	1020	
10P	7 / 0.43		0.6	21.6	1.25	27.6	1185	
12P	7 / 0.43		0.6	22.3	1.25	28.3	1276	
16P	7 / 0.43		0.6	24.8	1.25	31.0	1508	
20P	7 / 0.43		0.6	27.8	1.25	34.0	1741	
24P	7 / 0.43		0.6	30.9	1.25	37.3	2006	
36P	7 / 0.43		0.6	35.6	1.6	42.9	2822	
<hr/>								
1P	1.5		7 / 0.53	0.6	8.6	0.9	13.3	334
2P (Quad)		7 / 0.53	0.6	9.8	0.9	14.6	416	
2P		7 / 0.53	0.6	13.2	0.9	18.1	526	
3P		7 / 0.53	0.6	14.1	1.25	19.9	704	
4P		7 / 0.53	0.6	15.4	1.25	21.2	793	
5P		7 / 0.53	0.6	16.9	1.25	22.7	894	
6P		7 / 0.53	0.6	18.5	1.25	24.5	1009	
8P		7 / 0.53	0.6	20.8	1.25	26.8	1184	
10P		7 / 0.53	0.6	23.7	1.25	29.9	1392	
12P		7 / 0.53	0.6	24.5	1.25	30.7	1507	
16P		7 / 0.53	0.6	27.3	1.25	33.5	1783	
20P		7 / 0.53	0.6	30.6	1.25	37.0	2095	
24P		7 / 0.53	0.6	34.1	1.6	41.4	2656	
36P		7 / 0.53	0.6	39.8	1.6	47.3	3498	
<hr/>								
1P		2.5	7 / 0.67	0.7	9.8	0.9	14.7	399
2P (Quad)	7 / 0.67		0.7	11.3	0.9	16.1	504	
2P	7 / 0.67		0.7	15.4	1.25	21.2	754	
3P	7 / 0.67		0.7	16.5	1.25	22.3	862	
4P	7 / 0.67		0.7	18.1	1.25	24.1	999	
5P	7 / 0.67		0.7	19.9	1.25	25.9	1138	
6P	7 / 0.67		0.7	21.8	1.25	27.8	1267	
8P	7 / 0.67		0.7	24.6	1.25	30.8	1519	
10P	7 / 0.67		0.7	28.1	1.25	34.5	1804	
12P	7 / 0.67		0.7	29.1	1.25	35.5	1976	
16P	7 / 0.67		0.7	32.5	1.6	39.8	2605	
20P	7 / 0.67		0.7	36.9	1.6	44.4	3130	
24P	7 / 0.67		0.7	41.2	1.6	48.9	3611	
36P	7 / 0.67		0.7	47.5	2.0	56.2	5095	

SINGLE & MULTI-PAIRS

FRT-XOSL

CU / XLPE / OS / LSZH / SWA / LSZH (PAIRS & TRIADS)

XLPE Insulated, Overall Aluminium Foil Screened, LSZH Bedded, Galvanised Steel Wire Armoured, LSZH Sheathed Cable, 300 / 500V, BS EN50288-7



No. of Triads	Nominal Conductor Area (mm ²)	No. and Diameter of Wires (no./mm)	Radial Thickness of Insulation (mm)	Diameter Under Armour (mm)	Armour Wire Diameter (mm)	Cable Overall Diameter (mm)	Approximate Weight (kg/km)
1T	0.5	7 / 0.3	0.6	7.5	0.9	12.2	284
6T		7 / 0.3	0.6	16.5	1.25	22.3	840
16T		7 / 0.3	0.6	24.2	1.25	30.4	1446
24T		7 / 0.3	0.6	30.1	1.25	36.5	1924
1T	0.75	7 / 0.37	0.6	8.0	0.9	12.7	304
6T		7 / 0.37	0.6	17.7	1.25	23.5	938
16T		7 / 0.37	0.6	26.2	1.25	32.4	1663
24T		7 / 0.37	0.6	32.7	1.6	39.8	2469
1T	1.0	7 / 0.43	0.6	8.4	0.9	13.1	328
6T		7 / 0.43	0.6	18.8	1.25	24.8	1048
16T		7 / 0.43	0.6	27.9	1.25	34.1	1875
24T		7 / 0.43	0.6	34.9	1.6	42.2	2795
1T	1.5	7 / 0.53	0.6	9.0	0.9	13.9	370
6T		7 / 0.53	0.6	20.7	1.25	26.7	1225
16T		7 / 0.53	0.6	30.8	1.25	37.2	2275
24T		7 / 0.53	0.6	38.9	1.6	46.4	3453
1T	2.5	7 / 0.67	0.7	10.4	0.9	15.3	448
6T		7 / 0.67	0.7	24.4	1.25	30.6	1583
16T		7 / 0.67	0.7	37.1	1.6	44.6	3392
24T		7 / 0.67	0.7	46.5	2.0	55.2	5056

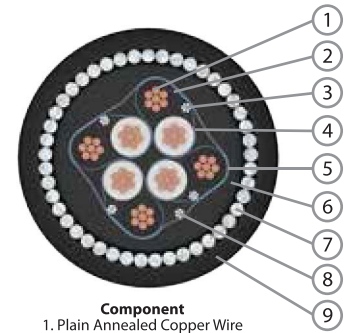
* Other pairs, triads and quads configurations are available upon request.
 * Class 5 conductors are available upon request.

Table 25

FRT-XIOSL

CU / XLPE / IS / OS / LSZH / SWA / LSZH (PAIRS & TRIADS)

XLPE Insulated, Individual Aluminium Foil Screened, Overall Aluminium Foil Screened, LSZH Bedded, Galvanised Steel Wire Armoured, LSZH Sheathed Cable, 300 / 500V, BS EN50288-7



- Component**
1. Plain Annealed Copper Wire
 2. Cross-linked Polyethylene Compound
 3. Tinned Copper Drain Wire
 4. Aluminium / Polyester Tape (IS)
 5. Aluminium / Polyester (OS)
 6. Low Smoke Zero Halogen (LSZH) Compound
 7. Galvanised Steel Wire Armoured
 8. Tinned Copper Drain Wire
 9. Low Smoke Zero Halogen (LSZH) Compound

CONSTRUCTION

Conductor:	Plain Annealed Copper, Class 2 Stranded Circular
Insulation:	Cross-linked Polyethylene (XLPE) Compound
Insulation Colour:	Pair/s - Black/White with Black numberings Triad/s - Red/Black/White with Black numberings
Cores Twisted:	Cores twisted to form a pair, triad or quad
Wrap Film:	Polyester Binder Tape
Individual Screen:	Aluminium/Polyester Tape, with a Tinned Copper Drain Wire 0.5mm ² (7/0.3mm) (IS)
Lay Up:	Multi-pairs, triads or quads are assembled together in concentric layers to form the cable core
Wrap Film:	Polyester Binder Tape
Overall Screen:	Aluminium/Polyester Tape, with a Tinned Copper Drain Wire 0.5mm ² (7/0.3mm) (OS)
Bedding:	Low Smoke Zero Halogen (LSZH) Compound
Bedding Colour:	Black

Armour:	Galvanized Steel Wire Armoured (SWA)
Outer Sheath:	Low Smoke Zero Halogen (LSZH) Compound
Outer Sheath Colour:	Black

ELECTRICAL CHARACTERISTICS

Operating Voltage, U ₀ /U:	300/500V
Operating Temperature:	-15°C to 90°C
Final Short Circuit Temperature:	250°C
Test Voltage:	2kV for 1 minute

REFERENCE STANDARDS

Design Specification:	BS EN50288-7
Conductor:	IEC60228, BS EN60228
Flame Retardancy:	IEC60332-3-22, BS EN60332-3-22
Low Smoke Zero Halogen:	IEC61034-2, BS EN61034-2 IEC60754-1, IEC60754-2 BS EN50267-2-1, BS EN50267-2-2

INSTALLATION REFERENCE

Min. Bending Radius (mm):	10 x cable overall diameter
Max. Pulling Tension (N/mm ²):	70

No. of Pairs	Nominal Conductor Area (mm ²)	No. and Diameter of Wires (no./mm)	Radial Thickness of Insulation (mm)	Diameter Under Armour (mm)	Armour Wire Diameter (mm)	Cable Overall Diameter (mm)	Approximate Weight (kg/km)
2P	0.5	7 / 0.3	0.6	11.2	0.9	16.1	433
3P		7 / 0.3	0.6	11.8	0.9	16.7	478
4P		7 / 0.3	0.6	12.9	0.9	17.8	539
5P		7 / 0.3	0.6	14.1	1.25	19.9	711
6P		7 / 0.3	0.6	15.3	1.25	21.1	783
8P		7 / 0.3	0.6	17.2	1.25	23.2	923
10P		7 / 0.3	0.6	19.5	1.25	25.5	1066
12P		7 / 0.3	0.6	20.2	1.25	26.2	1139
16P		7 / 0.3	0.6	22.4	1.25	28.6	1349
20P		7 / 0.3	0.6	25.1	1.25	31.3	1562
24P		7 / 0.3	0.6	27.9	1.25	34.3	1794
36P		7 / 0.3	0.6	32.0	1.6	39.3	2507

* Other pairs, triads and quads configurations are available upon request.
* Class 5 conductors are available upon request.

