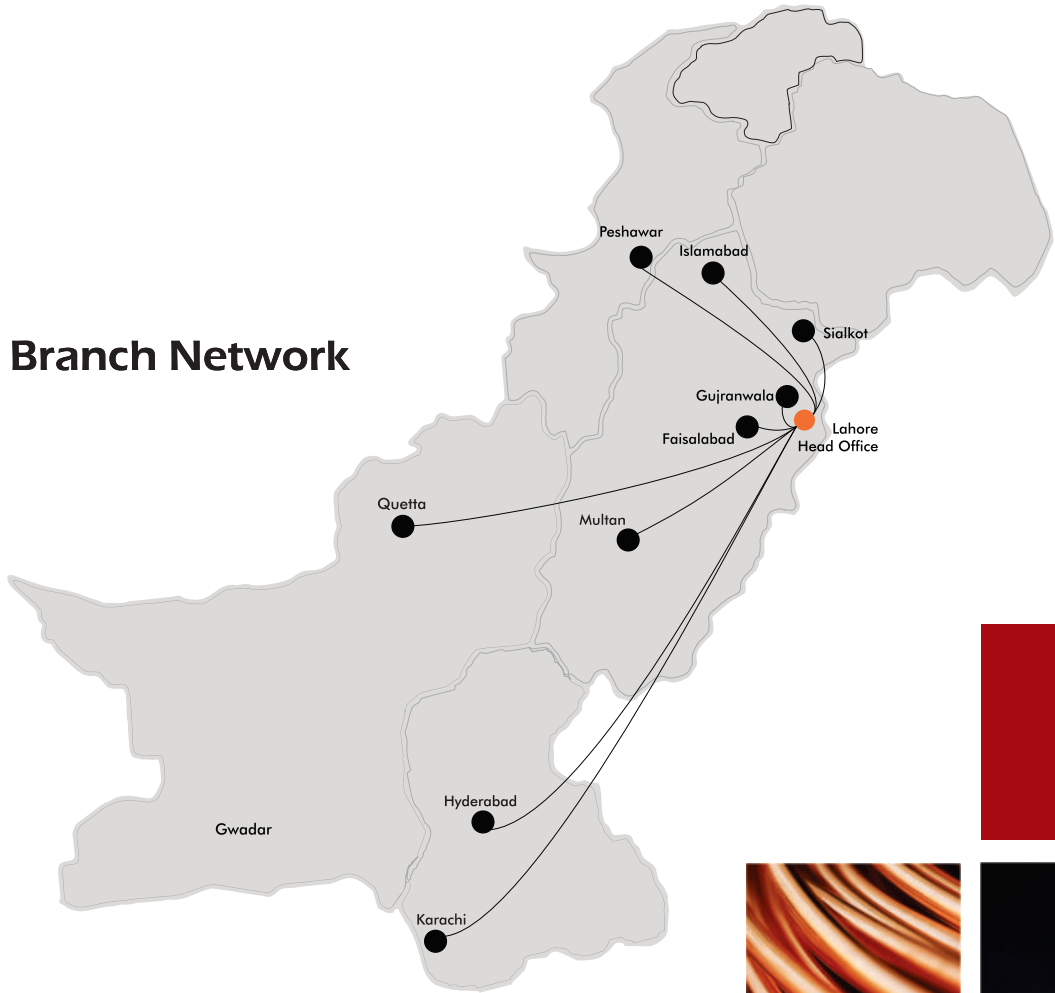


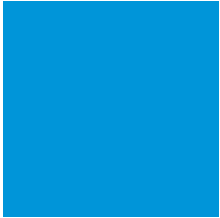
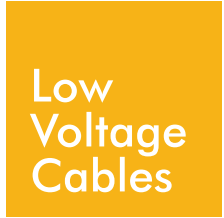
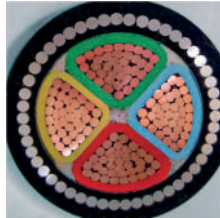
PRODUCT CATALOG

Branch Network



CABLES

Low Voltage Cables
Telecommunication Cables
Control & Instrumentation Cables



MRK/PM/PCL/25/01

UAN: 111-000-343
www.fast-cables.com

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CONTENTS

01	About Us
02	Vision and Mission
03	Core Values
04	Certifications
05	Customer Relations
06	Quality
07	Low Voltage Cables
09	■ General Wiring Cables
18	■ Industrial Cables
75	■ Telecommunication Cables
83	■ Control & Instrumentation Cables
98	Properties of Electricity

Vision

Empower communities for sustainable development.

Fast Cables is a leading manufacturer of electrical cables and conductors in Pakistan. Our emphasis on quality has made Fast Cables one of the most reliable brands in the cable industry of Pakistan and the choice of leading electrical consultants, engineers and architects in the country.

Our manufacturing plants in Lahore are equipped with state of the art technology along with excellent quality assurance systems. In addition to our current product portfolio, we also manufacture electrical cables and conductors to cater to the specific needs of our valued customers. We serve the cable needs of customers from diverse sectors including building and infrastructure, oil and gas, telecommunication and textile.

We have a team of highly talented individuals working for the development of a lasting relationship built upon trust and long term commitment. We invite you to experience Fast Cables' services first hand and look forward to working with you.

About Us

Mission

To be the market leader by delivering excellence through innovation and capacity building of all stakeholders.

Core Values

The values of a company are critical to its success. We at Fast Cables not only want to proclaim our core values but also want to live by them everyday.

Quality

We are dedicated to the delivery of quality products.

Customer Focus

We are committed to meeting the needs of our customers.

Respect for People

We recognize that people are the cornerstone of Fast Cables' success.

Performance with Integrity

We demand of ourselves and others the highest ethical standards and strive for continuous improvement in our performance.

Innovation

We recognize that innovation is the key to improving and sustaining Fast Cables' growth and profitability.

Team Work

We understand that to be a successful company, we must work together as a team.



Certifications



MV Gold Certification from KEMA Labs, The Netherlands

LV Gold Certification from KEMA Labs, The Netherlands

Customer Relations

We aim to build long term relationships with our customers through provision of quality products and excellent services.



Our business development and sales teams work closely with customers to understand their product requirements and assist them in selection of the requisite product. By sharing the latest technological developments and best practices in the industry, we enable our customers to obtain best value for their investment. We endeavor to increase customer's knowledge and understanding about electrical cables through our website and product catalog.

A comprehensive 'Frequently Asked Questions' section on our website helps customers to find answers about common queries at their own convenience. In addition, our dedicated Customer Relations team focuses on resolving any issue a customer may face at any stage after purchase of product.

Quality

We deliver products designed and manufactured to the highest international standards. The quality of our cables is ensured by stringent monitoring at every phase of production, from the procurement of raw materials to in-process testing and 100% testing of the finished products before delivery. This allows us to ensure that all cables manufactured at our plants are fully compliant with the national and international standards.

Our manufacturing plants are equipped with the latest laboratory testing facilities and employ highly experienced technical staff. The laboratory equipment goes through periodic third party inspection and calibration by regulatory bodies. We offer our customers free 'testing and inspection before delivery' facility at our testing laboratory. Such a facility allows them to comply with their internal SOP's without incurring any additional cost.





LOW VOLTAGE CABLES

LOW VOLTAGE CABLES

BUILDING WIRE

Single core non-sheathed	
■ H05V-U - H05V-R - H05V-K	10
■ H07V-U - H07V-R - H07V-K	12
Single core non-sheathed, Fire retardant, Halogen free	
■ H07Z1-U - H07Z1-R - H07Z1-K	14
Single and multicore sheathed	
■ H05VV-F 05VV-F	16

INDUSTRIAL CABLES

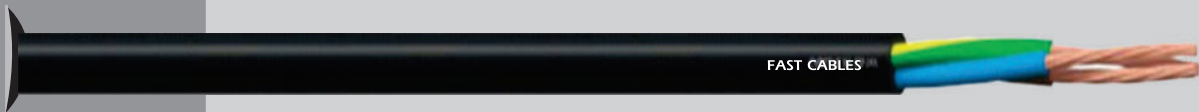
Unarmoured	
Standard	
■ Cu or Al - PVC - PVC	19
■ Cu or Al - XLPE - PVC	31
Fire retardant, Halogen free	
■ Cu or Al - LSHF - LSHF	25
■ Cu or Al - XLPE - LSHF	37
Fire resistant, Halogen free	
■ Cu - MICA - XLPE - LSHF	42
Screened	
■ Cu - XLPE - Cu - PVC or LSHF	45
Concentric conductor	
■ Cu - XLPE - Cu - PVC	47
Armoured	
Standard	
■ Cu or Al - PVC - PVC - SWA - PVC	49
■ Cu or Al - XLPE - PVC - SWA - PVC	61
Fire retardant, Halogen free	
■ Cu or Al - LSHF - LSHF - SWA - LSHF	55
■ Cu or Al - XLPE - LSHF - SWA - LSHF	66
Overhead Aerial cables	
■ Cu or Al - XLPE	71

TELECOMMUNICATION CABLES

Indoor cables	
■ PVC Insulation - Al Screen - PVC Sheath	76
■ PE Insulation - PVC or LSHF Sheath	78
Telephone Cables Armoured and Non-Armoured	
■ PE Insulation - Al Screen - PVC Sheath (Smart Grid)	81

CONTROL & INSTRUMENTATION CABLES

MULTICORE, OVERALL SCREEN	
Unarmoured	
■ Cu- PVC or PE or XLPE Insulator - Al or Copper Screen - PVC or LSHF	84
■ Cu - LSHF - Al Screen - LSHF	86
Armoured	
■ Cu - PE - Al Screen - PE or LSHF - Corrugated Armour - PE or LSHF	88
PAIRS, OVERALL SCREEN	
Unarmoured	
■ Cu - PVC or PE or XLPE - AL Screen - PVC or LSHF	90
PAIRS, SCREENED PAIR	
Armoured	
■ Cu - PVC or PE or XLPE - Al Screen - PVC or LSHF - STA or SWA - PVC or LSHF	92
■ Cu - PVC or PE or XLPE insulation - Individual Al Screen, Collective Al Screen - PVC or LSHF	94
■ Cu -PVC or PE or XLPE Insulation - Individual Al Screen Collective Al Screen - PVC or LSHF - STA or SWA - PVC or LSHF	96



LOW VOLTAGE CABLES

GENERAL WIRING CABLES

LOW VOLTAGE CABLES

GENERAL WIRING CABLES

H05V-U H05V-R H05V-K
Single Core Non-Sheathed • BS 6004

APPLICATION

Single core insulated conductor, without sheath, for general purposes, and rated voltages up to 300/500 V. Suitable for installation in surface mounted or embedded conduits, only for signalling or control circuits. Recommended fixed protected installation inside appliances and in, or on lighting fittings.

CABLE DESIGNATION

Cu / PVC: H05V-U • H05V-R • H05V-K

CONSTRUCTION CHARACTERISTICS

Conductor

Copper (plain annealed): Solid class 1: (H05V-U)
Stranded class 2: (H05V-R)

Insulation

PVC – (Polyvinyl chloride) Flexible class 5: (H05V-K)

GENERAL CHARACTERISTICS

Construction and test standards	IEC 60228 BS 6004
Rated voltage U_0/U	300/500 V
Test voltage	1500 V a.c. 5minutes
Conductor maximum operating temperature	70°C
Maximum short-circuit temperature	160°C (t ≤ 5s)
Minimum bending radius (mm)	H05V-U (R) 4 x d H05V-K 3 x d
Maximum pulling force over conductor (N)	H05V-U (R) 50 x S H05V-K 15 x S
Flame retardant	IEC 60332-1-2 • EN 60332-1-2 (cable vertically mounted, length of charred cable ≤ 540 mm).

S – conductor cross-section (mm²)
d – cable outer diameter (mm)

FAST CABLES

ELECTRICAL AND DIMENSIONAL CHARACTERISTICS

Cable composition n.º cond. x cross-section (mm²)	Approximate outer diameter (mm)	Approximate weight (kg/km)	Current carrying capacity in open air T = 30° C 2 or 3 charged conductors (A)
H05V-U			
1 x 0.5	2.1	10	3
1 x 0.75	2.3	13	6
1 x 1	2.4	15	10
H05V-R			
1 x 0.5	2.2	10	3
1 x 0.75	2.4	13	6
1 x 1	2.6	15	10
H05V-K			
1 x 0.5	2.2	10	3
1 x 0.75	2.5	13	6
1 x 1	2.6	15	10

APPLICATION

Single core insulated conductor, without sheath, for general purposes. Suitable for fixed protected installation in, or on, lighting or control gear for rated voltages up to 450/750 V. Installation in surface mounted or embedded conduits, or similar closed systems.

CABLE DESIGNATION

Cu / PVC: H07V-U • H07V-R • H07V-K

CONSTRUCTION CHARACTERISTICS

Conductor

Copper (plain annealed): Solid class 1: (H07V-U)
Rigid stranded class 2: (H07V-R)
Flexible class 5: (H07V-K)

Insulation

PVC (Polyvinyl chloride)

GENERAL CHARACTERISTICS

Construction and test standards	IEC 60228 BS 6004
Rated voltage U_0/U	450/750 V
Test voltage	2500 V a.c. 5 minutes
Conductor maximum operating temperature	70°C
Maximum short-circuit temperature	160°C (t ≤ 5s)
Minimum bending radius (mm)	H07V-U (R) 4 x d if d≤8 • 5 x d if 8<d≤12 • 6 x d if d>12 H07V-K 3 x d if d≤12 • 4 x d if d>12
Maximum pulling force over conductor (N)	H07V-U (R) 50 x S H07V-K 15 x S recommended not to exceed 1000 N
Flame retardant	IEC 60332-1-2 • EN 60332-1-2 (cable vertically mounted, length of charred cable ≤ 540 mm)

S – conductor cross-section (mm²)
d – cable outer diameter (mm)

FAST CABLES

ELECTRICAL AND DIMENSIONAL CHARACTERISTICS

Cable composition n.º cond. x cross-section (mm²)	Approximate outer diameter (mm)	Approximate weight (kg/km)	Current carrying capacity One circuit inside embedded conduits T = 30°C (A)	
			2 charged conductors	3 charged conductors
H07V-U				
1 x 1.5	3.0	20	17.5	15.5
1 x 2.5	3.5	30	24	21
1 x 4	4.0	45	32	28
1 x 6	4.5	65	41	36
1 x 10	5.7	91	57	50
H07V-R				
1 x 1.5	3.0	20	17.5	15.5
1 x 2.5	3.7	35	24	21
1 x 4	4.2	50	32	28
1 x 6	5.0	70	41	36
1 x 10	6.5	110	57	50
1 x 16	7.5	180	76	68
1 x 25	9.0	265	101	89
1 x 35	10.0	350	125	110
1 x 50	11.5	490	151	134
1 x 70	13.5	695	192	171
1 x 95	15.5	960	232	207
1 x 120	17.0	1180	269	239
1 x 150	19.0	1450	300	262
1 x 185	21.0	1825	341	296
1 x 240	24.0	2395	400	346
1 x 300	26.5	3025	456	394
1 x 400	30.0	3845	546	467
1 x 500	34.0	4830	626	533
1 x 630	39.0	6180	720	611
H07V-K				
1x1.5	3.0	20	17.5	15.5
1 x 2.5	3.7	35	24	21
1 x 4	4.2	50	32	28
1 x 6	5.0	70	41	36
1 x 10	6.5	110	57	50
1 x 16	7.9	185	76	68
1 x 25	9.5	270	101	89
1 x 35	11.0	365	125	110
1 x 50	13.5	515	151	134
1 x 70	15.0	705	192	171
1 x 95	16.5	975	232	207
1 x 120	18.5	1185	269	239
1 x 150	20.5	1455	300	262
1 x 185	22.5	1835	341	296
1 x 240	28.0	2410	400	346

Other compositions are available, contact info@fast-cables.com for information.
Only one circuit is considered.