Table 26

FRT-XIOSL

CU / XLPE / IS / OS / LSZH / SWA / LSZH (PAIRS & TRIADS)

XLPE Insulated, Individual Aluminium Foil Screened, Overall Aluminium Foil Screened, LSZH Bedded, Galvanised Steel Wire Armoured, LSZH Sheathed Cable, 300 / 500V, BS EN50288-7



No. of Pairs	Nominal Conductor Area (mm ²)	No. and Diameter of Wires (no./mm)	Radial Thickness of Insulation (mm)	Diameter Under Armour (mm)	Armour Wire Diameter (mm)	Cable Overall Diameter (mm)	Approximate Weight (kg/km)	
2P	0.75	7 / 0.37	0.6	11.9	0.9	16.8	465	
3P		7 / 0.37	0.6	12.6	0.9	17.5	517	
4P		7 / 0.37	0.6	13.8	0.9	18.9	600	
5P		7 / 0.37	0.6	15.1	1.25	20.9	774	
6P		7 / 0.37	0.6	16.5	1.25	22.3	865	
8P		7 / 0.37	0.6	18.5	1.25	24.5	1018	
10P		7 / 0.37	0.6	21.0	1.25	27.0	1177	
12P		7 / 0.37	0.6	21.7	1.25	27.9	1286	
16P		7 / 0.37	0.6	24.2	1.25	30.4	1511	
20P		7 / 0.37	0.6	27.1	1.25	33.5	1778	
24P		7 / 0.37	0.6	30.1	1.25	36.5	2021	
36P		7 / 0.37	0.6	35.1	1.6	42.6	2924	
<hr/>								
2P		1.0	7 / 0.43	0.6	12.5	0.9	17.4	495
3P	7 / 0.43		0.6	13.3	0.9	18.2	559	
4P	7 / 0.43		0.6	14.6	1.25	20.4	749	
5P	7 / 0.43		0.6	15.9	1.25	21.7	834	
6P	7 / 0.43		0.6	17.4	1.25	23.4	945	
8P	7 / 0.43		0.6	19.6	1.25	25.6	1111	
10P	7 / 0.43		0.6	22.3	1.25	28.5	1309	
12P	7 / 0.43		0.6	23.1	1.25	29.3	1417	
16P	7 / 0.43		0.6	25.7	1.25	31.9	1667	
20P	7 / 0.43		0.6	28.8	1.25	35.2	1962	
24P	7 / 0.43		0.6	32.0	1.6	39.3	2480	
36P	7 / 0.43		0.6	37.3	1.6	44.8	3256	
<hr/>								
2P	1.5		7 / 0.53	0.6	13.6	0.9	18.7	563
3P		7 / 0.53	0.6	14.5	1.25	20.3	744	
4P		7 / 0.53	0.6	15.9	1.25	21.7	843	
5P		7 / 0.53	0.6	17.4	1.25	23.4	965	
6P		7 / 0.53	0.6	19.0	1.25	25.0	1076	
8P		7 / 0.53	0.6	21.4	1.25	27.6	1283	
10P		7 / 0.53	0.6	24.4	1.25	30.6	1505	
12P		7 / 0.53	0.6	25.3	1.25	31.5	1638	
16P		7 / 0.53	0.6	28.2	1.25	34.6	1976	
20P		7 / 0.53	0.6	31.6	1.6	38.9	2553	
24P		7 / 0.53	0.6	35.6	1.6	43.1	2982	
36P		7 / 0.53	0.6	41.0	1.6	48.7	3875	
<hr/>								
2P		2.5	7 / 0.67	0.7	15.8	1.25	21.6	787
3P	7 / 0.67		0.7	16.9	1.25	22.9	917	
4P	7 / 0.67		0.7	18.5	1.25	24.5	1051	
5P	7 / 0.67		0.7	20.4	1.25	26.4	1200	
6P	7 / 0.67		0.7	22.3	1.25	28.5	1364	
8P	7 / 0.67		0.7	25.2	1.25	31.6	1637	
10P	7 / 0.67		0.7	28.8	1.25	35.2	1925	
12P	7 / 0.67		0.7	29.9	1.25	36.5	2136	
16P	7 / 0.67		0.7	33.8	1.6	41.3	2871	
20P	7 / 0.67		0.7	37.9	1.6	45.6	3384	
24P	7 / 0.67		0.7	42.2	2.0	50.9	4252	
36P	7 / 0.67		0.7	49.1	2.0	58.2	5632	

* Other pairs, triads and quads configurations are available upon request.
 * Class 5 conductors are available upon request.

Table 27

FRT-XIOSL

CU / XLPE / IS / OS / LSZH / SWA / LSZH (PAIRS & TRIADS)

XLPE Insulated, Individual Aluminium Foil Screened, Overall Aluminium Foil Screened, LSZH Bedded, Galvanised Steel Wire Armoured, LSZH Sheathed Cable, 300 / 500V, BS EN50288-7



No. of Triads	Nominal Conductor Area (mm ²)	No. and Diameter of Wires (no./mm)	Radial Thickness of Insulation (mm)	Diameter Under Armour (mm)	Armour Wire Diameter (mm)	Cable Overall Diameter (mm)	Approximate Weight (kg/km)
2T	0.5	7 / 0.3	0.6	11.6	0.9	16.4	463
6T		7 / 0.3	0.6	17.0	1.25	22.8	900
16T		7 / 0.3	0.6	25.1	1.25	31.3	1605
24T		7 / 0.3	0.6	31.8	1.25	37.9	2165
2T	0.75	7 / 0.37	0.6	12.6	0.9	17.6	524
6T		7 / 0.37	0.6	18.3	1.25	24.3	1014
16T		7 / 0.37	0.6	27.1	1.25	33.5	1843
24T		7 / 0.37	0.6	34.2	1.6	41.7	2795
2T	1.0	7 / 0.43	0.6	13.3	0.9	18.3	562
6T		7 / 0.43	0.6	19.4	1.25	25.4	1112
16T		7 / 0.43	0.6	22.8	1.25	35.2	2094
24T		7 / 0.43	0.6	36.4	1.6	43.9	3108
2T	1.5	7 / 0.53	0.6	14.4	0.9	19.4	634
6T		7 / 0.53	0.6	21.2	1.25	27.4	1304
16T		7 / 0.53	0.6	31.7	1.6	39.0	2684
24T		7 / 0.53	0.6	40.1	1.6	47.8	3721
2T	2.5	7 / 0.67	0.7	16.9	1.25	22.8	932
6T		7 / 0.67	0.7	25.0	1.25	31.4	1668
16T		7 / 0.67	0.7	38.0	1.6	45.7	3601
24T		7 / 0.67	0.7	48.0	2.0	56.9	5414

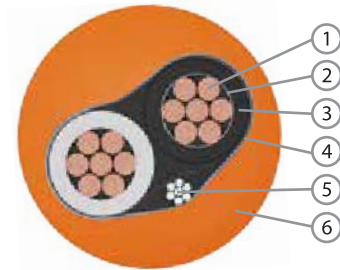
* Other pairs, triads and quads configurations are available upon request.
 * Class 5 conductors are available upon request.

Table 28

FR-XOL

CU / MGT / XLPE / OS / LSZH (PAIRS & TRIADS)

Mica Taped, XLPE Insulated, Overall Aluminium Foil Screened, LSZH Sheathed Cable, 300 / 500V, BS EN50288-7



- Component**
1. Plain Annealed Copper Wire
 2. Mica Tape
 3. Cross-linked Polyethylene Compound
 4. Aluminium / Polyester Tape
 5. Tinned Copper Drain Wire
 6. Low Smoke Zero Halogen (LSZH) Compound

CONSTRUCTION

Conductor:	Plain Annealed Copper, Class 2 Stranded Circular
Fire Barrier:	Mica Tape (MGT)
Insulation:	Cross-linked Polyethylene (XLPE) Compound
Insulation Colour:	Pair/s - Black/White with Black numberings Triad/s - Red/Black/White with Black numberings
Cores Twisted:	Cores twisted to form a pair, triad or quad
Lay Up:	Multi-pairs, triads or quads are assembled together in concentric layers to form the cable core
Wrap Film:	Polyester Binder Tape
Overall Screen:	Aluminium/Polyester Tape, with a Tinned Copper Drain Wire 0.5mm ² (7/0.3mm) (OS)
Outer Sheath:	Low Smoke Zero Halogen (LSZH) Compound
Outer Sheath Colour:	Orange or Blue

ELECTRICAL CHARACTERISTICS

Operating Voltage, U ₀ /U:	300/500V
Operating Temperature:	-15°C to 90°C
Final Short Circuit Temperature:	250°C
Test Voltage:	2kV for 1 minute

REFERENCE STANDARDS

Design Specification:	BS EN50288-7
Conductor:	IEC60228, BS EN60228
Fire Resistance:	BS6387 (C, W, Z), SS299 (C, W, Z), IEC60331
Flame Retardancy:	IEC60332-3-22, BS EN60332-3-22
Low Smoke Zero Halogen:	IEC61034-2, BS EN61034-2 IEC60754-1, IEC60754-2 BS EN50267-2-1, BS EN50267-2-2

INSTALLATION REFERENCE

Min. Bending Radius (mm):	8 x cable overall diameter
Max. Pulling Tension (N/mm ²):	50

No. of Pairs	Nominal Conductor Area (mm ²)	No. and Diameter of Wires (no./mm)	Radial Thickness of Insulation (mm)	Cable Overall Diameter (mm)	Approximate Weight (kg/km)
1P	0.75	7 / 0.37	0.6	9.6	89
2P (Quad)		7 / 0.37	0.6	11.0	142
2P		7 / 0.37	0.6	15.3	165
3P		7 / 0.37	0.6	16.3	206
4P		7 / 0.37	0.6	18.1	261
5P		7 / 0.37	0.6	19.9	308
6P		7 / 0.37	0.6	21.8	356
8P		7 / 0.37	0.6	24.8	458
10P		7 / 0.37	0.6	28.4	567
12P		7 / 0.37	0.6	29.4	645
16P		7 / 0.37	0.6	32.9	828
20P		7 / 0.37	0.6	36.8	1000
24P		7 / 0.37	0.6	41.2	1196
36P		7 / 0.37	0.6	47.8	1720

* Other pairs, triads and quads configurations are available upon request.
* Class 5 conductors are available upon request.

Table 29

FR-XOL

CU / MGT / XLPE / OS / LSZH (PAIRS & TRIADS)

Mica Taped, XLPE Insulated, Overall Aluminium Foil Screened, LSZH Sheathed Cable,
300 / 500V, BS EN50288-7



No. of Pairs	Nominal Conductor Area (mm ²)	No. and Diameter of Wires (no./mm)	Radial Thickness of Insulation (mm)	Cable Overall Diameter (mm)	Approximate Weight (kg/km)		
1P	1.0	7 / 0.43	0.6	10.0	98		
2P (Quad)		7 / 0.43	0.6	11.5	158		
2P		7 / 0.43	0.6	16.0	182		
3P		7 / 0.43	0.6	17.0	230		
4P		7 / 0.43	0.6	18.9	292		
5P		7 / 0.43	0.6	20.8	346		
6P		7 / 0.43	0.6	22.7	400		
8P		7 / 0.43	0.6	25.9	516		
10P		7 / 0.43	0.6	29.7	640		
12P		7 / 0.43	0.6	20.7	731		
16P		7 / 0.43	0.6	34.4	941		
20P		7 / 0.43	0.6	38.8	1161		
24P		7 / 0.43	0.6	43.3	1386		
36P		7 / 0.43	0.6	50.1	1970		
<hr/>							
SINGLE & MULTI-PAIRS		1.5	7 / 0.53	0.6	10.6	113	
	2P (Quad)		7 / 0.53	0.6	12.4	195	
	2P		7 / 0.53	0.6	17.0	213	
	3P		7 / 0.53	0.6	18.4	283	
	4P		7 / 0.53	0.6	20.2	349	
	5P		7 / 0.53	0.6	22.4	428	
	6P		7 / 0.53	0.6	24.5	496	
	8P		7 / 0.53	0.6	27.9	641	
	10P		7 / 0.53	0.6	32.0	794	
	12P		7 / 0.53	0.6	33.1	911	
	16P		7 / 0.53	0.6	37.1	1176	
	20P		7 / 0.53	0.6	41.8	1450	
	24P		7 / 0.53	0.6	46.7	1731	
	36P		7 / 0.53	0.6	54.2	2500	
	<hr/>						
	SINGLE & MULTI-PAIRS		2.5	7 / 0.67	0.7	12.0	150
2P (Quad)		7 / 0.67		0.7	13.9	253	
2P		7 / 0.67		0.7	19.4	284	
3P		7 / 0.67		0.7	21.0	383	
4P		7 / 0.67		0.7	23.1	475	
5P		7 / 0.67		0.7	25.6	583	
6P		7 / 0.67		0.7	28.0	679	
8P		7 / 0.67		0.7	31.9	873	
10P		7 / 0.67		0.7	36.6	1090	
12P		7 / 0.67		0.7	38.1	1277	
16P		7 / 0.67		0.7	42.7	1650	
20P		7 / 0.67		0.7	48.1	2036	
24P		7 / 0.67		0.7	53.7	2428	
36P		7 / 0.67		0.7	62.3	3513	

* Other pairs, triads and quads configurations are available upon request.
* Class 5 conductors are available upon request.

Table 30

FR-XOL

CU / MGT / XLPE / OS / LSZH (PAIRS & TRIADS)

Mica Taped, XLPE Insulated, Overall Aluminium Foil Screened, LSZH Sheathed Cable,
300 / 500V, BS EN50288-7



No. of Triads	Nominal Conductor Area (mm ²)	No. and Diameter of Wires (no./mm)	Radial Thickness of Insulation (mm)	Cable Overall Diameter (mm)	Approximate Weight (kg/km)
1T	0.75	7 / 0.37	0.6	10.1	109
6T		7 / 0.37	0.6	24.6	488
16T		7 / 0.37	0.6	37.2	1152
24T		7 / 0.37	0.6	46.8	1695
1T	1.0	7 / 0.43	0.6	10.5	121
6T		7 / 0.43	0.6	25.7	552
16T		7 / 0.43	0.6	38.9	1318
24T		7 / 0.43	0.6	49.0	1943
1T	1.5	7 / 0.53	0.6	11.2	143
6T		7 / 0.53	0.6	27.7	689
16T		7 / 0.53	0.6	42.0	1656
24T		7 / 0.53	0.6	52.9	2443
1T	2.5	7 / 0.67	0.7	12.7	193
6T		7 / 0.67	0.7	31.7	951
16T		7 / 0.67	0.7	48.3	2336
24T		7 / 0.67	0.7	61.0	3478

SINGLE & MULTI-TRIADS

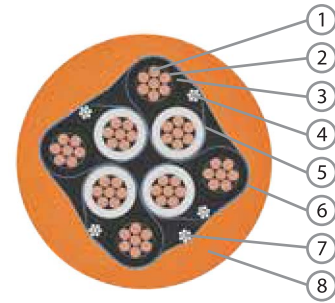
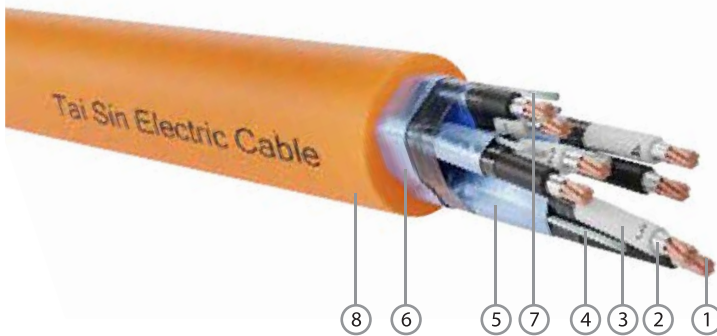
* Other pairs, triads and quads configurations are available upon request.
* Class 5 conductors are available upon request.