APPLICATION

Single core, high security cable, insulated with thermoplastic halogen-free compound. Recommended for indoor use, fixed installations, in public areas such as hospitals, hotels, shopping malls, halls, computer, communication centers and in all general places with large number of people and electrical /electronic equipment.

CABLE DESIGNATION

Cu / LSHF:H07Z1-U H07Z1-R H07Z1-K

CONSTRUCTION CHARACTERISTICS

Conductor

Copper (plain annealed): Solid class 1: (H07Z1-U)
Rigid stranded class 2: (H07Z1-R)
Flexible Class 5: (H07Z1-K)

Insulation

LSHF – Low Smoke Halogen Free thermoplastic compound, fire retardant.

GENERAL CHARACTERISTICS

Construction and test standards	IEC 60228
	BS EN 50525-3-31
Rated voltage U_0/U	450/750 V
Test voltage	2500 V a.c. 5 minutes
Conductor maximum operating temperature	70°C
Maximum short-circuit temperature	160°C (t ≤ 5s)
Minimum bending radius (mm)	9 x d
Maximum pulling force over conductor (N)	15 x S
Flame retardant	IEC 60332-1-2 · EN 60332-1-2 (cable vertically mounted,length of charred cable ≤ 540 mm)
Fire retardant	IEC 60332-3-24 · EN 60332-3-24 (bunch of cables vertically mounted on a ladder,length of charred cable ≤ 2.5 m)
Halogen free	
Low smoke	IEC 61034-2 · EN 61034-2 (cable light transmittance ≥ 60%)
Low toxicity	IEC 60754-1 · EN 50267-2-1 (halogen acid gas content ≤ 0.5%)
Low corrosivity	IEC 60754-2 · EN 50267-2-2 (pH ≥4.3 · conductivity ≤ 10µS/mm)

S – conductor cross-section (mm²)
d – cable outer diameter (mm)

FAST CABLES

ELECTRICAL AND DIMENSIONAL CHARACTERISTICS

Cable composition n.º cond. x cross-section (mm²)	Approximate outer diameter (mm)	Approximate weight (kg/km)	Current carrying capacity One circuit inside embedded conduits T = 30°C (A)	
			2 charged conductors	3 charged conductors
			H07Z1-U	
1 x 1.5	3.0	20	17.5	15.5
1 x 2.5	3.5	30	24	21
1 x 4	4.0	45	32	28
1 x 6	4.5	65	41	36
1 x 10	5.7	91	57	50
H07Z1-R				
1 x 1.5	3.0	20	17.5	15.5
1 x 2.5	3.7	35	24	21
1 x 4	4.2	50	32	28
1 x 6	5.0	70	41	36
1 x 10	6.5	110	57	50
1 x 16	7.5	180	76	68
1 x 25	9.0	265	101	89
1 x 35	10.0	350	125	110
1 x 50	11.5	490	151	134
1 x 70	13.5	695	192	171
1 x 95	15.5	960	232	207
1 x 120	17.0	1180	269	239
1 x 150	19.0	1450	300	262
1 x 185	21.0	1825	341	296
1 x 240	24.0	2395	400	346
1 x 300	26.5	3025	456	394
1 x 400	30.0	3845	546	467
1 x 500	34.0	4830	626	533
1 x 630	39.0	6180	720	611
H07Z1-K				
1x1.5	3.0	20	17.5	15.5
1 x 2.5	3.7	35	24	21
1 x 4	4.2	50	32	28
1 x 6	5.0	70	41	36
1 x 10	6.5	110	57	50
1 x 16	7.9	185	76	68
1 x 25	9.5	270	101	89
1 x 35	11.0	365	125	110
1 x 50	13.5	515	151	134
1 x 70	15.0	705	192	171
1 x 95	16.5	975	232	207
1 x 120	18.5	1185	269	239
1 x 150	20.5	1455	300	262
1 x 185	22.5	1835	341	296
1 x 240	28.0	2410	400	346

Other compositions are available, contact info@fast-cables.com for information.
Only one circuit is considered.

APPLICATION

Power supply cable for indoor installation, for rated voltages up to 300/500 V. Used in premises, kitchens, offices; for household appliances, including in damp premises, for medium duties like washing and drying machines, refrigerators and office machines.

CABLE DESIGNATION

Cu / PVC / PVC: H05VV-F · 05VV-F

CONSTRUCTION CHARACTERISTICS

Conductor

Copper (plain annealed): Flexible Class 5.

Insulation

PVC (Polyvinyl chloride)

Oversheath

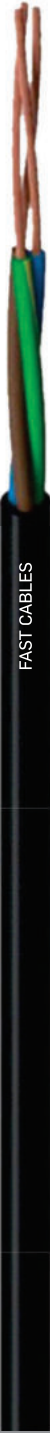
PVC (Polyvinyl chloride)

GENERAL CHARACTERISTICS

Construction and test standards	IEC 60228
	EN 50525-2-11
Rated voltage U_0/U	300/500 V
Test voltage	1500 V a.c. 5 minutes (S = 0.75 and 1 mm²)
	2000 V a.c. 5 minutes (S ≥ 1.5 mm²)
Conductor maximum operating temperature	70°C
Maximum short-circuit temperature	160°C (t ≤ 5s)
Minimum bending radius (mm)	5 x d if d≤12 · 6 x d if d>12
Maximum pulling force over conductor (N)	15 x S
	Recommended not to exceed 1000 N
Flame retardant	IEC 60332-1-2 · EN 60332-1-2 (cable vertically mounted, length of charred cable ≤ 540 mm)

S – conductor cross-section (mm²)

d – cable outer diameter (mm)



ELECTRICAL AND DIMENSIONAL CHARACTERISTICS

Cable composition n.º cond. x cross-section (mm²)	Approximate outer diameter (mm)	Approximate weight (kg/km)	Current carrying capacity In open air T = 30°C (A)	
			2 charged conductors	3 charged conductors
H05VV-F				
2 x 0.75	7.0	55	6	
2 x 1.0	7.2	65	10	
2 x 1.5	8.0	85	22	
2 x 2.5	10.0	135	30	
2 x 4	11.0	185	40	
3 x 0.75	7.2	70		6
3 x 1.0	7.4	80		14.5
3 x 1.5	9.0	110		18.5
3 x 2.5	10.5	170		25
3 x 4	12.0	235		34
4 x 0.75	8.0	80		6
4 x 1.0	8.5	100		14.5
4 x 1.5	10.0	140		18.5
4 x 2.5	11.5	205		25
4 x 4	13.0	290		34
5 x 0.75	9.0	105		6
5 x 1.0	9.5	130		14.5
5 x 1.5	11.0	165		18.5
5 x 2.5	13.0	250		25
5 x 4	14.5	375		34
05VV-F				
2 x 6	13.5	265	51	
3 x 6	14.0	335		43
4 x 6	15.5	415		43
5 x 6	16.0	475		43
7 x 1.5	12.0	225		18.5
7 x 2.5	14.5	340		25

Other compositions are available, contact info@fast-cables.com for information.

Cables with 2 and 3 conductors: 2 charged conductors.
Cables with 4 and 5 conductors: 3 charged conductors.

LOW VOLTAGE CABLES

INDUSTRIAL CABLES

APPLICATION

Power supply cable for rated voltage up to 0.6/1kV. Suitable for indoor and outdoor fixed installations protected or not, in industrial areas, buildings and similar applications.

CABLE DESIGNATION

Cu / PVC / PVC

CONSTRUCTION CHARACTERISTICS

Conductor

Copper (plain annealed): solid class 1 or stranded class 2 or flexible class 5, circular or sector shaped

Insulation

PVC – (Polyvinyl chloride)

Oversheath

PVC – (Polyvinyl chloride)

GENERAL CHARACTERISTICS

Construction and test standards	IEC 60228 • IEC 60502-1
Rated voltage U_0/U	0.6 / 1 kV
Test voltage	3.5 kV a.c. 5 minutes
Conductor maximum operating temperature	70°C
Maximum short-circuit temperature	160°C (t ≤ 5s)
Minimum bending radius (mm) (permanent. after installation) (during installation)	4xd if d<25 • 6xd if d≥25 • 8xd if sector shape cond. 6xd if d<25 • 9xd if d≥25 • 12xd if sector shape cond.
Maximum pulling force over conductor (N)	Copper – 50 x S
Flame retardant	IEC 60332-1-2 • EN 60332-1-2 (cable vertically mounted, length of charred cable ≤ 540 mm)

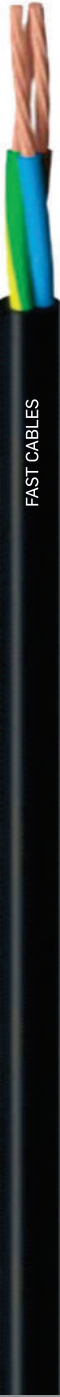
S – conductor cross-section (mm²)
d – cable outer diameter (mm)

ADDITIONAL CHARACTERISTICS

Fire retardant (frt)	IEC 60332-3-24 • EN 60332-3-24 (bunch of cables vertically mounted on a ladder, length of charred cable ≤ 2.5 m)
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ELECTRICAL AND DIMENSIONAL CHARACTERISTICS

Cable composition n.º cond. x cross-section (mm²)	Approximate outer diameter (mm)	Approximate weight (kg/km)	Current carrying capacity In open air ⁽¹⁾ T = 30°C (A)	
			2 charged conductors	3 charged conductors
Cu / PVC / PVC				
1x1.5	6.0	57	17.5	15.5
1x2.5	6.4	70	24	21
1x4.0	7.4	95	32	28
1x6.0	7.9	121	41	36
1x10	8.8	166	57	50
1x16	9.9	230	76	68
1x25	11.5	328	131	110
1x35	12.5	428	162	137
1x50	14.0	556	196	167
1x70	15.6	755	251	216
1x95	17.9	1026	304	269
1x120	19.6	1271	352	308
1x150	21.5	1553	406	356
1x185	23.8	1928	463	409
1x240	26.8	2502	546	485
1x300	29.8	3141	629	561
1x400	33.4	4005	754	656
1x500	39.4	4957	868	749
1x630	43.4	6338	1005	855
2x1.5	10.0	126	22	
2x2.5	10.8	153	30	
2x4.0	12.7	208	40	
2x6.0	13.8	258	51	
2x10	15.6	356	70	
2x16	17.8	494	94	
2x25	21.0	698	119	
2x35	23.0	892	148	
2x50	26.0	1161	180	
3x1.5	10.5	154	22	18.5
3x2.5	11.4	197	30	25
3x4.0	13.4	265	40	34
3x6.0	14.7	342	51	43
3x10	16.6	476	70	60
3x16	18.9	677	94	80
3x25	19.3	919	119	101
3x35	21.3	1209	148	126
3x50	24.6	1610	180	153



ELECTRICAL AND DIMENSIONAL CHARACTERISTICS

Cable composition n.º cond. x cross-section (mm²)	Approximate outer diameter (mm)	Approximate weight (kg/km)	Current carrying capacity In open air ⁽¹⁾ T = 30°C (A)	
			2 charged conductors	3 charged conductors
3x70	27.3	2204		196
3x95	31.5	3028		238
3x120	34.2	3751		276
3x150	38.0	4591		319
3x185	41.9	5713		364
3x240	47.2	7413		430
3x300	52.1	9294		497
3x400	59.2	11678		597
3x16+1x10	20.8	808		80
3x25+1x16	23.1	1151		101
3x35+1x16	25.6	1433		126
3x50+1x25	29.9	1952		153
3x70+1x35	33.6	2669		196
3x95+1x50	38.8	3640		238
3x120+1x70	42.3	4583		276
3x150+1x70	47.2	5470		319
3x185+1x95	52.0	6882		364
3x240+1x120	58.8	8073		430
3x300+1x150	65.1	11107		497
3x400+1x185	74.0	13926		597
4x1.5	11.3	192		18.5
4x2.5	12.3	247		25
4x4.0	14.6	329		34
4x6.0	16.0	437		43
4x10	18.2	627		60
4x16	20.8	870		80
4x25	23.1	1250		101
4x35	25.6	1609		126
4x50	29.9	2181		153
4x70	33.6	2997		196
4x95	38.8	4096		238
4x120	42.3	5073		276
4x150	47.2	6232		319
4x185	52.0	7754		364
4x240	58.8	10059		430
4x300	65.1	12634		497
4x400	74.0	15844		597

(1) Only one cable installed.

APPLICATION

Power supply cable for rated voltage up to 0.6/1kV. Suitable for indoor and outdoor fixed installations protected or not, in industrial areas, buildings and similar applications.

CABLE DESIGNATION

Al / PVC / PVC

CONSTRUCTION CHARACTERISTICS

Conductor

Aluminium: solid class 1 or stranded class 2, circular or sector shaped

Insulation

PVC – (Polyvinyl chloride)

Oversheath

PVC – (Polyvinyl chloride)

GENERAL CHARACTERISTICS

Construction and test standards	IEC 60228 • IEC 60502-1
Rated voltage U ₀ /U	0.6 / 1 kV
Test voltage	3.5 kV a.c. 5 minutes
Conductor maximum operating temperature	70°C
Maximum short-circuit temperature	160°C (t ≤ 5s)
Minimum bending radius (mm) (permanent. after installation) (during installation)	4xd if d<25 • 6xd if d≥25 • 8xd if sector shape cond. 6xd if d<25 • 9xd if d≥25 • 12xd if sector shape cond.
Maximum pulling force over conductor (N)	Aluminium – 30 x S
Flame retardant	IEC 60332-1-2 • EN 60332-1-2 (cable vertically mounted, length of charred cable ≤ 540 mm)
S – conductor cross-section (mm²) d – cable outer diameter (mm)	

ADDITIONAL CHARACTERISTICS

Fire retardant (frt)	IEC 60332-3-24 • EN 60332-3-24 (bunch of cables vertically mounted on a ladder, length of charred cable ≤ 2.5 m)
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ELECTRICAL AND DIMENSIONAL CHARACTERISTICS				
Cable composition n.º cond. x cross-section (mm²)	Approximate outer diameter (mm)	Approximate weight (kg/km)	Current carrying capacity In open air ⁽²⁾ T = 30°C (A)	
			2 charged conductors	3 charged conductors
Al / PVC / PVC				
1x16	9.9	142		
1x25	11.5	190		
1x35	12.5	226		
1x50	14.0	293	149	128
1x70	15.6	378	192	166
1x95	17.9	494	235	203
1x120	19.6	570	273	237
1x150	21.5	713	316	274
1x185	23.8	874	363	316
1x240	26.8	1111	430	375
1x300	29.8	1340	497	434
1x400	33.4	1700	543	
1x500	39.4	2052	629	
1x630	43.4	2534	722	
3x16	18.9	461	73	61
3x25	19.3	587	89	78
3x35	21.3	706	111	96
3x50	24.6	904	135	117
3x70	27.3	1151	173	150
3x95	31.5	1536	210	183
3x120	34.2	1835		212
3x150	38.0	2163		245
3x185	41.9	2719		280
3x240	47.2	3422		330
3x300	52.1	4117		381
3x25+1x16	23.1	710		78
3x35+1x16	25.6	835		96
3x50+1x25	29.9	1093		117
3x70+1x35	33.6	1382		150
3x95+1x50	38.8	1884		183
3x120+1x70	42.3	2213		212
3x150+1x70	47.2	2626		245
3x185+1x95	52.0	3240		280
3x240+1x120	58.8	4085		330
3x300+1x150	65.1	5012		381

ELECTRICAL AND DIMENSIONAL CHARACTERISTICS				
Cable composition n.º cond. x cross-section (mm²)	Approximate outer diameter (mm)	Approximate weight (kg/km)	Current carrying capacity In open air ⁽²⁾ T = 30°C (A)	
			2 charged conductors	3 charged conductors
4x16	20.8	535		61
4x25	23.1	725		78
4x35	25.6	905		96
4x50	29.9	1150		117
4x70	33.6	1464		150
4x95	38.8	2020		183
4x120	42.3	2325		212
4x150	47.2	2868		245
4x185	52.0	3577		280
4x240	58.8	4436		330
4x300	65.1	5488		381

Other compositions are available, contact info@fast-cables.com for information.