Table 31

FR-XIOL

CU / MGT / XLPE / IS / OS / LSZH (PAIRS & TRIADS)

Mica Taped, XLPE Insulated, Individual Aluminium Foil Screened, Overall Aluminium Foil Screened, LSZH Sheathed Cable, 300 / 500V, BS EN50288-7



- Component**
1. Plain Annealed Copper Wire
 2. Mica Tape
 3. Cross-linked Polyethylene Compound
 4. Tinned Copper Drain Wire
 5. Aluminium / Polyester Tape (IS)
 6. Aluminium / Polyester Tape (OS)
 7. Tinned Copper Drain Wire
 8. Low Smoke Zero Halogen (LSZH) Compound

CONSTRUCTION

Conductor:	Plain Annealed Copper, Class 2 Stranded Circular
Fire Barrier:	Mica Tape (MGT)
Insulation:	Cross-linked Polyethylene (XLPE) Compound
Insulation Colour:	Pair/s - Black/White with Black numberings Triad/s - Red/Black/White with Black numberings
Cores Twisted:	Cores twisted to form a pair, triad or quad
Wrap Film:	Polyester Binder Tape
Individual Screen:	Aluminium/Polyester Tape, with a Tinned Copper Drain Wire 0.5mm ² (7/0.3mm) (IS)
Lay Up:	Multi-pairs, triads or quads are assembled together in concentric layers to form the cable core
Wrap Film:	Polyester Binder Tape
Overall Screen:	Aluminium/Polyester Tape, with a Tinned Copper Drain Wire 0.5mm ² (7/0.3mm) (OS)
Outer Sheath:	Low Smoke Zero Halogen (LSZH) Compound
Outer Sheath Colour:	Orange or Blue

ELECTRICAL CHARACTERISTICS

Operating Voltage, U ₀ /U:	300/500V
Operating Temperature:	-15°C to 90°C
Final Short Circuit Temperature:	250°C
Test Voltage:	2kV for 1 minute

REFERENCE STANDARDS

Design Specification:	BS EN50288-7
Conductor:	IEC60228, BS EN60228
Fire Resistance:	BS6387 (C, W, Z), SS299 (C, W, Z), IEC60331
Flame Retardancy:	IEC60332-3-22, BS EN60332-3-22
Low Smoke Zero Halogen:	IEC61034-2, BS EN61034-2 IEC60754-1, IEC60754-2 BS EN50267-2-1, BS EN50267-2-2

INSTALLATION REFERENCE

Min. Bending Radius (mm):	8 x cable overall diameter
Max. Pulling Tension (N/mm ²):	50

No. of Pairs	Nominal Conductor Area (mm ²)	No. and Diameter of Wires (no./mm)	Radial Thickness of Insulation (mm)	Cable Overall Diameter (mm)	Approximate Weight (kg/km)
2P	0.75	7 / 0.37	0.6	15.7	183
3P		7 / 0.37	0.6	16.9	241
4P		7 / 0.37	0.6	18.6	295
5P		7 / 0.37	0.6	20.4	350
6P		7 / 0.37	0.6	22.5	417
8P		7 / 0.37	0.6	25.6	536
10P		7 / 0.37	0.6	29.3	663
12P		7 / 0.37	0.6	30.3	757
16P		7 / 0.37	0.6	34.0	974
20P		7 / 0.37	0.6	38.2	1200
24P		7 / 0.37	0.6	42.7	1431
36P		7 / 0.37	0.6	49.3	2032

* Other pairs, triads and quads configurations are available upon request.
* Class 5 conductors are available upon request.

Table 32

FR-XIOL

CU / MGT / XLPE / IS / OS / LSZH (PAIRS & TRIADS)

Mica Taped, XLPE Insulated, Individual Aluminium Foil Screened, Overall Aluminium Foil Screened, LSZH Sheathed Cable, 300 / 500V, BS EN50288-7



No. of Pairs	Nominal Conductor Area (mm ²)	No. and Diameter of Wires (no./mm)	Radial Thickness of Insulation (mm)	Cable Overall Diameter (mm)	Approximate Weight (kg/km)
2P	1.0	7 / 0.43	0.6	16.5	208
3P		7 / 0.43	0.6	17.6	265
4P		7 / 0.43	0.6	19.4	326
5P		7 / 0.43	0.6	21.4	399
6P		7 / 0.43	0.6	23.5	463
8P		7 / 0.43	0.6	26.7	597
10P		7 / 0.43	0.6	30.6	739
12P		7 / 0.43	0.6	31.7	847
16P		7 / 0.43	0.6	35.5	1091
20P		7 / 0.43	0.6	39.9	1345
24P		7 / 0.43	0.6	44.6	1606
36P		7 / 0.43	0.6	51.7	2315
SINGLE & MULTI-PAIRS		1.5	7 / 0.53	0.6	17.6
	7 / 0.53		0.6	18.8	310
	7 / 0.53		0.6	20.9	396
	7 / 0.53		0.6	22.9	472
	7 / 0.53		0.6	25.3	562
	7 / 0.53		0.6	28.7	725
	7 / 0.53		0.6	32.9	898
	7 / 0.53		0.6	34.1	1032
	7 / 0.53		0.6	38.2	1332
	7 / 0.53		0.6	43.0	1643
	7 / 0.53		0.6	48.0	1960
	7 / 0.53		0.6	55.7	2833
	SINGLE & MULTI-PAIRS		2.5	7 / 0.67	0.7
7 / 0.67		0.7		21.3	411
7 / 0.67		0.7		23.7	525
7 / 0.67		0.7		26.1	630
7 / 0.67		0.7		28.8	750
7 / 0.67		0.7		32.7	970
7 / 0.67		0.7		37.5	1201
7 / 0.67		0.7		39.1	1407
7 / 0.67		0.7		43.8	1819
7 / 0.67		0.7		49.2	2242
7 / 0.67		0.7		55.2	2703
7 / 0.67		0.7		64.0	3903

* Other pairs, triads and quads configurations are available upon request.
 * Class 5 conductors are available upon request.

Table 33

FR-XIOL

CU / MGT / XLPE / IS / OS / LSZH (PAIRS & TRIADS)

Mica Taped, XLPE Insulated, Individual Aluminium Foil Screened, Overall Aluminium Foil Screened, LSZH Sheathed Cable, 300 / 500V, BS EN50288-7



	No. of Triads	Nominal Conductor Area (mm ²)	No. and Diameter of Wires (no./mm)	Radial Thickness of Insulation (mm)	Cable Overall Diameter (mm)	Approximate Weight (kg/km)
SINGLE & MULTI-TRIADS	2T	0.75	7 / 0.37	0.6	17.1	209
	6T		7 / 0.37	0.6	25.3	561
	16T		7 / 0.37	0.6	38.3	1329
	24T		7 / 0.37	0.6	48.2	1956
	2T	1.0	7 / 0.43	0.6	17.6	231
	6T		7 / 0.43	0.6	26.4	627
	16T		7 / 0.43	0.6	40.0	1500
	24T		7 / 0.43	0.6	50.4	2211
	2T	1.5	7 / 0.53	0.6	18.8	275
	6T		7 / 0.53	0.6	28.5	768
	16T		7 / 0.53	0.6	43.1	1846
	24T		7 / 0.53	0.6	54.4	2750
	2T	2.5	7 / 0.67	0.7	21.8	374
	6T		7 / 0.67	0.7	32.4	1037
	16T		7 / 0.67	0.7	49.4	2544
	24T		7 / 0.67	0.7	62.6	3815

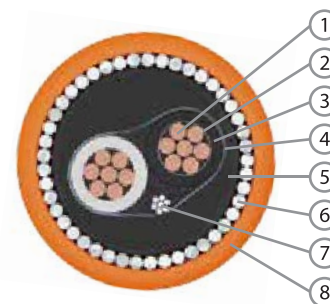
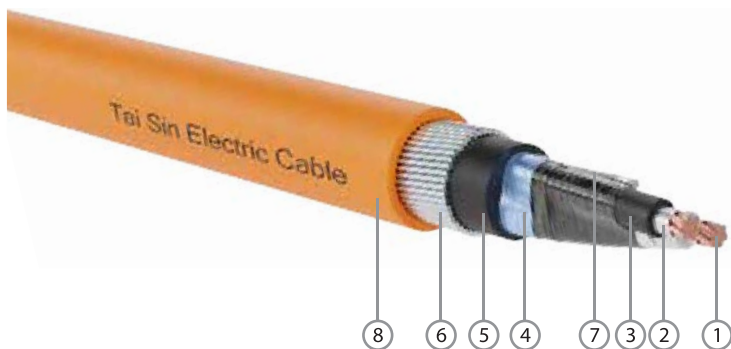
* Other pairs, triads and quads configurations are available upon request.
 * Class 5 conductors are available upon request.

Table 34

FR-XOSL

CU / MGT / XLPE / OS / LSZH / SWA / LSZH (PAIRS & TRIADS)

Mica Taped, XLPE Insulated, Overall Aluminium Foil Screened, LSZH Bedded, Galvanised Steel Wire Armoured, LSZH Sheathed Cable, 300 / 500V, BS EN50288-7



- Component**
1. Plain Annealed Copper Wire
 2. Mica Tape
 3. Cross-linked Polyethylene Compound
 4. Aluminium / Polyester Tape
 5. Low Smoke Zero Halogen (LSZH) Compound
 6. Galvanised Steel Wire Armoured
 7. Tinned Copper Drain Wire
 8. Low Smoke Zero Halogen (LSZH) Compound

CONSTRUCTION

Conductor:	Plain Annealed Copper, Class 2 Stranded Circular
Fire Barrier:	Mica Tape (MGT)
Insulation:	Cross-linked Polyethylene (XLPE) Compound
Insulation Colour:	Pair/s - Black/White with Black numberings Triad/s - Red/Black/White with Black numberings
Cores Twisted:	Cores twisted to form a pair, triad or quad
Lay Up:	Multi-pairs, triads or quads are assembled together in concentric layers to form the cable core
Wrap Film:	Polyester Binder Tape
Overall Screen:	Aluminium/Polyester Tape, with a Tinned Copper Drain Wire 0.5mm ² (7/0.3mm) (OS)
Bedding:	Low Smoke Zero Halogen (LSZH) Compound
Bedding Colour:	Black
Armour:	Galvanized Steel Wire Armoured (SWA)

Outer Sheath:	Low Smoke Zero Halogen (LSZH) Compound
Outer Sheath Colour:	Orange or Blue

ELECTRICAL CHARACTERISTICS

Operating Voltage, U ₀ /U:	300/500V
Operating Temperature:	-15°C to 90°C
Final Short Circuit Temperature:	250°C
Test Voltage:	2kV for 1 minute

REFERENCE STANDARDS

Design Specification:	BS EN50288-7
Conductor:	IEC60228, BS EN60228
Fire Resistance:	BS6387 (C, W, Z), SS299 (C, W, Z), IEC60331
Flame Retardancy:	IEC60332-3-22, BS EN60332-3-22
Low Smoke Zero Halogen:	IEC61034-2, BS EN61034-2 IEC60754-1, IEC60754-2 BS EN50267-2-1, BS EN50267-2-2

INSTALLATION REFERENCE

Min. Bending Radius (mm):	10 x cable overall diameter
Max. Pulling Tension (N/mm ²):	70

No. of Pairs	Nominal Conductor Area (mm ²)	No. and Diameter of Wires (no./mm)	Radial Thickness of Insulation (mm)	Diameter Under Armour (mm)	Armour Wire Diameter (mm)	Cable Overall Diameter (mm)	Approximate Weight (kg/km)
1P		7 / 0.37	0.6	9.7	0.9	14.4	356
2P (Quad)		7 / 0.37	0.6	11.1	0.9	15.8	442
2P		7 / 0.37	0.6	15.2	1.25	20.8	682
3P		7 / 0.37	0.6	16.2	1.25	22.0	762
4P		7 / 0.37	0.6	17.8	1.25	23.6	858
5P		7 / 0.37	0.6	19.6	1.25	25.4	967
6P	0.75	7 / 0.37	0.6	21.5	1.25	27.5	1091
8P		7 / 0.37	0.6	24.3	1.25	30.3	1270
10P		7 / 0.37	0.6	27.7	1.25	33.9	1484
12P		7 / 0.37	0.6	28.7	1.25	34.9	1499
16P		7 / 0.37	0.6	32.0	1.25	38.2	1866
20P		7 / 0.37	0.6	35.9	1.6	43.0	2431
24P		7 / 0.37	0.6	40.1	1.6	47.4	2787
36P		7 / 0.37	0.6	46.7	2.0	55.0	3970

* Other pairs, triads and quads configurations are available upon request.
* Class 5 conductors are available upon request.

Table 35

FR-XOSL

CU / MGT / XLPE / OS / LSZH / SWA / LSZH (PAIRS & TRIADS)

Mica Taped, XLPE Insulated, Overall Aluminium Foil Screened, LSZH Bedded,
Galvanised Steel Wire Armoured, LSZH Sheathed Cable, 300 / 500V, BS EN50288-7



No. of Pairs	Nominal Conductor Area (mm ²)	No. and Diameter of Wires (no./mm)	Radial Thickness of Insulation (mm)	Diameter Under Armour (mm)	Armour Wire Diameter (mm)	Cable Overall Diameter (mm)	Approximate Weight (kg/km)			
SINGLE & MULTI-PAIRS	1.0	1P	7 / 0.43	0.6	10.1	0.9	14.8	378		
		2P (Quad)	7 / 0.43	0.6	11.6	0.9	16.3	472		
		2P	7 / 0.43	0.6	15.9	1.25	21.7	726		
		3P	7 / 0.43	0.6	16.9	1.25	22.7	810		
		4P	7 / 0.43	0.6	18.6	1.25	24.4	914		
		5P	7 / 0.43	0.6	20.5	1.25	26.3	1031		
		6P	7 / 0.43	0.6	22.4	1.25	28.4	1162		
		8P	7 / 0.43	0.6	25.4	1.25	31.4	1356		
		10P	7 / 0.43	0.6	29.0	1.25	35.2	1596		
		12P	7 / 0.43	0.6	30.0	1.25	36.2	1723		
		16P	7 / 0.43	0.6	33.5	1.6	40.6	2275		
		20P	7 / 0.43	0.6	37.7	1.6	44.8	2649		
		24P	7 / 0.43	0.6	42.0	2.0	50.1	3354		
		36P	7 / 0.43	0.6	49.0	2.0	57.5	4341		
		SINGLE & MULTI-PAIRS	1.5	1P	7 / 0.53	0.6	10.7	0.9	15.6	416
				2P (Quad)	7 / 0.53	0.6	12.3	0.9	17.0	516
2P	7 / 0.53			0.6	16.9	1.25	22.7	793		
3P	7 / 0.53			0.6	18.1	1.25	23.9	893		
4P	7 / 0.53			0.6	19.9	1.25	25.7	1020		
5P	7 / 0.53			0.6	21.9	1.25	27.9	1164		
6P	7 / 0.53			0.6	24.0	1.25	30.0	1297		
8P	7 / 0.53			0.6	27.2	1.25	33.4	1545		
10P	7 / 0.53			0.6	31.1	1.25	37.3	1807		
12P	7 / 0.53			0.6	32.2	1.25	38.6	1970		
16P	7 / 0.53			0.6	36.0	1.6	43.1	2588		
20P	7 / 0.53			0.6	40.5	1.6	47.8	3040		
24P	7 / 0.53			0.6	45.6	2.0	53.9	3923		
36P	7 / 0.53			0.6	52.7	2.5	62.4	5566		
SINGLE & MULTI-PAIRS	2.5			1P	7 / 0.67	0.7	11.9	0.9	16.8	476
				2P (Quad)	7 / 0.67	0.7	13.8	0.9	18.5	615
		2P	7 / 0.67	0.7	19.1	1.25	24.9	930		
		3P	7 / 0.67	0.7	20.5	1.25	26.5	1070		
		4P	7 / 0.67	0.7	22.6	1.25	28.6	1227		
		5P	7 / 0.67	0.7	24.9	1.25	31.1	1412		
		6P	7 / 0.67	0.7	27.3	1.25	33.5	1584		
		8P	7 / 0.67	0.7	31.0	1.25	37.4	1901		
		10P	7 / 0.67	0.7	35.5	1.6	42.8	2505		
		12P	7 / 0.67	0.7	36.8	1.6	44.1	2730		
		16P	7 / 0.67	0.7	41.6	1.6	49.1	3324		
		20P	7 / 0.67	0.7	46.8	2.0	55.3	4290		
		24P	7 / 0.67	0.7	52.2	2.5	61.9	5452		
		36P	7 / 0.67	0.7	60.8	2.5	70.9	7101		

* Other pairs, triads and quads configurations are available upon request.
* Class 5 conductors are available upon request.