(1) Phase conductors sector shape.
(2) Installation in free air or on perforated cable tray, horizontal or vertical.

Single core cables – Flat touching installation.
Cables with 2 and 3 conductors: 2 charged conductors.
Cables with 4 and 5 conductors: 3 charged conductors.
For compositions of 4 conductors. the same characteristics apply if the fourth conductor is the earth conductor or neutral conductor.

Other compositions are available, contact info@fast-cables.com for information.

- (1) Phase conductors sector shape.
(2) Installation in free air or on perforated cable tray, horizontal or vertical.

Single core cables – Flat touching installation.
Cables with 2 and 3 conductors: 2 charged conductors.
Cables with 4 and 5 conductors: 3 charged conductors.
For compositions of 4 conductors. the same characteristics apply if the fourth conductor is the earth conductor or neutral conductor.

APPLICATION

Power supply cable for rated voltage up to 0.6/1kV. Suitable for indoor and outdoor fixed installations protected or not, in industrial areas, buildings and similar applications.

CABLE DESIGNATION

Cu / LSHF / LSHF

CONSTRUCTION CHARACTERISTICS

Conductor

Copper (plain annealed): solid class 1 or stranded class 2 or flexible class 5, circular or sector shaped

Insulation

LSHF – Low Smoke Halogen Free thermoplastic compound. Fire retardant.

Oversheath

LSHF – Low Smoke Halogen Free thermoplastic compound. Fire retardant.

GENERAL CHARACTERISTICS

Construction and test standards	IEC 60228 • IEC 60502-1
Rated voltage U_0/U	0.6 / 1 kV
Test voltage	3.5 kV a.c. 5 minutes
Conductor maximum operating temperature	70°C
Maximum short-circuit temperature	160°C (t ≤ 5s)
Minimum bending radius (mm) (permanent. after installation) (during installation)	4xd if d<25 • 6xd if d≥25 • 8xd if sector shape cond. 6xd if d<25 • 9xd if d≥25 • 12xd if sector shape cond.
Maximum pulling force over conductor (N)	Copper – 50 x S
Flame retardant	IEC 60332-1-2 • EN 60332-1-2 (cable vertically mounted, length of charred cable ≤ 540 mm)
Fire retardant (frt)	IEC 60332-3-24 • EN 60332-3-24 (bunch of cables vertically mounted on a ladder, length of charred cable ≤ 2.5 m)
Halogen free (zh)	
Low smoke	IEC 61034-2 • EN 61034-2 (cable light transmittance ≥ 60%)
Low toxicity	IEC 60754-1 • EN 50267-2-1 (halogen acid gas content ≤ 0.5%)
Low corrosivity	IEC 60754-2 • EN 50267-2-3 (pH ≥4.3 • conductivity ≤ 10µS/mm)

S – conductor cross-section (mm²)
d – cable outer diameter (mm)

ELECTRICAL AND DIMENSIONAL CHARACTERISTICS

Cable composition n.º cond. x cross-section (mm²)	Approximate outer diameter (mm)	Approximate weight (kg/km)	Current carrying capacity In open air ⁽²⁾ T = 30°C	
			(A)	
			2 charged conductors	3 charged conductors
Cu / LSHF / LSHF				
1x1.5	6.0	57	17.5	15.5
1x2.5	6.4	70	24	21
1x4.0	7.4	95	32	28
1x6.0	7.9	121	41	36
1x10	8.8	166	57	50
1x16	9.9	230	76	68
1x25	11.5	328	131	110
1x35	12.5	428	162	137
1x50	14.0	556	196	167
1x70	15.6	755	251	216
1x95	17.9	1026	304	269
1x120	19.6	1271	352	308
1x150	21.5	1553	406	356
1x185	23.8	1928	463	409
1x240	26.8	2502	546	485
1x300	29.8	3141	629	561
1x400	33.4	4005	754	656
1x500	39.4	4957	868	749
1x630	43.4	6338	1005	855
2x1.5	10.0	126	22	
2x2.5	10.8	153	30	
2x4.0	12.7	208	40	
2x6.0	13.8	258	51	
2x10	15.6	356	70	
2x16	17.8	494	94	
2x25	21.0	698	119	
2x35	23.0	892	148	
2x50	26.0	1161	180	
3x1.5	10.5	154	22	18.5
3x2.5	11.4	197	30	25
3x4.0	13.4	265	40	34
3x6.0	14.7	342	51	43
3x10	16.6	476	70	60
3x16	18.9	677	94	80
3x25	19.3	919	119	101
3x35	21.3	1209	148	126
3x50	24.6	1610	180	153



ELECTRICAL AND DIMENSIONAL CHARACTERISTICS

Cable composition n.º cond. x cross-section (mm²)	Approximate outer diameter (mm)	Approximate weight (kg/km)	Current carrying capacity In open air ⁽²⁾ T = 30°C (A)	
			2 charged conductors	3 charged conductors
3x70	27.3	2204		196
3x95	31.5	3028		238
3x120	34.2	3751		276
3x150	38.0	4591		319
3x185	41.9	5713		364
3x240	47.2	7413		430
3x300	52.1	9294		497
3x400	59.2	11678		597
3x16+1x10	20.8	808		80
3x25+1x16	23.1	1151		101
3x35+1x16	25.6	1433		126
3x50+1x25	29.9	1952		153
3x70+1x35	33.6	2669		196
3x95+1x50	38.8	3640		238
3x120+1x70	42.3	4583		276
3x150+1x70	47.2	5470		319
3x185+1x95	52.0	6882		364
3x240+1x120	58.8	8073		430
3x300+1x150	65.1	11107		497
3x400+1x185	74.0	13926		597
4x1.5	11.3	192		18.5
4x2.5	12.3	247		25
4x4.0	14.6	329		34
4x6.0	16.0	437		43
4x10	18.2	627		60
4x16	20.8	870		80
4x25	23.1	1250		101
4x35	25.6	1609		126
4x50	29.9	2181		153
4x70	33.6	2997		196
4x95	38.8	4096		238
4x120	42.3	5073		276
4x150	47.2	6232		319
4x185	52.0	7754		364
4x240	58.8	10059		430
4x300	65.1	12634		497
4x400	74.0	15844		597

APPLICATION

Power supply cable for rated voltage up to 0.6/1kV. Suitable for indoor and outdoor fixed installations protected or not, in industrial areas, buildings and similar applications.

CABLE DESIGNATION

Al / LSHF / LSHF

CONSTRUCTION CHARACTERISTICS

Conductor

Aluminum: solid class 1 or stranded class 2 circular or sector shaped

Insulation

LSHF – Low Smoke Halogen Free thermoplastic compound. Fire retardant.

Oversheath

LSHF – Low Smoke Halogen Free thermoplastic compound. Fire retardant.

GENERAL CHARACTERISTICS

Construction and test standards	IEC 60228 • IEC 60502-1
Rated voltage U ₀ /U	0.6 / 1 kV
Test voltage	3.5 kV a.c. 5 minutes
Conductor maximum operating temperature	70°C
Maximum short-circuit temperature	160°C (t ≤ 5s)
Minimum bending radius (mm) (permanent. after installation) (during installation)	4xd if d<25 • 6xd if d≥25 • 8xd if sector shape cond. 6xd if d<25 • 9xd if d≥25 • 12xd if sector shape cond.
Maximum pulling force over conductor (N)	Aluminum – 30 x S
Flame retardant	IEC 60332-1-2 • EN 60332-1-2 (cable vertically mounted, length of charred cable ≤ 540 mm)
Fire retardant (frt)	IEC 60332-3-24 • EN 60332-3-24 (bunch of cables vertically mounted on a ladder, length of charred cable ≤ 2.5 m)
Halogen free (zh)	
Low smoke	IEC 61034-2 • EN 61034-2 (cable light transmittance ≥ 60%)
Low toxicity	IEC 60754-1 • EN 50267-2-1 (halogen acid gas content ≤ 0.5%)
Low corrosivity	IEC 60754-2 • EN 50267-2-3 (pH ≥4.3 • conductivity ≤ 10µS/mm)

S – conductor cross-section (mm²)

d – cable outer diameter (mm)



ELECTRICAL AND DIMENSIONAL CHARACTERISTICS				
Cable composition n.º cond. x cross-section (mm²)	Approximate outer diameter (mm)	Approximate weight (kg/km)	Current carrying capacity In open air ⁽²⁾ T = 30°C (A)	
			2 charged conductors	3 charged conductors
Al / LSHF / LSHF				
1x16	9.9	142		
1x25	11.5	190		
1x35	12.5	226		
1x50	14.0	293	149	128
1x70	15.6	378	192	166
1x95	17.9	494	235	203
1x120	19.6	570	273	237
1x150	21.5	713	316	274
1x185	23.8	874	363	316
1x240	26.8	1111	430	375
1x300	29.8	1340	497	434
1x400	33.4	1700	543	
1x500	39.4	2052	629	
1x630	43.4	2534	722	
3x16	18.9	461	73	61
3x25	19.3	587	89	78
3x35	21.3	706	111	96
3x50	24.6	904	135	117
3x70	27.3	1151	173	150
3x95	31.5	1536	210	183
3x120	34.2	1835		212
3x150	38.0	2163		245
3x185	41.9	2719		280
3x240	47.2	3422		330
3x300	52.1	4117		381
3x25+1x16	23.1	710		78
3x35+1x16	25.6	835		96
3x50+1x25	29.9	1093		117
3x70+1x35	33.6	1382		150
3x95+1x50	38.8	1884		183
3x120+1x70	42.3	2213		212
3x150+1x70	47.2	2626		245
3x185+1x95	52.0	3240		280
3x240+1x120	58.8	4085		330
3x300+1x150	65.1	5012		381

ELECTRICAL AND DIMENSIONAL CHARACTERISTICS				
Cable composition n.º cond. x cross-section (mm²)	Approximate outer diameter (mm)	Approximate weight (kg/km)	Current carrying capacity In open air ⁽²⁾ T = 30°C (A)	
			2 charged conductors	3 charged conductors
4x16	20.8	535		61
4x25	23.1	725		78
4x35	25.6	905		96
4x50	29.9	1150		117
4x70	33.6	1464		150
4x95	38.8	2020		183
4x120	42.3	2325		212
4x150	47.2	2868		245
4x185	52.0	3577		280
4x240	58.8	4436		330
4x300	65.1	5488		381

Other compositions are available, contact info@fast-cables.com for information.

(1) Phase conductors sector shape.
(2) Installation in free air or on perforated cable tray, horizontal or vertical.

Single core cables – Flat touching installation.
Cables with 2 and 3 conductors: 2 charged conductors.
Cables with 4 and 5 conductors: 3 charged conductors.
For compositions of 4 conductors. the same characteristics apply if the fourth conductor is the earth conductor or neutral conductor.

Other compositions are available, contact info@fast-cables.com for information.

- (1) Phase conductors sector shape.
(2) Installation in free air or on perforated cable tray, horizontal or vertical.

Single core cables – Flat touching installation.
Cables with 2 and 3 conductors: 2 charged conductors.
Cables with 4 and 5 conductors: 3 charged conductors.
For compositions of 4 conductors. the same characteristics apply if the fourth conductor is the earth conductor or neutral conductor.

APPLICATION

Power supply cable for rated voltage up to 0.6/1kV. Suitable for indoor and outdoor fixed installations protected or not, in industrial areas, buildings and similar applications.

CABLE DESIGNATION

Cu / XLPE / PVC
Al / XLPE / PVC

CONSTRUCTION CHARACTERISTICS

Conductor
Copper (plain annealed): solid class 1 or stranded class 2 or flexible class 5, circular or sector shaped
Aluminium: Solid Class 1, stranded class 2, circular or sector shaped.

Insulation
XLPE – (Cross-linked polyethylene)

Oversheath
PVC – (Polyvinyl chloride)

GENERAL CHARACTERISTICS

Construction and test standards	IEC 60228 · IEC 60502-1
Rated voltage U_0/U	0.6 / 1 kV
Test voltage	3.5 kV a.c. 5 minutes
Conductor maximum operating temperature	90°C
Maximum short-circuit temperature	250°C (t ≤ 5s)
Minimum bending radius (mm) (permanent. after installation) (during installation)	4xd if d<25 · 6xd if d≥25 · 8xd if sector shape cond. 6xd if d<25 · 9xd if d≥25 · 12xd if sector shape cond.
Maximum pulling force over conductor (N)	Copper – 50 x S Aluminium – 30 x S
Flame retardant	IEC 60332-1-2 · EN 60332-1-2 (cable vertically mounted, length of charred cable ≤ 540 mm)

S – conductor cross-section (mm²)
d – cable outer diameter (mm)

ADDITIONAL CHARACTERISTICS

Fire retardant (frt)	IEC 60332-3-24 · EN 60332-3-24 (bunch of cables vertically mounted on a ladder, length of charred cable ≤ 2.5 m)
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ELECTRICAL AND DIMENSIONAL CHARACTERISTICS

Cable composition n.º cond. x cross-section (mm²)	Approximate outer diameter (mm)	Approximate weight (kg/km)	Current carrying capacity In open air ⁽²⁾ T = 30°C (A)	
			2 charged conductors	3 charged conductors
			Cu / XLPE / PVC	
1x1.5	5.8	50	23	20
1x2.5	6.2	63	31	28
1x4.0	6.8	80	42	37
1x6.0	7.3	103	54	48
1x10	8.2	147	75	66
1x16	9.3	207	100	88
1x25	10.9	302	161	135
1x35	11.9	395	200	169
1x50	13.2	519	242	207
1x70	15.0	724	310	268
1x95	16.9	971	377	328
1x120	18.6	1205	437	383
1x150	20.7	1473	504	444
1x185	23.0	1839	575	510
1x240	25.8	2381	679	607
1x300	28.6	2989	783	703
1x400	32.2	3834	940	823
1x500	35.7	4734	1083	946
1x630	41.4	6099	1254	1088
2x1.5	9.6	113	26	
2x2.5	10.4	140	36	
2x4.0	11.5	177	49	
2x6.0	12.6	224	63	
2x10	14.4	319	86	
2x16	16.6	441	115	
2x25	19.8	642	149	
2x35	21.8	840	185	
2x50	24.4	1079	225	
2x70	28.2	1517	289	
2x95	31.8	2042	352	
2x120	35.4	2537	410	
3x1.5	10.1	137		23
3x2.5	11.0	175		32
3x4.0	12.1	228		42
3x6.0	13.4	298		54
3x10	15.3	417		75

ELECTRICAL AND DIMENSIONAL CHARACTERISTICS					ELECTRICAL AND DIMENSIONAL CHARACTERISTICS				
Cable composition n.º cond. x cross-section (mm²)	Approximate outer diameter (mm)	Approximate weight (kg/km)	Current carrying capacity In open air ⁽²⁾ T = 30°C (A)		Cable composition n.º cond. x cross-section (mm²)	Approximate outer diameter (mm)	Approximate weight (kg/km)	Current carrying capacity In open air ⁽²⁾ T = 30°C (A)	
			2 charged conductors	3 charged conductors				2 charged conductors	3 charged conductors
3x16	17.6	600		100	4x185	50.1	7350		456
3x25	18.0	846		127	4x240	56.1	9521		538
3x35	20.0	1125		158	4x300	62.0	11962		621
3x50	22.8	1495		192	4x400	70.7	15004		741
3x70	26.0	2087		246					
3x95	29.1	2834		298					
3x120	32.3	3552		346					
3x150	36.1	4361		399					
3x185	40.0	5434		456					
3x240	44.8	7059		538					
3x300	49.5	8877		621					
3x400	56.4	11145		741					
3x16+1x10	19.3	714		100					
3x25+1x16	21.6	1037		127					
3x35+1x16	24.1	1322		158					
3x50+1x25	27.7	1781		192					
3x70+1x35	32.2	2496		246					
3x95+1x50	36.1	3372		298					
3x120+1x70	40.3	4314		346					
3x150+1x70	45.0	5149		399					
3x185+1x95	50.1	6512		456					
3x240+1x120	56.1	8395		538					
3x300+1x150	62.0	10512		621					
3x400+1x185	70.7	13178		741					
4x1.5	10.8	165		23					
4x2.5	11.9	210		32					
4x4.0	13.2	279		42					
4x6.0	14.5	368		54					
4x10	16.7	537		75					
4x16	19.3	772		100					
4x25	21.6	1122		127					
4x35	24.1	1492		158					
4x50	27.7	1986		192					
4x70	32.2	2803		246					
4x95	36.1	3804		298					
4x120	40.3	4587		346					
4x150	45.0	5876		399					

ELECTRICAL AND DIMENSIONAL CHARACTERISTICS				
Cable composition n.º cond. x cross-section (mm²)	Approximate outer diameter (mm)	Approximate weight (kg/km)	Current carrying capacity In open air ⁽²⁾ T = 30°C (A)	
			2 charged conductors	3 charged conductors
Al / XLPE / PVC				
1x16	9.3	116		
1x25	10.9	161		
1x35	11.9	196		
1x50	13.2	246	184	154
1x70	15.0	325	237	206
1x95	16.9	417	289	253
1x120	18.6	504	337	296
1x150	20.7	620	389	343
1x185	23.0	764	447	395
1x240	25.8	967	530	471
1x300	28.6	1188	613	544
1x400	32.2	1485	679	638
1x500	35.7	1845	786	743
1x630	41.4	2321	903	849
3x16	17.6	387		77
3x25	18.0	485		97
3x35	20.0	592		120
3x50	22.8	742		146
3x70	26.0	969		187
3x95	29.1	1253		227
3x120	32.3	1559		263
3x150	36.1	1882		304
3x185	40.0	2309		347
3x240	44.8	2926		409
3x300	49.5	3557		471
3x25+1x16	21.6	580		97
3x35+1x16	24.1	693		120
3x50+1x25	27.7	892		146
3x70+1x35	32.2	1172		187
3x95+1x50	36.1	1521		227
3x120+1x70	40.3	1872		263
3x150+1x70	45.0	2250		304
3x185+1x95	50.1	2759		347
3x240+1x120	56.1	3488		409
3x300+1x150	62.0	4272		471

ELECTRICAL AND DIMENSIONAL CHARACTERISTICS				
Cable composition n.º cond. x cross-section (mm²)	Approximate outer diameter (mm)	Approximate weight (kg/km)	Current carrying capacity In open air ⁽²⁾ T = 30°C (A)	
			2 charged conductors	3 charged conductors
4x16	19.3	466		77
4x25	21.6	613		97
4x35	24.1	753		120
4x50	27.7	965		146
4x70	32.2	1281		187
4x95	36.1	1661		227
4x120	40.3	2016		263
4x150	45.0	2487		304
4x185	50.1	3050		347
4x240	56.1	3861		409
4x300	62.0	4748		471
Other compositions are available, contact info@fast-cables.com for information.				
(1) Phase conductors sector shape.				
(2) Installation in free air or on perforated cable tray, horizontal or vertical.				
Single core cables – Flat touching installation.				
Cables with 2 and 3 conductors: 2 charged conductors.				
Cables with 4 and 5 conductors: 3 charged conductors.				
For compositions of 4 conductors. the same characteristics apply if the fourth conductor is the earth conductor or neutral conductor.				

APPLICATION

Power supply in places requiring extra fire safety precautions. Fire retardant, high security cable for rated voltages up to 0.6/1kV. Suitable for fixed installations, in public areas such as hospitals, hotels, shopping malls, computer, communication centers and in all general places where it is required a high degree of protection of persons and assets or/and with a large number of people and electrical and electronic equipment.

CABLE DESIGNATION

Cu/XLPE/LSHF
Al/XLPE/LSHF

CONSTRUCTION CHARACTERISTICS

Conductor

Copper (plain annealed): solid class 1, or stranded class 2, or flexible class 5, circular or sector shape.
Aluminium: solid class 1, stranded class 2, circular or sector shape.

Insulation

XLPE – (Cross-linked polyethylene)

Oversheath

LSHF – Low Smoke Halogen Free thermoplastic compound. Fire retardant.

GENERAL CHARACTERISTICS

Construction and test standards	IEC 60228 • IEC 60502-1
Rated voltage U_0/U	0.6 / 1 kV
Test voltage	3.5 kV a.c. 5 minutes
Conductor maximum operating temperature	90°C
Maximum short-circuit temperature	250°C (t ≤ 5s)
Minimum bending radius (mm) (permanent. after installation) (during installation)	4xd if d<25 • 6xd if d≥25 • 8xd if sector shape cond. 6xd if d<25 • 9xd if d≥25 • 12xd if sector shape cond.
Maximum pulling force over conductor (N)	Copper – 50 x S Aluminium – 30 x S
Flame retardant	IEC 60332-1-2 • EN 60332-1-2 (cable vertically mounted, length of charred cable ≤ 540 mm)
Fire retardant (frt)	IEC 60332-3-24 • EN 60332-3-24 (bunch of cables vertically mounted on a ladder, length of charred cable ≤ 2.5 m)
Halogen free (zh)	
Low smoke	IEC 61034-2 • EN 61034-2 (cable light transmittance ≥ 60%)
Low toxicity	IEC 60754-1 • EN 50267-2-1 (halogen acid gas content ≤ 0.5%)
Low corrosivity	IEC 60754-2 • EN 50267-2-3 (pH ≥4.3 • conductivity ≤ 10µS/mm)

S – conductor cross-section (mm²)
d – cable outer diameter (mm)



ELECTRICAL AND DIMENSIONAL CHARACTERISTICS

Cable composition n.º cond. x cross-section (mm²)	Approximate outer diameter (mm)	Approximate weight (kg/km)	Current carrying capacity In open air ⁽²⁾ T = 30°C (A)	
			2 charged conductors	3 charged conductors
			Cu / XLPE / LSHF	
1x1.5	5.8	50	23	20
1x2.5	6.2	63	31	28
1x4.0	6.8	80	42	37
1x6.0	7.3	103	54	48
1x10	8.2	147	75	66
1x16	9.3	207	100	88
1x25	10.9	302	161	135
1x35	11.9	395	200	169
1x50	13.2	519	242	207
1x70	15.0	724	310	268
1x95	16.9	971	377	328
1x120	18.6	1205	437	383
1x150	20.7	1473	504	444
1x185	23.0	1839	575	510
1x240	25.8	2381	679	607
1x300	28.6	2989	783	703
1x400	32.2	3834	940	823
1x500	35.7	4734	1083	946
1x630	41.4	6099	1254	1088
2x1.5	9.6	113	26	
2x2.5	10.4	140	36	
2x4.0	11.5	177	49	
2x6.0	12.6	224	63	
2x10	14.4	319	86	
2x16	16.6	441	115	
2x25	19.8	642	149	
2x35	21.8	840	185	
2x50	24.4	1079	225	
2x70	28.2	1517	289	
2x95	31.8	2042	352	
2x120	35.4	2537	410	
3x1.5	10.1	137		23
3x2.5	11.0	175		32
3x4.0	12.1	228		42
3x6.0	13.4	298		54
3x10	15.3	417		75
3x16	17.6	600		100
3x25	18.0	846		127

ELECTRICAL AND DIMENSIONAL CHARACTERISTICS

Cable composition n.º cond. x cross-section (mm²)	Approximate outer diameter (mm)	Approximate weight (kg/km)	Current carrying capacity In open air ⁽²⁾ T = 30°C (A)	
			2 charged conductors	3 charged conductors
3x35	20.0	1125		158
3x50	22.8	1495		192
3x70	26.0	2087		246
3x95	29.1	2834		298
3x120	32.3	3552		346
3x150	36.1	4361		399
3x185	40.0	5434		456
3x240	44.8	7059		538
3x300	49.5	8877		621
3x400	56.4	11145		741
3x16+1x10	19.3	714		100
3x25+1x16	21.6	1037		127
3x35+1x16	24.1	1322		158
3x50+1x25	27.7	1781		192
3x70+1x35	32.2	2496		246
3x95+1x50	36.1	3372		298
3x120+1x70	40.3	4314		346
3x150+1x70	45.0	5149		399
3x185+1x95	50.1	6512		456
3x240+1x120	56.1	8395		538
3x300+1x150	62.0	10512		621
3x400+1x185	70.7	13178		741
4x1.5	10.8	165		23
4x2.5	11.9	210		32
4x4.0	13.2	279		42
4x6.0	14.5	368		54
4x10	16.7	537		75
4x16	19.3	772		100
4x25	21.6	1122		127
4x35	24.1	1492		158
4x50	27.7	1986		192
4x70	32.2	2803		246
4x95	36.1	3804		298
4x120	40.3	4587		346
4x150	45.0	5876		399
4x185	50.1	7350		456
4x240	56.1	9521		538
4x300	62.0	11962		621
4x400	70.7	15004		741

ELECTRICAL AND DIMENSIONAL CHARACTERISTICS

Cable composition n.º cond. x cross-section (mm²)	Approximate outer diameter (mm)	Approximate weight (kg/km)	Current carrying capacity In open air ⁽²⁾ T = 30°C (A)	
			2 charged conductors	3 charged conductors
Al / XLPE / LSHF				
1x16	9.3	116		
1x25	10.9	161		
1x35	11.9	196		
1x50	13.2	246	184	154
1x70	15.0	325	237	206
1x95	16.9	417	289	253
1x120	18.6	504	337	296
1x150	20.7	620	389	343
1x185	23.0	764	447	395
1x240	25.8	967	530	471
1x300	28.6	1188	613	544
1x400	32.2	1485	679	638
1x500	35.7	1845	786	743
1x630	41.4	2321	903	849
3x16	17.6	387		77
3x25	18.0	485		97
3x35	20.0	592		120
3x50	22.8	742		146
3x70	26.0	969		187
3x95	29.1	1253		227
3x120	32.3	1559		263
3x150	36.1	1882		304
3x185	40.0	2309		347
3x240	44.8	2926		409
3x300	49.5	3557		471
3x25+1x16	21.6	580		97
3x35+1x16	24.1	693		120
3x50+1x25	27.7	892		146
3x70+1x35	32.2	1172		187
3x95+1x50	36.1	1521		227
3x120+1x70	40.3	1872		263
3x150+1x70	45.0	2250		304
3x185+1x95	50.1	2759		347
3x240+1x120	56.1	3488		409
3x300+1x150	62.0	4272		471

ELECTRICAL AND DIMENSIONAL CHARACTERISTICS

Cable composition n.º cond. x cross-section (mm²)	Approximate outer diameter (mm)	Approximate weight (kg/km)	Current carrying capacity In open air ⁽²⁾ T = 30°C (A)	
			2 charged conductors	3 charged conductors
4x16	19.3	466		77
4x25	21.6	613		97
4x35	24.1	753		120
4x50	27.7	965		146
4x70	32.2	1281		187
4x95	36.1	1661		227
4x120	40.3	2016		263
4x150	45.0	2487		304
4x185	50.1	3050		347
4x240	56.1	3861		409
4x300	62.0	4748		471

Other compositions are available, contact info@fast-cables.com for information.

- (1) Phase conductors sector shape.
(2) Installation in free air or on perforated cable tray, horizontal or vertical.

Single core cables – Flat touching installation.
Cables with 2 and 3 conductors: 2 charged conductors.
Cables with 4 and 5 conductors: 3 charged conductors.
For compositions of 4 conductors, the same characteristics apply if the fourth conductor is the earth conductor or neutral conductor.

APPLICATION

Fire resistant, halogen-free, high security cable, for rated voltages up to 0.6/ kV. For power supply to priority security systems that should be maintained in function during fire. Suitable for indoor use, fixed installations, in public areas such as hospitals, hotels, shopping malls, airports, underground railway networks, tunnels, communication centers and in all general places where it is required a high degree of protection of persons and assets or/and with a largenumber of people and electrical/electronic equipment.

CABLE DESIGNATION

Cu/MICA/XLPE/LSHF

CONSTRUCTION CHARACTERISTICS

Conductor

Copper (plain annealed): stranded class 2 or flexible class 5, circular.

Insulation

Mica tapes. XLPE – (Cross-linked polyethylene)

Oversheath

LSHF – Low Smoke Halogen Free thermoplastic compound. Fire retardant.

GENERAL CHARACTERISTICS

Construction and test standards	IEC 60228 · IEC 60502-1
Rated voltage U ₀ /U	0.6 / 1 kV
Test voltage	3.5 kV a.c. 5 minutes
Conductor maximum operating temperature	90° C
Maximum short-circuit temperature	250°C (t ≤ 5s)
Minimum bending radius (mm) (permanent. after installation) (during installation)	4xd if d<25 · 6xd if d≥25 6xd if d<25 · 9xd if d≥25
Maximum pulling force over conductor (N)	50 x S

S – conductor cross-section (mm²)
d – cable outer diameter (mm)

FAST CABLES

GENERAL CHARACTERISTICS		ELECTRICAL AND DIMENSIONAL CHARACTERISTICS				
Flame retardant	IEC 60332-1-2 · EN 60332-1-2 (cable vertically mounted. length of charred cable ≤ 540 mm)	Cable composition n.º cond. x cross-section (mm ²)	Approximate outer diameter (mm)	Approximate weight (kg/km)	Current carrying capacity In open air ⁽¹⁾ T = 30 °C (A)	
Fire retardant (frt)	IEC 60332-3-24 · EN 60332-3-24 (bunch of cables vertically mounted on a ladder, length of charred cable ≤ 2.5 m)				2 charged conductors	3 charged conductors
Fire resistant (frs)	IEC 60331-21 (750°C, charge circuit, time ≥ 90 minutes)					
Halogen free (zh)						
Low smoke	IEC 61034-2 · EN 61034-2 (cable light transmittance ≥ 60%)					
Low toxicity	IEC 60754-1 · EN 50267-2-1 (halogen acid gas content ≤ 0.5%)					
Low corrosivity	IEC 60754-2 · EN 50267-2-3 (pH ≥4.3 · conductivity ≤ 10µS/mm)					
					4 x 1.5	12.5
		4 x 2.5	13.5	240	32	
		4 x 4	15.0	325	42	
		4 x 6	16.0	410	54	
		4 x 10	18.0	595	75	

ELECTRICAL AND DIMENSIONAL CHARACTERISTICS

Cable composition n.º cond. x cross-section (mm²)	Approximate outer diameter (mm)	Approximate weight (kg/km)	Current carrying capacity In open air ⁽¹⁾ T = 30°C	
			(A)	
			2 charged conductors	3 charged conductors
Cu / MICA / XLPE / LSHF				
1 x 10	9.5	150	75	66
1 x 16	10.5	210	100	88
1 x 25	12.0	310	161	135
1 x 35	13.0	405	200	169
1 x 50	14.5	530	242	207
1 x 70	16.5	805	310	268
1 x 95	18.0	995	377	328
1 x 120	20.0	1 235	437	383
1 x 150	21.5	1 500	504	444
1 x 185	24.0	1 865	575	510
1 x 240	26.5	2 400	679	607
1 x 300	29.5	3 010	783	703
2 x 1.5	11.0	140	26	
2 x 2.5	12.0	175	36	
2 x 4	13.0	225	49	
2 x 6	14.0	280	63	
2 x 10	15.5	385	86	
2 x 16	18.0	545	115	
2 x 25	21.0	810	149	
3 x 1.5	11.5	160		26
3 x 2.5	12.0	175		36
3 x 4	14.0	270		49
3 x 6	14.5	335		63
3 x 10	16.5	480		86

Cable composition n.º cond. x cross-section (mm²)	Approximate outer diameter (mm)	Approximate weight (kg/km)	Current carrying capacity In open air ⁽¹⁾ T = 30°C (A)	
			2 charged conductors	3 charged conductors
4 x 1.5	12.5	190		23
4 x 2.5	13.5	240		32
4 x 4	15.0	325		42
4 x 6	16.0	410		54
4 x 10	18.0	595		75
4x 16	21.0	850		100
3 x 16 + 1 x 10	20.0	800		100
3 x 25 + 1 x 16	23.5	1205		127
3 x 35 + 1 x 16	25.5	1525		158
3 x 50 + 1 x 25	29.0	2050		192
3 x 70 + 1 x 35	35.5	2870		246
3 x 95 + 1 x 50	37.5	3875		298
3 x 120 + 1 x 70	42.5	4965		346
5 x 1.5	13.5	225		23
5 x 2.5	14.5	295		32
5 x 4	16.5	390		42
5 x 6	17.5	500		54
5 x 10	19.5	730		75
5 x 16	23.0	1055		100
3 x 25 + 2G16	25.5	1390		127
3 x 35 + 2G16	31.0	2320		158
3 x 50 + 2G25	27.0	3160		192
3 x 70 + 2G35	35.5	4485		246
3 x 95 + 2G50	40.5	5875		298

Other compositions are available, contact info@fast-cables.com for information.