Table 36

FR-XOSL

CU / MGT / XLPE / OS / LSZH / SWA / LSZH (PAIRS & TRIADS)

Mica Taped, XLPE Insulated, Overall Aluminium Foil Screened, LSZH Bedded,
Galvanised Steel Wire Armoured, LSZH Sheathed Cable, 300 / 500V, BS EN50288-7



No. of Triads	Nominal Conductor Area (mm ²)	No. and Diameter of Wires (no./mm)	Radial Thickness of Insulation (mm)	Diameter Under Armour (mm)	Armour Wire Diameter (mm)	Cable Overall Diameter (mm)	Approximate Weight (kg/km)
1T	0.75	7 / 0.37	0.6	10.2	0.9	14.9	390
6T		7 / 0.37	0.6	24.1	1.25	30.1	1289
16T		7 / 0.37	0.6	36.1	1.6	43.2	2565
24T		7 / 0.37	0.6	45.3	2.0	53.4	3811
1T	1.0	7 / 0.43	0.6	10.6	0.9	15.5	423
6T		7 / 0.43	0.6	25.2	1.25	31.2	1390
16T		7 / 0.43	0.6	37.8	1.6	44.9	2806
24T		7 / 0.43	0.6	47.5	2.0	55.8	4176
1T	1.5	7 / 0.53	0.6	11.3	0.9	16.2	460
6T		7 / 0.53	0.6	27.0	1.25	33.0	1565
16T		7 / 0.53	0.6	40.7	1.6	48.0	3247
24T		7 / 0.53	0.6	51.6	2.0	60.1	4934
1T	2.5	7 / 0.67	0.7	12.6	0.9	17.5	533
6T		7 / 0.67	0.7	30.8	1.25	37.0	1952
16T		7 / 0.67	0.7	47.0	1.6	55.3	4564
24T		7 / 0.67	0.7	59.1	2.0	69.0	6878

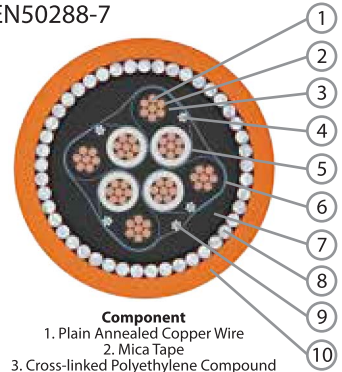
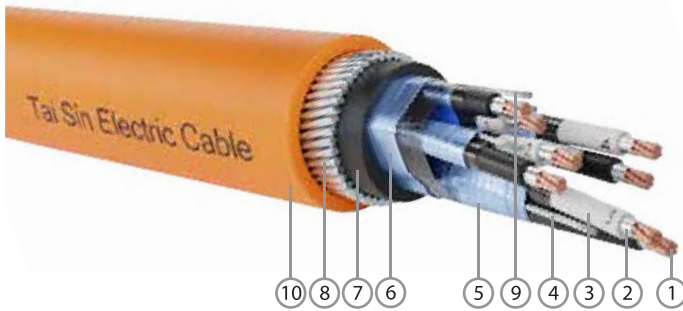
* Other pairs, triads and quads configurations are available upon request.
* Class 5 conductors are available upon request.

Table 37

FR-XIOSL

CU / MGT / XLPE / IS / OS / LSZH / SWA / LSZH (PAIRS & TRIADS)

Mica Taped, XLPE Insulated, Individual Aluminium Foil Screened, Overall Aluminium Foil Screened, LSZH Bedded, Galvanised Steel Wire Armoured, LSZH Sheathed Cable, 300 / 500V, BS EN50288-7



- Component**
1. Plain Annealed Copper Wire
 2. Mica Tape
 3. Cross-linked Polyethylene Compound
 4. Tinned Copper Drain Wire
 5. Aluminium / Polyester Tape (IS)
 6. Aluminium / Polyester Tape (OS)
 7. Low Smoke Zero Halogen (LSZH) Compound
 8. Galvanised Steel Wire Armoured
 9. Tinned Copper Drain Wire
 10. Low Smoke Zero Halogen (LSZH) Compound

CONSTRUCTION

Conductor:	Plain Annealed Copper, Class 2 Stranded Circular
Fire Barrier:	Mica Tape (MGT)
Insulation:	Cross-linked Polyethylene (XLPE) Compound
Insulation Colour:	Pair/s - Black/White with Black numberings Triad/s - Red/Black/White with Black numberings
Cores Twisted:	Cores twisted to form a pair, triad or quad
Wrap Film:	Polyester Binder Tape
Individual Screen:	Aluminium/Polyester Tape, with a Tinned Copper Drain Wire 0.5mm ² (7/0.3mm) (IS)
Lay Up:	Multi-pairs, triads or quads are assembled together in concentric layers to form the cable core
Wrap Film:	Polyester Binder Tape
Overall Screen:	Aluminium/Polyester Tape, with a Tinned Copper Drain Wire 0.5mm ² (7/0.3mm) (OS)
Bedding:	Low Smoke Zero Halogen (LSZH) Compound
Bedding Colour:	Black

Armour:	Galvanized Steel Wire Armoured (SWA)
Outer Sheath:	Low Smoke Zero Halogen (LSZH) Compound
Outer Sheath Colour:	Orange or Blue

ELECTRICAL CHARACTERISTICS

Operating Voltage, U _o /U:	300/500V
Operating Temperature:	-15°C to 90°C
Final Short Circuit Temperature:	250°C
Test Voltage:	2kV for 1 minute

REFERENCE STANDARDS

Design Specification:	BS EN50288-7
Conductor:	IEC60228, BS EN60228
Fire Resistance:	BS6387 (C, W, Z), SS299 (C, W, Z), IEC60331
Flame Retardancy:	IEC60332-3-22, BS EN60332-3-22
Low Smoke Zero Halogen:	IEC61034-2, BS EN61034-2 IEC60754-1, IEC60754-2 BS EN50267-2-1, BS EN50267-2-2

INSTALLATION REFERENCE

Min. Bending Radius (mm):	10 x cable overall diameter
Max. Pulling Tension (N/mm ²):	70

No. of Pairs	Nominal Conductor Area (mm ²)	No. and Diameter of Wires (no./mm)	Radial Thickness of Insulation (mm)	Diameter Under Armour (mm)	Armour Wire Diameter (mm)	Cable Overall Diameter (mm)	Approximate Weight (kg/km)
2P	0.75	7 / 0.37	0.6	15.6	1.25	21.4	727
3P		7 / 0.37	0.6	16.6	1.25	22.4	805
4P		7 / 0.37	0.6	18.3	1.25	24.1	911
5P		7 / 0.37	0.6	20.1	1.25	25.9	1029
6P		7 / 0.37	0.6	22.0	1.25	28.0	1162
8P		7 / 0.37	0.6	24.9	1.25	30.9	1360
10P		7 / 0.37	0.6	28.4	1.25	34.6	1604
12P		7 / 0.37	0.6	29.4	1.25	35.6	1727
16P		7 / 0.37	0.6	32.9	1.6	40.0	2293
20P		7 / 0.37	0.6	36.9	1.6	44.2	2681
24P		7 / 0.37	0.6	41.2	1.6	48.5	3053
36P		7 / 0.37	0.6	48.0	2.0	56.5	4396

* Other pairs, triads and quads configurations are available upon request.
* Class 5 conductors are available upon request.