(1) Installation in free air or on perforated cable tray, horizontal or vertical.

Single core cable – Flat touching installation.
Cables with 2 and 3 conductors: 2 charged conductors.
Cables with 4 and 5 conductors: 3 charged conductors.
For compositions of 4 conductors, the same characteristics apply if the fourth conductor is the earth conductor or neutral conductor.

APPLICATION

Power supply for rated voltages up to 0.6/1kV in applications where electromagnetic protection is required.
For fixed installations, protected or not, in industrial areas, power plants, substations and buildings.

CABLE DESIGNATION

- A: Cu / XLPE / Cu / PVC
B: Cu / XLPE / Cu / LSHF

CONSTRUCTION CHARACTERISTICS

- Conductor**
Copper (plain annealed): solid class 1, stranded class 2 or flexible class 5, circular.
- Insulation**
XLPE – (Cross-linked polyethylene).
- Bedding /Inner Sheath**
PVC – (Polyvinyl chloride) or LSHF – Low Smoke Halogen Free thermoplastic compound.
- Screen (shield)**
Corrugated copper tape with nominal thickness of 0.075 mm.
Optionally the copper tape can be helically applied with an overlap.
- Oversheath**
Extruded PVC (Polyvinyl chloride), LSHF – Low Smoke Halogen Free thermoplastic compound .Fire retardant.

GENERAL CHARACTERISTICS

Construction and test standards	IEC 60228 IEC 60502-1
Rated voltage U_0/U	0.6 / 1 kV
Test voltage	3.5 kV a.c. 5 minutes



GENERAL CHARACTERISTICS

Conductor maximum operating temperature	90°C
Maximum short-circuit temperature	250°C (t ≤ 5s)
Minimum bending radius (mm)	10 x d
Maximum pulling force over conductor (N)	Copper – 50 x S
Flame retardant	IEC 60332-1-2 · EN 60332-1-2 (cable vertically mounted, length of charred cable ≤ 540 mm)

CHARACTERISTICS

Fire retardant (frt)	IEC 60332-3-24 · EN 60332-3-24 (bunch of cables vertically mounted on a ladder, length of charred cable ≤ 2.5 m)
Halogen free (zh)	
Low smoke	IEC 61034-2 · EN 61034-2 (cable light transmittance ≥ 60%)
Low toxicity	IEC 60754-1 · EN 50267-2-1 (halogen acid gas content ≤ 0.5%)
Low corrosivity	IEC 60754-2 · EN 50267-2-3 (pH ≥4.3 · conductivity ≤ 10µS/mm)

ADDITIONAL CHARACTERISTICS

Fire retardant (frt)	IEC 60332-3-24 · EN 60332-3-24 (bunch of cables vertically mounted on a ladder, length of charred cable ≤ 2.5 m)
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S – conductor cross-section (mm²)
d – cable outer diameter (mm)

ELECTRICAL AND DIMENSIONAL CHARACTERISTICS

Cable composition n.º cond. x cross-section (mm ²)	Approximate outer diameter (mm)	Approximate weight (kg/km)
Cu / XLPE / Cu / PVC OR LSHF		
2x1.0	11.3	170
2x1.5	11.9	188
2x2.5	12.9	227
2x4.0	14.1	275
2x6.0	15.3	334
2x10	17.3	446
2x16	19.6	589
2x25	23.1	828
4x1.0	12.5	218
4x1.5	13.2	249
4x2.5	14.4	315
4x4.0	15.8	396
4x6.0	17.3	497
4x10	19.7	695
4x16	22.4	952
4x25	26.7	1385

Flex-Cu/XLPE/PVC OR LSHF/Cu-Tape/PVC OR LSHF

APPLICATION

Power cables for energy supply used in industry, distribution boards and power stations, for rated voltage up to 0.6/1kV. The concentric conductor can be used as neutral*– protective earthed conductor, Suitable for fixed installations indoor or outdoor.

CABLE DESIGNATION

Cu / XLPE / Cu wire conductor / PVC
F – Flexible

CONSTRUCTION CHARACTERISTICS

- Conductor**
Copper (plain annealed): stranded class 2, sector shape or circular, or circular flexible class 5.
- Insulation**
XLPE – (Cross-linked polyethylene).
- Bedding/Inner sheath**
PVC – (Polyvinyl chloride).
- Neutral/Earth concentric conductor (CNE)**
Single layer of plain annealed copper wires helically applied.
- Oversheath**
PVC – (Polyvinyl chloride).

GENERAL CHARACTERISTICS

Construction and test standards	IEC 60228 IEC 60502-1
Rated voltage U ₀ /U	0.6 / 1 kV
Test voltage	3.5 kV a.c. 5 minutes
Conductor maximum operating temperature	90°C
Maximum short-circuit temperature	250°C (t ≤ 5s)



GENERAL CHARACTERISTICS

Minimum bending radius (mm) (permanent after installation) (during installation)	4xd if d<25 • 6xd if d≥25 • 8xd if sector shape cond. 6xd if d<25 • 9xd if d≥25 • 12xd if sector shape cond.
Maximum pulling force over conductor (N)	50 x S recommended not to exceed 20000 N
Flame retardant	IEC 60332-1-2 • EN 60332-1-2 (cable vertically mounted. length of charred cable ≤ 540 mm)
d – cable outer diameter (mm) S – conductor cross-section (mm ²)	

ELECTRICAL AND DIMENSIONAL CHARACTERISTICS

Cable composition n.º cond. x cross-section (mm ²)	Approximate outer diameter (mm)	Approximate weight (kg/km)	Current carrying capacity. in open air ⁽¹⁾ T = 30° C (A)
3 x 6 / 6	17.0	460	44
3 x 10 / 10	18.5	645	58
3 x 16 / 16	20.5	910	75
3 x 25 / 16	24.5	1275	96
3 x 35 / 16	24.5	1405	115
3 x 50 / 25	27.5	1870	135
3 x 70 / 35	31.5	2625	167
3 x 95 / 50	35.5	3560	197
3 x 120 / 70	39.0	4520	223
3 x 150 / 70	43.0	5395	251
3 x 185 / 95	47.0	6815	281
4 x 6 / 6	17.5	525	44
4 x 10 / 10	19.5	755	58
4 x 16 / 16	22.5	1100	75
4 x 25 / 16	26.0	1530	96
4 x 35 / 16	27.5	1780	115
4 x 50 / 25	31.5	2455	135
4 x 70 / 35	36.0	3370	167
4 x 95 / 50	39.5	4570	197
4 x 120 / 70	44.5	5760	223
4 x 150 / 70	46.5	6625	251

Other compositions are available, contact info@fast-cables.com for information.

(1) Current ratings for 3 phase systems.
Sector shape conductors for phase conductors with cross-section higher than 25 mm².

APPLICATION

Cable for power supply, for rated voltage up to 0.6/1kV. Suitable for outdoor fixed installations when it is necessary to protect the cable against mechanical aggression or against rodents threat. Can be laid in free air, installed in ducts or directly buried. Excellent mechanical protection during laying, installation and service.

CABLE DESIGNATION

Cu / PVC / PVC / SWA / PVC
SWA – Steel wire armour
AWA – Aluminium wire armour

CONSTRUCTION CHARACTERISTICS

Conductor
Copper (plain annealed): solid class 1 or rigid stranded class 2 or class 5 (flexible), circular or sector shaped.

Insulation
PVC – (Polyvinyl chloride)

Bedding /Inner Sheath
PVC – (Polyvinyl chloride)

Armour
Steel galvanized wires helical applied.
For single core cables steel is substituted by aluminium wires.

Oversheath
PVC (Polyvinyl chloride)

GENERAL CHARACTERISTICS

Construction and test standards	IEC 60228 IEC 60502-1
Rated voltage U ₀ /U	0.6 / 1 kV
Test voltage	3.5 kV a.c. 5 minutes
Conductor maximum operating temperature	70°C
Maximum short-circuit temperature	160°C (t ≤ 5s)
Minimum bending radius (mm)	8 x d
Maximum pulling force over conductor (N)	Copper – 50 x S
Flame retardant	IEC 60332-1-2 · EN 60332-1-2 (cable vertically mounted, length of charred cable ≤ 540 mm)
S – conductor cross-section (mm ²) · d – cable outer diameter (mm).	

ADDITIONAL CHARACTERISTICS *

Fire retardant (frt)	IEC 60332-3-24 · EN 60332-3-24 (bunch of cables vertically mounted on a ladder, length of charred cable ≤ 2.5 m)
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ELECTRICAL AND DIMENSIONAL CHARACTERISTICS

Cable composition n.º cond. x cross-section (mm²)	Approximate outer diameter (mm)	Approximate weight (kg/km)	Current carrying capacity Installation directly buried ⁽¹⁾ Ts= 20°C (A)	
			2 charged conductors	3 charged conductors
Cu / PVC / PVC / AWA / PVC				
1x10	13.0	286		
1x16	14.1	364		
1x25	16.6	518		
1x35	17.6	627		
1x50	19.3	794	205	181
1x70	21.6	1059	259	231
1x95	23.9	1367	313	280
1x120	25.6	1644	360	324
1x150	27.5	1955	413	373
1x185	29.8	2366	469	425
1x240	33.6	3068	550	501
1x300	36.5	3766	624	567
1x400	40.4	5006	723	657
1x500	45.1	5890	805	731
1x630	50.6	7430	891	809
Cu / PVC / PVC / SWA / PVC				
2x1.5	13.8	342	22	
2x2.5	14.6	395	31	
2x4.0	17.2	562	41	
2x6.0	18.3	647	53	
2x10	20.1	798	72	
2x16	23.0	1109	97	
2x25	26.2	1417	128	
2x35	28.4	1700	157	
2x50	32.4	2079	190	
2x70	36.2	2446	241	
3x1.5	14.3	381		19
3x2.5	15.2	449		26
3x4.0	17.9	640		35
3x6.0	19.2	755		45
3x10	21.1	937		62
3x16	24.1	1324		83
3x25	25.5	1591		110
3x35	26.5	1953		135
3x50	30.0	2494		163
3x70	33.7	3392		207



ELECTRICAL AND DIMENSIONAL CHARACTERISTICS

Cable composition n.º cond. x cross-section (mm²)	Approximate outer diameter (mm)	Approximate weight (kg/km)	Current carrying capacity Installation directly buried ⁽¹⁾ Ts= 20°C (A)	
			2 charged conductors	3 charged conductors
3x95	38.3	4438		251
3x120	41.0	5281		290
3x150	45.8	6641		332
3x185	50.3	8061		378
3x240	55.6	10034		445
3x300	60.9	12254		510
3x400	68.0	15027		590
3x16+1x10	26.0	1557		83
3x25+1x16	28.3	1961		110
3x35+1x16	31.0	2364		135
3x50+1x25	36.7	3287		163
3x70+1x35	40.0	4157		207
3x95+1x50	43.7	5349		251
3x120+1x70	50.0	6888		290
3x150+1x70	55.0	8032		332
3x185+1x95	60.0	9811		378
3x240+1x120	66.0	12146		445
3x300+1x150	73.0	14716		510
3x400+1x185	83.0	18972		590
4x1.5	15.1	449		19
4x2.5	16.8	621		26
4x4.0	19.1	773		35
4x6.0	20.5	927		45
4x10	23.3	1292		62
4x16	26.0	1620		83
4x25	28.3	2060		110
4x35	31.0	2540		135
4x50	36.7	3516		163
4x70	40.0	4486		207
4x95	43.7	5805		251
4x120	50.0	7380		290
4x150	55.0	8794		332
4x185	60.0	10684		378
4x240	66.0	13332		445
4x300	73.0	16242		510
4x400	83.0	20891		590

APPLICATION

Cable for power supply, for rated voltage up to 0.6/1kV. Suitable for outdoor fixed installations when it is necessary to protect the cable against mechanical aggression or against rodents threat. Can be laid in free air, installed in ducts or directly buried. Excellent mechanical protection during laying, installation and service.

CABLE DESIGNATION

Al / PVC / PVC / SWA / PVC
SWA – Steel wire armour
AWA – Aluminium wire armour

CONSTRUCTION CHARACTERISTICS

Conductor
Aluminium: solid class 1 or rigid stranded class 2 circular or sector shaped.

Insulation
PVC – (Polyvinyl chloride)

Bedding /Inner Sheath
PVC – (Polyvinyl chloride)

Armour
Steel galvanized wires helical applied.
For single core cables steel is substituted by aluminium wires.

Oversheath
PVC (Polyvinyl chloride)

GENERAL CHARACTERISTICS

Construction and test standards	IEC 60228 IEC 60502-1
Rated voltage U ₀ /U	0.6 / 1 kV
Test voltage	3.5 kV a.c. 5 minutes
Conductor maximum operating temperature	70°C
Maximum short-circuit temperature	160°C (t ≤ 5s)
Minimum bending radius (mm)	8 x d
Maximum pulling force over conductor (N)	Aluminium – 30 x S
Flame retardant	IEC 60332-1-2 · EN 60332-1-2 (cable vertically mounted,length of charred cable ≤ 540 mm)
S – conductor cross-section (mm²) d – cable outer diameter (mm)	

ADDITIONAL CHARACTERISTICS

Fire retardant	IEC 60332-3-24 · EN 60332-3-24 (bunch of cables vertically mounted on a ladder,length of charred cable ≤ 2.5 m)
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ELECTRICAL AND DIMENSIONAL CHARACTERISTICS				
Cable composition n.º cond. x cross-section (mm²)	Approximate outer diameter (mm)	Approximate weight (kg/km)	Current carrying capacity Installation directly buried ⁽¹⁾ Ts= 20°C (A)	
			2 charged conductors	3 charged conductors
Al / PVC / PVC / AWA / PVC				
1x16	14.1	276		
1x25	16.6	391		
1x35	17.6	450		
1x50	19.3	546	152	131
1x70	21.6	657	194	168
1x95	23.9	857	234	205
1x120	25.6	983	270	238
1x150	27.5	1136	310	275
1x185	29.8	1337	352	315
1x240	33.6	1671	413	372
1x300	36.5	2023	474	430
1x400	40.4	2414	543	497
1x500	45.1	2909	616	568
1x630	50.6	3644	692	642
Al / PVC / PVC / SWA / PVC				
3x16	24.1	1218		61
3x25	25.5	1378		80
3x35	26.5	1560		99
3x50	30.0	1887		119
3x70	33.7	2466		151
3x95	38.3	3006		186
3x120	41.0	3400		216
3x150	45.8	4408		250
3x185	50.3	5102		287
3x240	55.6	6130		342
3x300	60.9	7182		399
3x25+1x16	28.3	1561		80
3x35+1x16	31.0	1778		99
3x50+1x25	36.7	2429		119
3x70+1x35	40.0	2867		151
3x95+1x50	43.7	3563		186
3x120+1x70	50.0	4460		216
3x150+1x70	55.0	5189		250
3x185+1x95	60.0	6037		287
3x240+1x120	66.0	7236		342

ELECTRICAL AND DIMENSIONAL CHARACTERISTICS				
Cable composition n.º cond. x cross-section (mm²)	Approximate outer diameter (mm)	Approximate weight (kg/km)	Current carrying capacity Installation directly buried ⁽¹⁾ Ts= 20°C (A)	
			2 charged conductors	3 charged conductors
4x16	26.0	1371		61
4x25	28.3	1635		80
4x35	31.0	1887		99
4x50	36.7	2573		119
4x70	40.0	3048		151
4x95	43.7	4093		186
4x120	50.0	4711		216
4x150	55.0	5498		250
4x185	60.0	6426		287
4x240	66.0	7773		342
4x300	73.0	9110		399
Other compositions are available, contact info@fast-cables.com for information.				
(1) Phase conductors sector shape.				
(2) Thermal resistivity of soil = 1.0 K.m/W.				
Single core cable – higher values of current may be considered depending on installation conditions.				
Only one circuit is considered				
Cables with 2 and 3 conductors: 2 charged conductors.				
Cables with 4 and 5 conductors: 3 charged conductors.				
For compositions of 4 conductors, the same characteristics apply if the fourth conductor is the earth conductor or neutral conductor.				

Other compositions are available, contact info@fast-cables.com for information.

(1) Phase conductors sector shape.
(2) Thermal resistivity of soil = 1.0 K.m/W.
Single core cable – higher values of current may be considered depending on installation conditions.

Only one circuit is considered
Cables with 2 and 3 conductors: 2 charged conductors.
Cables with 4 and 5 conductors: 3 charged conductors.
For compositions of 4 conductors, the same characteristics apply if the fourth conductor is the earth conductor or neutral conductor.

APPLICATION

Cable for power supply, for rated voltage up to 0.6/1kV. Suitable for outdoor fixed installations when it is necessary to protect the cable against mechanical aggression or against rodents threat. Can be laid in free air, installed in ducts or directly buried. Excellent mechanical protection during laying, installation and service.

CABLE DESIGNATION

Cu / LSHF/ LSHF / SWA / LSHF
SWA – Steel wire armour
AWA – Aluminium wire armour

CONSTRUCTION CHARACTERISTICS

Conductor
Copper (plain annealed): solid class 1 or rigid stranded class 2 or class 5 (flexible), circular or sector shaped.

Insulation
LSHF – (Low Smoke Halogen Free)

Bedding /Inner Sheath
LSHF – (Low Smoke Halogen Free)

Armour
Steel galvanized wires helical applied.
For single core cables steel is substituted by aluminium wires.

Oversheath
LSHF – (Low Smoke Halogen Free)

GENERAL CHARACTERISTICS

Construction and test standards	IEC 60228 IEC 60502-1
Rated voltage U ₀ /U	0.6 / 1 kV
Test voltage	3.5 kV a.c. 5 minutes
Conductor maximum operating temperature	70°C
Maximum short-circuit temperature	160°C (t ≤ 5s)
Minimum bending radius (mm)	8 x d
Maximum pulling force over conductor (N)	Copper – 50 x S
Flame retardant	IEC 60332-1-2 • EN 60332-1-2 (cable vertically mounted, length of charred cable ≤ 540 mm)
S – conductor cross-section (mm²) • d – cable outer diameter (mm).	

ADDITIONAL CHARACTERISTICS *

Fire retardant (frt)	IEC 60332-3-24 • EN 60332-3-24 (bunch of cables vertically mounted on a ladder, length of charred cable ≤ 2.5 m)
Halogen free (zh)	
Low smoke	IEC 61034-2 • EN 61034-2 (cable light transmittance ≥ 60%)
Low toxicity	IEC 60754-1 • EN 50267-2-1 (halogen acid gas content ≤ 0.5%)
Low corrosivity	IEC 60754-2 • EN 50267-2-3 (pH ≥4.3 • conductivity ≤ 10

ELECTRICAL AND DIMENSIONAL CHARACTERISTICS

Cable composition n.º cond. x cross-section (mm²)	Approximate outer diameter (mm)	Approximate weight (kg/km)	Current carrying capacity Installation directly buried ⁽¹⁾ Ts= 20°C (A)	
			2 charged conductors	3 charged conductors
Cu / LSHF / LSHF / AWA / LSHF				
1x10	13.0	286		
1x16	14.1	364		
1x25	16.6	518		
1x35	17.6	627		
1x50	19.3	794	205	181
1x70	21.6	1059	259	231
1x95	23.9	1367	313	280
1x120	25.6	1644	360	324
1x150	27.5	1955	413	373
1x185	29.8	2366	469	425
1x240	33.6	3068	550	501
1x300	36.5	3766	624	567
1x400	40.4	5006	723	657
1x500	45.1	5890	805	731
1x630	50.6	7430	891	809
Cu / LSHF / LSHF / SWA / LSHF				
2x1.5	13.8	342	22	
2x2.5	14.6	395	31	
2x4.0	17.2	562	41	
2x6.0	18.3	647	53	
2x10	20.1	798	72	
2x16	23.0	1109	97	
2x25	26.2	1417	128	
2x35	28.4	1700	157	
2x50	32.4	2079	190	
2x70	36.2	2446	241	
3x1.5	14.3	381		19
3x2.5	15.2	449		26
3x4.0	17.9	640		35
3x6.0	19.2	755		45
3x10	21.1	937		62
3x16	24.1	1324		83
3x25	25.5	1591		110
3x35	26.5	1953		135
3x50	30.0	2494		163
3x70	33.7	3392		207



ELECTRICAL AND DIMENSIONAL CHARACTERISTICS

Cable composition n.º cond. x cross-section (mm²)	Approximate outer diameter (mm)	Approximate weight (kg/km)	Current carrying capacity Installation directly buried ⁽¹⁾ Ts= 20°C (A)	
			2 charged conductors	3 charged conductors
3x95	38.3	4438		251
3x120	41.0	5281		290
3x150	45.8	6641		332
3x185	50.3	8061		378
3x240	55.6	10034		445
3x300	60.9	12254		510
3x400	68.0	15027		590
3x16+1x10	26.0	1557		83
3x25+1x16	28.3	1961		110
3x35+1x16	31.0	2364		135
3x50+1x25	36.7	3287		163
3x70+1x35	40.0	4157		207
3x95+1x50	43.7	5349		251
3x120+1x70	50.0	6888		290
3x150+1x70	55.0	8032		332
3x185+1x95	60.0	9811		378
3x240+1x120	66.0	12146		445
3x300+1x150	73.0	14716		510
3x400+1x185	83.0	18972		590
4x1.5	15.1	449		19
4x2.5	16.8	621		26
4x4.0	19.1	773		35
4x6.0	20.5	927		45
4x10	23.3	1292		62
4x16	26.0	1620		83
4x25	28.3	2060		110
4x35	31.0	2540		135
4x50	36.7	3516		163
4x70	40.0	4486		207
4x95	43.7	5805		251
4x120	50.0	7380		290
4x150	55.0	8794		332
4x185	60.0	10684		378
4x240	66.0	13332		445
4x300	73.0	16242		510
4x400	83.0	20891		590

APPLICATION

Cable for power supply, for rated voltage up to 0.6/1kV. Suitable for outdoor fixed installations when it is necessary to protect the cable against mechanical aggression or against rodents threat. Can be laid in free air, installed in ducts or directly buried. Excellent mechanical protection during laying, installation and service.

CABLE DESIGNATION

Al / LSHF/ LSHF / SWA / LSHF

SWA – Steel wire armour

AWA – Aluminium wire armour

CONSTRUCTION CHARACTERISTICS

Conductor

Aluminium: solid class 1 or rigid stranded class 2 circular or sector shaped.

Insulation

LSHF – (Low Smoke Halogen Free)

Bedding /Inner Sheath

LSHF – (Low Smoke Halogen Free)

Armour

Steel galvanized wires helical applied.

For single core cables steel is substituted by aluminium wires.

Oversheath

LSHF – (Low Smoke Halogen Free)

GENERAL CHARACTERISTICS

Construction and test standards	IEC 60228 - IEC 60502-1
Rated voltage U ₀ /U	0.6 / 1 kV
Test voltage	3.5 kV a.c. 5 minutes
Conductor maximum operating temperature	70°C
Maximum short-circuit temperature	160°C (t ≤ 5s)
Minimum bending radius (mm)	
(permanent. after installation)	4xd if d<25 • 6xd if d 25 • 8xd if sector shape cond.
(during installation)	6xd if d<25 • 9xd if d 25 • 12xd if sector shape cond.
Maximum pulling force over conductor (N)	Aluminum – 30 x S
Flame retardant	IEC 60332-1-2 • EN 60332-1-2 (cable vertically mounted, length of charred cable ≤ 540 mm)
Flame retardant (frt)	IEC 60332-3-24 • EN 60332-3-24 (bunch of cables vertically mounted on a ladder, length of charred cable ≤ 2.5 m)
Halogen free (zh)	
Low smoke	IEC 61034-2 • EN 61034-2 (cable light transmittance ≥ 60%)
Low toxicity	IEC 60754-1 • EN 50267-2-1 (halogen acid gas content ≤ 0.5%)
Low corrosivity	IEC 60754-2 • EN 50267-2-3 (pH ≥4.3 • conductivity ≤ 10

S – conductor cross-section (mm²) • d – cable outer diameter (mm).

FAST CABLES

ELECTRICAL AND DIMENSIONAL CHARACTERISTICS				
Cable composition n.º cond. x cross-section (mm²)	Approximate outer diameter (mm)	Approximate weight (kg/km)	Current carrying capacity Installation directly buried ⁽¹⁾ Ts= 20°C (A)	
			2 charged conductors	3 charged conductors
Al / LSHF / LSHF / AWA / LSHF				
1x16	14.1	276		
1x25	16.6	391		
1x35	17.6	450		
1x50	19.3	546	152	131
1x70	21.6	657	194	168
1x95	23.9	857	234	205
1x120	25.6	983	270	238
1x150	27.5	1136	310	275
1x185	29.8	1337	352	315
1x240	33.6	1671	413	372
1x300	36.5	2023	474	430
1x400	40.4	2414	543	497
1x500	45.1	2909	616	568
1x630	50.6	3644	692	642
Al / LSHF / LSHF / SWA / LSHF				
3x16	24.1	1218		61
3x25	25.5	1378		80
3x35	26.5	1560		99
3x50	30.0	1887		119
3x70	33.7	2466		151
3x95	38.3	3006		186
3x120	41.0	3400		216
3x150	45.8	4408		250
3x185	50.3	5102		287
3x240	55.6	6130		342
3x300	60.9	7182		399
3x25+1x16	28.3	1561		80
3x35+1x16	31.0	1778		99
3x50+1x25	36.7	2429		119
3x70+1x35	40.0	2867		151
3x95+1x50	43.7	3563		186
3x120+1x70	50.0	4460		216
3x150+1x70	55.0	5189		250
3x185+1x95	60.0	6037		287
3x240+1x120	66.0	7236		342

ELECTRICAL AND DIMENSIONAL CHARACTERISTICS				
Cable composition n.º cond. x cross-section (mm²)	Approximate outer diameter (mm)	Approximate weight (kg/km)	Current carrying capacity Installation directly buried ⁽¹⁾ Ts= 20°C (A)	
			2 charged conductors	3 charged conductors
4x16	26.0	1371		61
4x25	28.3	1635		80
4x35	31.0	1887		99
4x50	36.7	2573		119
4x70	40.0	3048		151
4x95	43.7	4093		186
4x120	50.0	4711		216
4x150	55.0	5498		250
4x185	60.0	6426		287
4x240	66.0	7773		342
4x300	73.0	9110		399
Other compositions are available, contact info@fast-cables.com for information.				
(1) Phase conductors sector shape.				
(2) Thermal resistivity of soil = 1.0 K.m/W.				
Single core cable – higher values of current may be considered depending on installation conditions.				
Only one circuit is considered				
Cables with 2 and 3 conductors: 2 charged conductors.				
Cables with 4 and 5 conductors: 3 charged conductors.				
For compositions of 4 conductors, the same characteristics apply if the fourth conductor is the earth conductor or neutral conductor.				

Other compositions are available, contact info@fast-cables.com for information.

(1) Phase conductors sector shape.
(2) Thermal resistivity of soil = 1.0 K.m/W.
Single core cable – higher values of current may be considered depending on installation conditions.

Only one circuit is considered
Cables with 2 and 3 conductors: 2 charged conductors.
Cables with 4 and 5 conductors: 3 charged conductors.
For compositions of 4 conductors, the same characteristics apply if the fourth conductor is the earth conductor or neutral conductor.

APPLICATION

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CABLE DESIGNATION

Cu / XLPE / PVC / SWA / PVC

Al / XLPE / PVC / SWA / PVC

SWA – Steel wire armour

AWA – Aluminium wire armour

CONSTRUCTION CHARACTERISTICS

Conductor

Copper (plain annealed): solid class 1 or rigid stranded class 2 or class 5 (flexible), circular or sector shaped.

Aluminium: stranded class 2, circular or sector shaped.

Insulation

XLPE – (Cross-linked polyethylene).

Bedding /Inner Sheath

PVC – (Polyvinyl chloride)

Armour

Steel galvanized wires helical applied.

For single core cables steel is substituted by aluminium wires.

Oversheath

PVC (Polyvinyl chloride)

GENERAL CHARACTERISTICS

Construction and test standards	IEC 60228 IEC 60502-1
Rated voltage U_0/U	0.6 / 1 kV
Test voltage	3.5 kV a.c. 5 minutes
Conductor maximum operating temperature	90°C
Maximum short-circuit temperature	250°C (t ≤ 5s)
Minimum bending radius (mm)	8 x d
Maximum pulling force over conductor (N)	Copper – 50 x S Aluminium – 30 x S
Flame retardant	IEC 60332-1-2 · EN 60332-1-2 (cable vertically mounted, length of charred cable ≤ 540 mm)
S – conductor cross-section (mm²) · d – cable outer diameter (mm).	