Table 38

FR-XIOSL

CU / MGT / XLPE / IS / OS / LSZH / SWA / LSZH (PAIRS & TRIADS)

Mica Taped, XLPE Insulated, Individual Aluminium Foil Screened, Overall Aluminium Foil Screened, LSZH Bedded, Galvanised Steel Wire Armoured, LSZH Sheathed Cable, 300 / 500V, BS EN50288-7



No. of Pairs	Nominal Conductor Area (mm ²)	No. and Diameter of Wires (no./mm)	Radial Thickness of Insulation (mm)	Diameter Under Armour (mm)	Armour Wire Diameter (mm)	Cable Overall Diameter (mm)	Approximate Weight (kg/km)
2P	1.0	7 / 0.43	0.6	16.2	1.25	22.0	758
3P		7 / 0.43	0.6	17.3	1.25	23.1	853
4P		7 / 0.43	0.6	19.1	1.25	24.9	978
5P		7 / 0.43	0.6	20.9	1.25	26.9	1106
6P		7 / 0.43	0.6	23.0	1.25	29.0	1235
8P		7 / 0.43	0.6	26.0	1.25	32.0	1458
10P		7 / 0.43	0.6	29.7	1.25	35.9	1718
12P		7 / 0.43	0.6	30.8	1.25	37.0	1865
16P		7 / 0.43	0.6	34.4	1.6	41.5	2469
20P		7 / 0.43	0.6	38.6	1.6	45.9	2887
24P		7 / 0.43	0.6	43.5	2.0	51.8	3741
36P		7 / 0.43	0.6	50.2	2.0	58.7	4746
SINGLE & MULTI-PAIRS							
2P	1.5	7 / 0.53	0.6	17.3	1.25	23.1	828
3P		7 / 0.53	0.6	18.5	1.25	24.3	937
4P		7 / 0.53	0.6	20.4	1.25	26.4	1089
5P		7 / 0.53	0.6	22.4	1.25	28.4	1229
6P		7 / 0.53	0.6	24.6	1.25	30.6	1373
8P		7 / 0.53	0.6	27.8	1.25	34.0	1641
10P		7 / 0.53	0.6	31.8	1.25	38.2	1943
12P		7 / 0.53	0.6	33.0	1.6	40.1	2347
16P		7 / 0.53	0.6	36.9	1.6	44.2	2811
20P		7 / 0.53	0.6	41.9	2.0	50.2	3688
24P		7 / 0.53	0.6	46.7	2.0	55.2	4251
36P		7 / 0.53	0.6	54.0	2.5	63.7	5975
2P		2.5	7 / 0.67	0.7	19.5	1.25	25.5
3P	7 / 0.67		0.7	20.8	1.25	26.8	1116
4P	7 / 0.67		0.7	23.0	1.25	29.0	1284
5P	7 / 0.67		0.7	25.4	1.25	31.6	1481
6P	7 / 0.67		0.7	27.9	1.25	34.1	1675
8P	7 / 0.67		0.7	31.6	1.25	38.0	2013
10P	7 / 0.67		0.7	36.2	1.6	43.5	2652
12P	7 / 0.67		0.7	37.6	1.6	44.9	2883
16P	7 / 0.67		0.7	42.5	2.0	50.8	3868
20P	7 / 0.67		0.7	47.7	2.0	56.2	4539
24P	7 / 0.67		0.7	53.3	2.5	63.2	5793
36P	7 / 0.67		0.7	62.1	2.5	72.4	7616

* Other pairs, triads and quads configurations are available upon request.
 * Class 5 conductors are available upon request.

Table 39

FR-XIOSL

CU / MGT / XLPE / IS / OS / LSZH / SWA / LSZH (PAIRS & TRIADS)

Mica Taped, XLPE Insulated, Individual Aluminium Foil Screened, Overall Aluminium Foil Screened, LSZH Bedded, Galvanised Steel Wire Armoured, LSZH Sheathed Cable, 300 / 500V, BS EN50288-7



No. of Triads	Nominal Conductor Area (mm ²)	No. and Diameter of Wires (no./mm)	Radial Thickness of Insulation (mm)	Diameter Under Armour (mm)	Armour Wire Diameter (mm)	Cable Overall Diameter (mm)	Approximate Weight (kg/km)
2T	0.75	7 / 0.37	0.6	16.9	1.25	22.6	835
6T		7 / 0.37	0.6	24.6	1.25	30.6	1362
16T		7 / 0.37	0.6	37.0	1.6	44.3	2783
24T		7 / 0.37	0.6	46.9	2.0	55.2	4183
2T	1.0	7 / 0.43	0.6	17.4	1.25	23.1	871
6T		7 / 0.43	0.6	25.7	1.25	31.7	1465
16T		7 / 0.43	0.6	38.7	1.6	46.0	3013
24T		7 / 0.43	0.6	49.1	2.0	57.6	4582
2T	1.5	7 / 0.53	0.6	18.6	1.25	24.3	957
6T		7 / 0.53	0.6	27.6	1.25	33.8	1670
16T		7 / 0.53	0.6	42.0	1.6	50.3	3861
24T		7 / 0.53	0.6	52.7	2.0	62.4	5789
2T	2.5	7 / 0.67	0.7	21.4	1.6	28.1	1349
6T		7 / 0.67	0.7	31.3	1.25	37.7	2054
16T		7 / 0.67	0.7	47.9	1.6	56.4	4832
24T		7 / 0.67	0.7	60.7	2.0	70.8	7339

* Other pairs, triads and quads configurations are available upon request.
 * Class 5 conductors are available upon request.

Table 40

APPENDIX A

Table A1.1

Electrical Properties of Tai Sin Instrumentation Cables



Electrical Properties at 20°C

	Unit of Measure	Conductor Size (Pair Cables)				
		0.5mm ²	0.75mm ²	1.0mm ²	1.5mm ²	2.5mm ²
Operating Temperature (Max):						
PVC Insulation	°C			70		
XLPE & LSZH Insulation	°C			90		
Rated Voltage U ₀ /U _M						
	V			300/500		
Test Voltage:						
Core To Core for 1 Minute	V			2000		
Core To Screen for 1 Minute	V			1000		
Conductor Resistance (Max):						
	Ω/km	36.7	25.0	18.5	12.3	7.6
Insulation Resistance (Min):						
Individual Conductor (between each conductor and remaining bunched conductors/screened and/or armour) (PVC Insulated)						
	MΩ · km			10		
Individual Screens (between screens) (PVC Insulated)						
	MΩ · km			1		
Individual Conductor (between each conductor and remaining bunched conductors/screened and/or armour) (XLPE & LSZH Insulated)						
	MΩ · km			1000		
Individual Screens (between screens) (XLPE & LSZH Insulated)						
	MΩ · km			1		
Mutual Capacitance at 1KHz (Max):						
PVC Insulation	nf/km			250		
XLPE & LSZH Insulation	nf/km			150		
Capacitance Unbalanced at 1KHz (Max)						
	pf/500m			500		
Maximum Inductance/Resistance Ratio (L/R)						
	μH/Ω	25	25	25	40	60

Note 1: Cables with Maximum Operating Temperature of 105°C are available upon request.
 Note 2: For 600/1000V cables, the Test Voltage will be 3.5kV/5min.

APPENDIX A
Table A2.1
 Wire Gauge Conversion



	Conductor Size	Cross-section Area	
		mm ²	Nearest Available mm ²
AWG	26	0.128	0.14
	24	0.205	0.20
	23	0.259	0.25
	22	0.324	0.34
	20	0.519	0.50
	18	0.823	1.00
	16	1.31	1.50
	14	2.08	2.50
	12	3.31	4.00
	10	5.26	6.00
	8	8.37	10.00
	6	13.3	16.00
	4	21.5	25.00
	2	33.62	35.00
	1	42.41	50.00
	1/0	53.49	70.00
	2/0	67.23	70.00
	3/0	85.01	95.00
	4/0	107.2	120.00
MCM	250	126.70	120-150
	300	152.00	150
	350	177.30	185
	400	202.70	185
	450	228.00	185-240
	500	253.40	240
	550	278.80	240-300
	600	304.00	300
	650	329.40	300
	700	354.70	300-400
	750	380.00	400
	800	405.40	400
	850	430.70	400
	900	456.00	400
	950	481.40	400
	1000	506.70	500-630
	1250	633.40	630
1500	760.00	800	
1750	886.70	800-1000	
2000	1013.40	1000	

Note: AWG - American Wire Gauge



1. APPLICATION OF TERMS & CONDITIONS

These conditions govern the sales and purchase of goods ordered by Buyer from Seller ("the goods") and shall override any terms and conditions whether previously or hereafter stipulated incorporated or referred to by Buyer whether orally in its purchase order or other documents.