ADDITIONAL CHARACTERISTICS *

Fire retardant (frt)	IEC 60332-3-24 · EN 60332-3-24 (bunch of cables vertically mounted on a ladder, length of charred cable ≤ 2.5 m)
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ELECTRICAL AND DIMENSIONAL CHARACTERISTICS

Cable composition n.º cond. x cross-section (mm²)	Approximate outer diameter (mm)	Approximate weight (kg/km)	Current carrying capacity Installation directly buried ⁽¹⁾ Ts= 20°C (A)	
			2 charged conductors	3 charged conductors
Cu / XLPE / PVC / AWA / PVC				
1x10	12.4	261		
1x16	13.5	334		
1x25	16.0	487		
1x35	17.0	597		
1x50	18.3	756	253	222
1x70	20.3	1020	322	285
1x95	22.9	1309	389	346
1x120	24.6	1584	449	402
1x150	26.7	1881	516	463
1x185	29.0	2279	587	529
1x240	31.8	2955	689	625
1x300	35.4	3623	792	720
1x400	39.0	4831	899	815
1x500	42.5	5676	1016	918
1x630	49.6	7199	1146	1027
Cu / XLPE / PVC / SWA / PVC				
2x1.5	13.4	318	29	
2x2.5	14.2	362	39	
2x4.0	15.3	425	52	
2x6.0	17.1	575	66	
2x10	18.9	722	90	
2x16	21.1	908	115	
2x25	25.0	1329	152	
2x35	27.0	1595	188	
2x50	29.8	1732	228	
2x70	34.6	2364	291	
3x1.5	13.9	350		25
3x2.5	14.8	404		33
3x4.0	16.6	559		44
3x6.0	17.9	668		56
3x10	19.8	843		78
3x16	22.8	1212		99
3x25	23.2	1474		131
3x35	25.2	1820		162
3x50	28.2	2304		197
3x70	31.6	3026		251



ELECTRICAL AND DIMENSIONAL CHARACTERISTICS				
Cable composition n.º cond. x cross-section (mm²)	Approximate outer diameter (mm)	Approximate weight (kg/km)	Current carrying capacity Installation directly buried ⁽¹⁾ Ts= 20°C (A)	
			2 charged conductors	3 charged conductors
3x95	35.9	4136	304	
3x120	39.1	4992	353	
3x150	42.9	5965	406	
3x185	48.4	7668	463	
3x240	53.2	9532	546	
3x300	57.7	11580	628	
3x400	65.2	14330	728	
3x16+1x10	24.5	1378	99	
3x25+1x16	26.8	1778	131	
3x35+1x16	29.5	2168	162	
3x50+1x25	34.3	2997	197	
3x70+1x35	39.0	3928	251	
3x95+1x50	42.9	4975	304	
3x120+1x70	48.5	6527	353	
3x150+1x70	53.4	7632	406	
3x185+1x95	58.3	9237	463	
3x240+1x120	64.9	11543	546	
3x300+1x150	70.6	13946	628	
3x400+1x185	81.4	18108	728	
4x1.5	14.6	392	25	
4x2.5	16.4	537	33	
4x4.0	17.7	641	44	
4x6.0	19.0	789	56	
4x10	21.9	1104	78	
4x16	24.5	1434	99	
4x25	26.8	1864	131	
4x35	29.5	2339	162	
4x50	34.3	3202	197	
4x70	39.0	4236	251	
4x95	42.9	5408	304	
4x120	48.5	7001	353	
4x150	53.4	8360	406	
4x185	58.3	10075	463	
4x240	64.9	12670	546	
4x300	70.6	15398	628	
4x400	81.4	19944	728	

ELECTRICAL AND DIMENSIONAL CHARACTERISTICS				
Cable composition n.º cond. x cross-section (mm²)	Approximate outer diameter (mm)	Approximate weight (kg/km)	Current carrying capacity Installation directly buried ⁽¹⁾ Ts= 20°C (A)	
			2 charged conductors	3 charged conductors
Al / XLPE / PVC / AWA / PVC				
1x16	13.5	251		
1x25	16.0	362		
1x35	17.0	412		
1x50	18.3	482	192	162
1x70	20.3	599	244	207
1x95	22.9	762	294	252
1x120	24.6	887	340	292
1x150	26.7	1037	390	337
1x185	29.0	1221	444	391
1x240	31.8	1475	521	465
1x300	35.4	1830	597	540
1x400	39.0	2188	688	625
1x500	42.5	2628	786	714
1x630	49.6	3373	880	801
Al / XLPE / PVC / SWA / PVC				
3x16	22.8	1086		74
3x25	23.2	1226		98
3x35	25.2	1405		120
3x50	28.2	1666		145
3x70	31.6	1977		185
3x95	35.9	2647		224
3x120	39.1	3072		264
3x150	42.9	3540		305
3x185	48.4	4622		350
3x240	53.2	5445		418
3x300	57.7	6425		488
3x25+1x16	26.8	1360		98
3x35+1x16	29.5	1580		120
3x50+1x25	34.3	2100		145
3x70+1x35	39.0	2564		185
3x95+1x50	42.9	3097		224
3x120+1x70	48.5	4046		264
3x150+1x70	53.4	4658		305
3x185+1x95	58.3	5494		350
3x240+1x120	64.9	6512		418

ELECTRICAL AND DIMENSIONAL CHARACTERISTICS

Cable composition n.º cond. x cross-section (mm²)	Approximate outer diameter (mm)	Approximate weight (kg/km)	Current carrying capacity Installation directly buried ⁽¹⁾ Ts= 20°C (A)	
			2 charged conductors	3 charged conductors
4x16	24.5	1224		74
4x25	26.8	1444		98
4x35	29.5	1696		120
4x50	34.3	2270		145
4x70	39.0	2737		185
4x95	42.9	3292		224
4x120	48.5	4250		264
4x150	53.4	5005		305
4x185	58.3	5829		350
4x240	64.9	6991		418
4x300	70.6	8199		488

Other compositions are available, contact info@fast-cables.com for information.

(1) Phase conductors sector shape.
(2) Thermal resistivity of soil = 1.0 K.m/W.
Single core cable – higher values of current may be considered depending on installation conditions.
Only one circuit is considered
Cables with 2 and 3 conductors: 2 charged conductors.
Cables with 4 and 5 conductors: 3 charged conductors.
For compositions of 4 conductors, the same characteristics apply if the fourth conductor is the earth conductor or neutral conductor.

APPLICATION

Fire-retardant, halogen-free, high security cable, for rated voltages up to 0.6/1kV. For power transmission and distribution. Suitable for fixed outdoor connections; laid in free air or in ducts, when it is necessary to protect the cable against mechanical aggression or against rodents threat. Used in tunnels, underground railway, or in general at all places where it is required a high degree of protection of persons and assets or with a large number of people and electrical/electronic equipment.

CABLE DESIGNATION

Cu / XLPE / LSHF / SWA / LSHF
Al / XLPE / LSHF / SWA / LSHF
F – Flexible • SWA – Steel Wire Armour

CONSTRUCTION CHARACTERISTICS

Conductor
Copper (plain annealed): solid class 1 or stranded class 2 or flexible class 5. circular or sector shaped.
Aluminium: stranded class 2, circular or sector shaped.

Insulation
XLPE – (Cross-linked polyethylene).
Bedding /Inner Sheath
LSHF – Low Smoke Halogen Free thermoplastic compound.

Armour
Steel galvanized wires helical applied;
For single core cables steel is substituted by aluminium wires.

Oversheath
LSHF – Low Smoke Halogen Free thermoplastic compound. Fire retardant.

GENERAL CHARACTERISTICS

Construction and test standards		IEC 60228 IEC 60502-1
Rated voltage U ₀ /U		0.6 / 1 kV
Test voltage		3.5 kV a.c. 5 minutes
Conductor maximum operating temperature		90°C
Maximum short-circuit temperature		250°C (t ≤ 5s)
Minimum bending radius (mm)		8 x d if SWA
Maximum pulling force over conductor (N)		Copper – 50 x S Aluminium – 30 x S
Flame retardant	IEC 60332-1-2 · EN 60332-1-2 (cable vertically mounted, length of charred cable ≤ 540 mm)	
Fire retardant (frt)	IEC 60332-3-24 · EN 60332-3-24 (bunch of cables vertically mounted on a ladder, length of charred cable ≤ 2.5 m)	
Halogen free (zh)		
Low smoke	IEC 61034-2 · EN 61034-2 (cable light transmittance ≥ 60%)	
Low toxicity	IEC 60754-1 · EN 50267-2-1 (halogen acid gas content ≤ 0.5%)	
Low corrosivity	IEC 60754-2 · EN 50267-2-3 (pH ≥4.3 · conductivity ≤ 10µSmm ⁻¹)	

S – conductor cross-section (mm²) d – cable outer diameter (mm)



ELECTRICAL AND DIMENSIONAL CHARACTERISTICS				
Cable composition n.º cond. x cross-section (mm²)	Approximate outer diameter (mm)	Approximate weight (kg/km)	Current carrying capacity Installation directly buried ⁽¹⁾ Ts= 20°C (A)	
			2 charged conductors	3 charged conductors
Cu / XLPE / LSHF / AWA / LSHF				
1x10	12.4	261		
1x16	13.5	334		
1x25	16.0	487		
1x35	17.0	597		
1x50	18.3	756	253	222
1x70	20.3	1020	322	285
1x95	22.9	1309	389	346
1x120	24.6	1584	449	402
1x150	26.7	1881	516	463
1x185	29.0	2279	587	529
1x240	31.8	2955	689	625
1x300	35.4	3623	792	720
1x400	39.0	4831	899	815
1x500	42.5	5676	1016	918
1x630	49.6	7199	1146	1027
Cu / XLPE / LSHF / SWA / LSHF				
2x1.5	13.4	318	29	
2x2.5	14.2	362	39	
2x4.0	15.3	425	52	
2x6.0	17.1	575	66	
2x10	18.9	722	90	
2x16	21.1	908	115	
2x25	25.0	1329	152	
2x35	27.0	1595	188	
2x50	29.8	1732	228	
2x70	34.6	2364	291	
3x1.5	13.9	350		25
3x2.5	14.8	404		33
3x4.0	16.6	559		44
3x6.0	17.9	668		56
3x10	19.8	843		78
3x16	22.8	1212		99
3x25	23.2	1474		131
3x35	25.2	1820		162
3x50	28.2	2304		197
3x70	31.6	3026		251

ELECTRICAL AND DIMENSIONAL CHARACTERISTICS				
Cable composition n.º cond. x cross-section (mm²)	Approximate outer diameter (mm)	Approximate weight (kg/km)	Current carrying capacity Installation directly buried ⁽¹⁾ Ts= 20°C (A)	
			2 charged conductors	3 charged conductors
3x95	35.9	4136		304
3x120	39.1	4992		353
3x150	42.9	5965		406
3x185	48.4	7668		463
3x240	53.2	9532		546
3x300	57.7	11580		628
3x400	65.2	14330		728
3x16+1x10	24.5	1378		99
3x25+1x16	26.8	1778		131
3x35+1x16	29.5	2168		162
3x50+1x25	34.3	2997		197
3x70+1x35	39.0	3928		251
3x95+1x50	42.9	4975		304
3x120+1x70	48.5	6527		353
3x150+1x70	53.4	7632		406
3x185+1x95	58.3	9237		463
3x240+1x120	64.9	11543		546
3x300+1x150	70.6	13946		628
3x400+1x185	81.4	18108		728
4x1.5	14.6	392		25
4x2.5	16.4	537		33
4x4.0	17.7	641		44
4x6.0	19.0	789		56
4x10	21.9	1104		78
4x16	24.5	1434		99
4x25	26.8	1864		131
4x35	29.5	2339		162
4x50	34.3	3202		197
4x70	39.0	4236		251
4x95	42.9	5408		304
4x120	48.5	7001		353
4x150	53.4	8360		406
4x185	58.3	10075		463
4x240	64.9	12670		546
4x300	70.6	15398		628
4x400	81.4	19944		728

ELECTRICAL AND DIMENSIONAL CHARACTERISTICS				
Cable composition n.º cond. x cross-section (mm²)	Approximate outer diameter (mm)	Approximate weight (kg/km)	Current carrying capacity Installation directly buried ⁽¹⁾ Ts= 20°C (A)	
			2 charged conductors	3 charged conductors
Al / XLPE / LSHF / AWA / LSHF				
1x16	13.5	251		
1x25	16.0	362		
1x35	17.0	412		
1x50	18.3	482	192	162
1x70	20.3	599	244	207
1x95	22.9	762	294	252
1x120	24.6	887	340	292
1x150	26.7	1037	390	337
1x185	29.0	1221	444	391
1x240	31.8	1475	521	465
1x300	35.4	1830	597	540
1x400	39.0	2188	688	625
1x500	42.5	2628	786	714
1x630	49.6	3373	880	801
Al / XLPE / LSHF / SWA / LSHF				
3x16	22.8	1086		74
3x25	23.2	1226		98
3x35	25.2	1405		120
3x50	28.2	1666		145
3x70	31.6	1977		185
3x95	35.9	2647		224
3x120	39.1	3072		264
3x150	42.9	3540		305
3x185	48.4	4622		350
3x240	53.2	5445		418
3x300	57.7	6425		488
3x25+1x16	26.8	1360		98
3x35+1x16	29.5	1580		120
3x50+1x25	34.3	2100		145
3x70+1x35	39.0	2564		185
3x95+1x50	42.9	3097		224
3x120+1x70	48.5	4046		264
3x150+1x70	53.4	4658		305
3x185+1x95	58.3	5494		350
3x240+1x120	64.9	6512		418

ELECTRICAL AND DIMENSIONAL CHARACTERISTICS				
Cable composition n.º cond. x cross-section (mm²)	Approximate outer diameter (mm)	Approximate weight (kg/km)	Current carrying capacity Installation directly buried ⁽¹⁾ Ts= 20°C (A)	
			2 charged conductors	3 charged conductors
4x16	24.5	1224		74
4x25	26.8	1444		98
4x35	29.5	1696		120
4x50	34.3	2270		145
4x70	39.0	2737		185
4x95	42.9	3292		224
4x120	48.5	4250		264
4x150	53.4	5005		305
4x185	58.3	5829		350
4x240	64.9	6991		418
4x300	70.6	8199		488
Other compositions are available, contact info@fast-cables.com for information.				
(1) Phase conductors sector shape.				
(2) Thermal resistivity of soil = 1.0 K.m/W.				
Single core cable – higher values of current may be considered depending on installation conditions.				
Only one circuit is considered				
Cables with 2 and 3 conductors: 2 charged conductors.				
Cables with 4 and 5 conductors: 3 charged conductors.				
For compositions of 4 conductors, the same characteristics apply if the fourth conductor is the earth conductor or neutral conductor.				

Other compositions are available, contact info@fast-cables.com for information.

- (1) Phase conductors sector shape.
(2) Thermal resistivity of soil = 1.0 K.m/W.
Single core cable – higher values of current may be considered depending on installation conditions.

Only one circuit is considered
Cables with 2 and 3 conductors: 2 charged conductors.
Cables with 4 and 5 conductors: 3 charged conductors.
For compositions of 4 conductors, the same characteristics apply if the fourth conductor is the earth conductor or neutral conductor.

Al / PE Insulated

APPLICATION

Cable for overhead power distribution systems mainly in public distribution. for rated voltage up to 0.6/1kV.

CABLE DESIGNATION

Al / PE Insulated IEC 60502 0.6/1 (1.2)kv
Al / XLPE Insulated IEC 60502 0.6/1 (1.2)kv
Al / XLPE Insulated BS 7870-5 0.6/1 (1.2)kv

CONSTRUCTION CHARACTERISTICS

Phase conductors and public lighting conductors

Copper (plain annealed): Solid class 1; rigid stranded class 2.

Aluminium: stranded class 2.

Outer layer stranding direction: Right-hand (Z) for RZ and RZ AL.

Outer layer stranding direction: Left-hand (S).

Insulation

XLPE – (Cross-linked polyethylene)

PE - Polyethylene

Assembly of cores

Cores are laid-up helically.

For cables having a messenger, the phase and auxiliary cores are cabled helically around it.