2. DELIVERY

- a. Any time for delivery named by Seller is an estimate only and Seller is not liable to make good any damage or loss arising out of any such delay.
- b. Delivery shall be deemed to have been made if seller delivers the goods to the location specified by the Buyer and Delivery Order is endorsed by any person present thereat. Seller not responsible to ensure the goods have been delivered to or is collected by Buyer or its authorized personnel and shall not be liable for any loss or damage to Buyer by reason of unauthorized collection of the goods.
- c. Should Buyer fail to take delivery of goods, Seller shall be entitled (without derogation of its rights under Law) to charge Buyer for storage and insurance for the goods calculated from the date fixed for delivery.
- d. The Seller reserves the right to deliver goods by installments and each installment shall be deemed to have been sold under a separate contract. Failure to deliver any installment shall not entitle the buyer to repudiate the contract.
- e. Off loading and/or handling will in all events be the responsibility of the Buyer.
- f. If the goods to be delivered are, at the Buyer's discretion, delivered to the destination other than the Buyer's premises, the Seller will arrange such delivery for the Buyer and all costs for carriage and insurance will be to the Buyer's account.
- g. Availability of the goods when offered ex-stock is subject to such goods being sold in another transaction between the date when the Seller advises the goods are available, and the date when it receives the Buyer's order. Any delivery time offered for products made to special customer order is indicative only, and the Seller shall not be liable for any loss or damage whatsoever arising as a consequence or result of any such failure to deliver.

3. PRICE

The quoted price for the goods are subject to change in the event of any imposition or increase in taxes, levies or duties whatsoever on the goods, its components or raw materials.

4. PAYMENT

Payments for the goods shall be made within the time stipulated in the invoice. Interest at 1.5% per month will be charged on late payment.

5. TIME OF THE ESSENCE

Time within which the Buyer is to pay for the goods shall be of the essence of this Contract.

6. ACCEPTANCE

Buyer shall inspect the goods immediately upon delivery. Unless Seller receives notice that the goods are not in accordance with the Buyer's order and the goods returned to Seller within 24 hours from the date of delivery, the goods shall be deemed to have been accepted by the Buyer PROVIDED ALWAYS Seller will not accept return of used goods and Buyer shall not reject any goods which are in accordance with the Buyer's order.

7. DESCRIPTION

Notwithstanding any description of the goods given by the Seller or Buyer, no sale of goods shall constitute or be construed as a sale by description.

8. WARRANTIES

Save and except for written warranties (if any) given by Seller, the Seller does not give any warranties as to the quality, state, condition or fitness of the goods or their suitability for any purpose or for use under any specific conditions, notwithstanding that such purpose or condition may be known or made known to Seller.

9. DEFECTS

Save and except as notified pursuant to Clause 6) above, Seller shall be under no liability to Buyer either in contract or tort for loss, injury or damage sustained by Buyer or any third party by reason of defects in the goods whether latent or otherwise but Buyer will keep Seller indemnified against any such claim.

10. TITLE

Title to the goods remains vested in Seller receives the full purchase price. If such payment is overdue, the Seller may without prejudice to any other rights sue for the purchase price, recover or re-sell the goods and the Buyer grants the Seller, its servants/agents the right and/or license to enter the Buyer's premise and/or any other premise where the goods are stored. If any of the goods are sold by Buyer before title has passed to Buyer, Buyer shall hold the proceeds of sale and all rights against purchaser in trust for Seller.

11. RISK

Risk passes to Buyer upon delivery of goods to Buyer.

12. DEFAULT

If Buyer fail to pay Seller on due date, commits a breach of any of its obligation herein, becomes insolvent or commits an act of bankruptcy, Seller may without prejudice to its other rights and without giving any notice, suspend/cancel further deliveries, stop any delivery in transit under this Contract or any other contracts and/or limit/cancel the Buyer's credit as to time and/or amount for executed, executory or future orders, and/or request for securities or guarantees. Seller shall not be liable to Buyer for any damages which Buyer may suffer or incur by reason thereof.

13. CANCELLATION OF CREDIT

Notwithstanding anything herein contained, Seller reserves the right to limit/cancel the credit of the Buyer as to time and/or amount without giving any reasons thereof and to demand full settlement immediately of all sums that may be owing by Buyer notwithstanding that the credit period has not expired.

14. FORCE MAJEURE

Seller shall not be liable to Buyer for failure to deliver the goods by reason of any breakdown of plant, fire, explosion, Act of God, or outbreak of hostilities, national emergency, industrial disputes, shortage of labour, raw materials, energy or any causes beyond Seller's control and which seller is unable to prevent by the exercise of reasonable diligence, whether of the class of causes enumerated herein or not.

15. APPROPRIATION OF PAYMENTS

All payments received from the Buyer will be applied towards settlement of the Buyer's oldest debts comprising the earliest invoices, debit notes (including debit notes for overdue interest) and other charges howsoever arising PROVIDED ALWAYS Seller may appropriate any payments towards account of interest before principal in respect of any debt as the Seller shall in its absolute discretion deem fit.

16. STATEMENT OF ACCOUNT

All amounts stated in the invoices and statement of accounts of Seller shall be conclusive of the amounts due and owing by Buyer to Seller and shall be binding against Buyer in any legal proceedings.

17. RIGHTS OF SET-OFF

Seller entitled to set-off against Buyer's debts all monies now or hereafter standing to the credit of Buyer's account with Seller and for this purpose Buyer shall give irrevocable authority to Seller to collect on behalf of Buyer and give valid receipt and discharge in respect of all such monies owing to the Buyer.

18. WAIVER

No failure or delay by the Seller in exercising any rights hereunder shall operate as a waiver hereof nor shall any single or partial exercise of right preclude any further exercise thereof or the exercises of any other right.

19. SALE OF GOODS ACT ("the Act")

The terms and conditions in favour of the Seller hereunder shall be in addition to and not in substitution for any term condition warranty expressed or implied in favour of the Seller under the Act or any statutory and re-enactment thereto for the time being enforced.

20. INFRINGEMENT OF PATENTS DESIGNS

Buyer shall indemnify Seller against all damages, claims, costs and expenses which Seller may become liable as a result or work done or goods sold in accordance with Buyer's specifications which involve infringement of any patents, registered designs or trademarks.

21. NOTICES

Any notices, communications or demands shall be deemed to have been sufficiently given if sent by prepaid post to the address of the addressee stated herein or to the addressee's last known place of business and shall be presumed to have reached the address in ordinary course of post.

General Disclaimer We have taken reasonable measures to ensure that the information and data represented in this catalogue is accurate and current. However, Tai Sin makes no express or implied warranty regarding such information or data, and hereby expressly disclaims all responsibility and legal liability to persons or entities that use or access its content, based on their reliance on any information or data that is available through this catalogue. We are not liable for all expenses, losses, damages and costs you might incur as a result of the information being inaccurate or incomplete in any way, and for any reason.



Factories and Regional Offices

Tai Sin Electric Limited

24 Gul Crescent
Singapore 629531
Tel: (+65) 6672 9292
Fax: (+65) 6861 4084
E-Mail: sales@taisin.com.sg
Website: www.taisin.com.sg

**Tai Sin Electric Cables
(Malaysia) Sdn. Bhd.**

PTD 37433, 37434 & 37444
Off Jalan Perindustrian Senai 3
Kawasan Perindustrian Senai Fasa 3
81400 Senai
Johor Darul Takzim, Malaysia
Tel: (+60) 7 599 8888
Fax: (+60) 7 599 8898
E-Mail: sales@taisin.com.my
Website: www.taisin.com.my

**Tai Sin Electric Cables
(VN) Co., Ltd.**

No.20, VSIP II Street 2
Vietnam - Singapore Industrial Park 2
Hoa Phu Ward, Thu Dau Mot City
Binh Duong Province, Vietnam
Tel: (+84) 650 3635 088
Fax: (+84) 650 3635 077
E-Mail: sales@taisin.com.vn
Website: www.taisin.com.vn