Stranding direction: Left-hand (S)

Stranding direction: Right-hand (Z)

GENERAL CHARACTERISTICS

Construction and test standards	IEC 60228, 60502 BS-EN 60228, BS 7870-5
Rated voltage U_0/U	0.6 / 1 kV
Test voltage	3.5 kV a.c. 5 minutes
Conductor maximum operating temperature	90°C
Maximum short-circuit temperature	250°C (t ≤ 5s)
Minimum bending radius (mm)	18 x d
Maximum pulling force over conductor (N)	With sleeve over aluminium conductors – 30 x S
Excellent resistance to external agents	
S – conductor cross-section (mm ²) • d – cable outer diameter (mm)	

Cables without Street Lighting

Phase conductor

		0.6/1 (1.2) kV									
Nominal cross-sectional area	mm ²	16 *	16 *	25	35	50	70	95	120	150	185
Number of cores		1	3	3	3	3	3	3	3	3	3
Minimum number of wires		6	6	6	6	6	12	15	15	30	30
Nominal insulation thickness	mm	1.0	1.0	1.2	1.2	1.4	1.4	1.6	1.6	1.8	2.0
Diameter of insulated core	mm	6.8	6.8	8.5	9.5	11.2	13.0	15.1	16.6	18.4	20.6
Max. dc resistance at 20° C	Ohm/km	1.91	1.91	1.20	0.868	0.641	0.443	0.320	0.253	0.206	0.164
Current rating at still wind, ambient temperature = 30°C, Conductor temperature = 75°C	A	61	61	84	104	129	167	209	246	283	332
Maximum voltage drop	mV/A/m	4.67	4.05	2.54	1.84	1.36	0.95	0.69	0.55	0.46	0.37

Messenger conductor

Nominal cross-sectional area	mm ²	25	25	25	25	35	50	70	70	95	120
Minimum number of wires		6	6	6	6	6	6	12	12	15	15
Nominal insulation thickness	mm	1.2	1.2	1.2	1.2	1.2	1.4	1.4	1.4	1.6	1.6
Diameter of insulated core	mm	8.5	8.5	8.5	8.5	9.5	11.2	13.1	13.1	15.1	16.6
Max. dc resistance at 20° C	Ohm/km	1.312	1.312	1.312	1.312	0.943	0.693	0.469	0.469	0.349	0.273
Calculated breaking load	kN	6.4	6.4	6.4	6.4	8.9	12.1	18.0	18.0	24.2	30.8

Completed cable

Approx. overall diameter	mm	15.3	19.0	23.2	25.6	30.0	24.9	40.6	44.1	49.2	54.9
Approx. weight of cable	kg/km	160	290	400	500	680	920	1.270	1.510	1.870	2.340
Packing length	m/drum	1.000	1.000	1.000	1.000	1.000	1.000	500	500	500	500

Cables with Street Lighting

Phase conductor

Nominal cross-sectional area	mm ²	25	35	50	70	95 *	120	150	185 *
Number of cores		3	3	3	3	3	3	3	3
Minimum number of wires		6	6	6	12	15	15	30	30
Nominal insulation thickness	mm	1.2	1.2	1.4	1.4	1.6	1.6	1.8	2.0
Diameter of insulated core	mm	8.5	9.5	11.2	13.0	15.1	16.6	18.4	20.6
Max. dc resistance at 20° C	Ohm/km	1.20	0.868	0.641	0.443	0.320	0.253	0.206	0.164
Current rating at still wind, ambient temperature = 30°C, Conductor temperature = 75°C	A	84	104	129	167	209	246	283	332
Maximum voltage drop	mV/A/m	2.54	1.84	1.36	0.95	0.69	0.55	0.46	0.37

Messenger conductor

Nominal cross-sectional area	mm ²	25	25	35	50	70	70	95	120
Minimum number of wires		6	6	6	6	12	12	15	15
Nominal insulation thickness	mm	1.2	1.2	1.2	1.4	1.4	1.4	1.6	1.6
Diameter of insulated core	mm	8.5	8.5	9.5	11.2	13.1	13.1	15.1	16.6
Max. dc resistance at 20° C	Ohm/km	1.312	1.312	0.943	0.693	0.469	0.469	0.349	0.273
Calculated breaking load	kN	6.4	6.4	8.9	12.1	18.0	18.0	24.4	30.8

Street Lighting conductor

Nominal cross-sectional area	mm ²	16	16	16	16	16	16	16	16
Minimum number of wires		6	6	6	6	6	6	6	6
Nominal insulation thickness	mm	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Diameter of insulated core	mm	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
Max. dc resistance at 20° C	Ohm/km	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91

Completed cable

Approx. overall diameter	mm	23.2	25.6	30.0	34.9	40.6	44.1	49.2	54.9
Approx. weight of cable	Kg/km	470	560	740	980	1.330	1.580	1.940	2.410
Packing length	m/drum	1.000	1.000	1.000	1.000	500	500	500	500



Al / XLPE Insulated

Cables without Street Lighting

Phase conductor

0.6/ 1 (1.2) kV

Nominal cross-sectional area	mm ²	25	35
Number of cores		3	3
Minimum number of wires		6	6
Nominal insulation thickness	Mm	1.4	1.4
Diameter of insulated core	Mm	8.9	9.9
Max. dc resistance at 20° C	Ohm/km	1.20	0.868
Minimum breaking load	kN	3.5	4.9
Current rating at still wind, ambient temperature = 30°C, Conductor temperature = 75°C	A	84	104

Neutral conductor

Nominal cross-sectional area	mm ²	25	35
Minimum number of wires		6	6
Nominal insulation thickness	mm	1.4	1.4
Diameter of insulated core	mm	8.9	9.9
Max. dc resistance at 20° C	Ohm/km	1.2	0.868
Minimum breaking load	kN	3.5	4.9

Completed cable

Approx. overall diameter	mm	21.5	23.9
Approx. weight of cable	Kg/km	420	550
Packing length	m/drum	1,000	1,000

Cables with Street Lighting

Phase conductor

Nominal cross-sectional area	mm ²	120	185
Number of cores		3	3
Minimum number of wires		15	30
Nominal insulation thickness	Mm	1.7	2.2
Diameter of insulated core	Mm	17.0	21.0
Max. dc resistance at 20° C	Ohm/km	0.253	0.164
Minimum breaking load	kN	16.8	25.9
Current rating at still wind, ambient temperature = 30°C, Conductor temperature = 75°C	A	246	332

Neutral conductor

Nominal cross-sectional area	mm ²	120	185
Minimum number of wires		15	30
Nominal insulation thickness	mm	1.7	2.2
Diameter of insulated core	mm	17.0	21.0
Max. dc resistance at 20° C	Ohm/km	0.253	0.164
Minimum breaking load	kN	16.8	25.9

Street lighting conductor

Nominal cross-section area	mm ²	25	25
Minimum number of wires		6	6
Nominal insulation thickness	mm	1.4	1.4
Diameter of insulated core	mm	8.9	8.9
Max. dc resistance at 20° C	Ohm/km	1.2	1.2

Completed cable

Approx. overall diameter	mm	43.8	50.7
Approx. weight of cable	Kg/km	1,800	2,700
Packing length	m/drum	500	500

Al / XLPE Insulated

Cables without Street Lighting

0.6/1 (1.2) kV

Phase conductor

Nominal cross - sectional area	mm ²	25	35	50	70	95	25	35	50	70	95	120
Number of cores		1	1	1	1	1	3	3	3	3	3	3
Minimum number of wires		6	6	6	12	15	6	6	6	12	15	15
Nominal insulation thickness	mm	1.3	1.3	1.5	1.5	1.7	1.3	1.3	1.5	1.5	1.7	1.7
Diameter of insulated core	mm	8.8	9.8	11.5	13.2	15.3	8.8	9.8	11.5	13.2	15.3	16.8
Max. dc resistance at 20° C	Ohm/km	1.20	0.868	0.641	0.443	0.320	1.20	0.868	0.641	0.443	0.320	0.253
Current rating at still wind, ambient Temperature = 30°C, Conductor temperature = 75°C	A	84	104	129	167	209	84	104	129	167	209	283

Neutral conductor

Nominal cross-sectional area	mm ²	25	35	50	70	95	25	35	50	70	95	120
Minimum number of wires		6	6	6	12	15	6	6	6	12	15	15
Nominal insulation thickness	mm	1.3	1.3	1.5	1.5	1.7	1.3	1.3	1.5	1.5	1.7	1.7
Diameter of insulated core	mm	8.8	9.8	11.5	13.2	15.3	8.8	9.8	11.5	13.2	15.3	16.8
Max. dc resistance at 20° C	Ohm/km	1.20	0.868	0.641	0.443	0.320	1.20	0.868	0.641	0.443	0.320	0.253

Completed cable

Minimum breaking load	kN	8.5	11.2	15.2	22.0	30.6	16.4	22.4	30.4	44.0	61.2	77.6
Approx. overall diameter	mm	17.6	19.6	23.0	26.4	30.6	21.3	23.7	27.8	31.9	36.9	40.6
Approx. weight of cable	kg/km	210	270	360	500	680	410	550	730	1000	1370	1690
Packing length	m/drum	1,000	1,000	1,000	1,000	500	1,000	1,000	1,000	1,000	500	500

Cables with Street Lighting

Phase conductor

Nominal cross-sectional area	mm ²	50	70	95
Number of cores		3	3	3
Minimum number of wires		6	12	15
Nominal insulation thickness	mm	1.5	1.5	1.7
Diameter of insulated core	mm	11.5	13.2	15.3
Max. dc resistance at 20° C	Ohm/km	0.641	0.443	0.320
Current rating at still wind, ambient Temperature = 30°C, Conductor temperature = 75°C	A	129	167	209

Neutral conductor

Nominal cross-sectional area	mm ²	50	70	95
Minimum number of wires		6	12	15
Nominal insulation thickness	mm	1.5	1.5	1.7
Diameter of insulated core	mm	11.5	11.5	15.3
Max. dc resistance at 20° C	Ohm/km	0.641	0.443	0.320

Street lighting conductor

Nominal cross-sectional area	mm ²	25	25	25
Minimum number of wires		6	6	6
Nominal insulation thickness	mm	1.3	1.3	1.3
Diameter of insulated core	mm	8.8	8.8	8.8
Max. dc resistance at 20° C	Ohm/km	1.20	1.20	1.20

Completed cable

Minimum breaking load	kN	34.5	48.1	65.3
Approx. overall diameter	mm	29.8	33.6	38.2
Approx. weight of cable	kg/km	830	1100	1470
Packing length	m/drum	1,000	1,000	500

LOW VOLTAGE CABLES

TELECOMMUNICATION CABLES

LOW VOLTAGE CABLES

TELECOMMUNICATION CABLES

Indoor Cables
PVC Insulation - Al Screen - PVC Sheath

APPLICATION

Cables ranging from 1 to 200 pairs, used for inside installations.

CABLE DESIGNATION

- A: PVC/Al-Screen/PVC Sheath
- B: Without metallic screen

CONSTRUCTION CHARACTERISTICS

Conductor

Solid annealed copper, nominal diameter of 0.5 mm.

Insulation

PVC.

Arrangement (formation)

Pairs (the two pair cable has the arrangement (formation) of a star-quad).

Core assembly

Units of 10 or 50 pairs.

Core wrapping

Dielectric tape, helically applied with an overlap.

Metallic screen (Optional)

One aluminium / polyester tape spirally applied. with an overlap, Under the metallic screen a tinned copper wire is longitudinally applied.

Oversheath (jacket)

PVC.



GENERAL AND ELECTRICAL CHARACTERISTICS (20°C)

Maximum Ohmic resistance at 20°C dc(Ω /km)	95.9
Minimum insulation resistance at 20°C. 500Vdc	500 M Ω x km
Dielectric strength (60s)	Cond-Cond – 1kVdc or 1.5kVac
Mutual capacitance at 0.8kHz (maximum value)	
N.º pairs in the cable $\leq$ 6	132 nF/Km
N.º pairs in the cable $>$ 6	120 nF/Km
Maximum capacitance unbalance (pair-pair) (pF/500)	400

DIMENSIONAL CHARACTERISTICS

Pairs • PVC insulation • Al screen • PVC sheath

N.º of pairs/triads	Ø 0.5 mm	
	Diameter	Weight
	(mm)	(kg/km)
1x2	3.7	20
1x3	4.1	24
2x2	4.1	26
3x2	5.1	36
6x2	6.1	54
10x2	7.2	77
10x3	9.4	110
15x2	8.0	105
20x2	9.3	140
20x3	12.5	210
30x2	11.5	195
40x2	12.3	245
50x2	13.5	300
60x2	14.5	350
100x2	18.3	555
200x2	25.6	1 100

APPLICATION

Cables of 1. 2 and 3 pairs used as a connection from inside building up to subscribers' houses.

CABLE DESIGNATION

A: PE Insulation - PVC Sheath

B: With LSHF Sheath

CONSTRUCTION CHARACTERISTICS

Conductor

Solid annealed copper, nominal diameter of 0.5 mm or 0.6 mm.

Insulation

Solid polyethylene.

Arrangement (Formation)

Pairs (optionally, the two pair cable may have the arrangement (formation) of a star-quad).

Oversheath (jacket)

Extruded PVC or LSHF – Low Smoke Halogen Free thermoplastic compound.

GENERAL AND ELECTRICAL CHARACTERISTICS (20°C)

	Ø 0.5 mm			Ø 0.6 mm		
Maximum Ohmic resistance at 20°C dc(Ω/km)	93			66		
Resistance unbalance	Maximum individual value: 2%					
Minimum insulation resistance at 15°C, 500Vdc	8 000 MΩ x km					
Dielectric strength	Cond-Cond – 3kVdc (3s)					
Mutual capacitance at 1 kHz	Maximum value: 56 nF/Km					
Capacitance unbalance (pair-pair) (pF/225m), 800Hz	Maximum value: 510					
Nominal attenuation (dB /Km)	0.8 kHz	1.5 kHz	3 kHz	40 kHz	96 kHz	
	Ø 0.5 mm	1.7	1.8	2.3	9.0	24.5
	Ø 0.6 mm	1.2	1.6	2.0	6.0	19.0

DIMENSIONAL CHARACTERISTICS

Pairs • PE insulation • PVC Sheath

N.º of pairs	Ø 0.5 mm		Ø 0.6 mm	
	Diameter	Weight	Diameter	Weight
	(mm)	(kg/km)	(mm)	(kg/km)
1	3.7	17	4.0	20
2	5.0	27	5.9	33
3	5.8	33	6.5	42

APPLICATION

Cables ranging from 1 to 112 pairs, used for inside installations.

CABLE DESIGNATION

PVC Insulation - Al Screen - PVC Sheath

CONSTRUCTION CHARACTERISTICS

Conductor

Solid annealed copper, nominal diameter of 0.6 mm or 0.9 mm.

Insulation

PVC.

Arrangement (Formation)

Pairs.

Core assembly

Concentric layers or bundles for cables with 56 pairs (4x14) or 112 pairs (8x14).

Core wrapping

Dielectric tape, helically applied with an overlap.

Metallic screen

One aluminium/ polyester tape spirally applied, with an overlap, Under the metallic screen a tinned copper wire is longitudinally applied.

Oversheath (jacket)

PVC.



GENERAL AND ELECTRICAL CHARACTERISTICS (20°C)

	Ø 0.6 mm	Ø 0.9 mm
Maximum Ohmic resistance at 20°C dc(Ω/km)	133.4	59.3
Minimum insulation resistance at 20°C. 500Vdc	500 MΩ x km	
Dielectric strength (60s)	Cond-Cond – 1.5kVdc	
Mutual capacitance at 0.8kHz (maximum value)		
N.º pairs in the cable < 10	160 nF/Km	
N.º pairs in the cable ≥ 10	130 nF/Km	
Maximum capacitance unbalance (pair-pair) (pF/500)	400	

DIMENSIONAL CHARACTERISTICS

Pairs • PVC insulation • Al screen • PVC sheath

N.º of pairs	Ø 0.6 mm		Ø 0.9 mm	
	Diameter	Weight	Diameter	Weight
	(mm)	(kg/km)	(mm)	(kg/km)
1	4.2	26	5.2	40
2	5.5	40	7.6	75
3	5.7	50	7.9	90
5	7.0	75	9.2	130
7	7.6	90	10.5	170
10	8.6	115	12.0	225
15	9.6	155	13.5	310
21	11.3	210	15.5	410
30	13.0	280	18.4	580
56	16.6	480	24.5	1 020
112	23.1	910	34.0	

APPLICATION

Cable with one quad, used for inside installations and used to transmit the readings for consumed and delivered energy to a remote unit.

CABLE DESIGNATION

- A:** Telephone Cable Armoured.
B: Telephone Cable Non-Armoured.

CONSTRUCTION CHARACTERISTICS

- Conductor**
Solid annealed copper, nominal diameter of 0.6 mm.
- Insulation**
PVC.
- Arrangement (formation)**
Star-quads.
- Core wrapping**
Dielectric tape, helically applied with an overlap.

Metallic screen
One aluminium/ polyester tape spirally applied, with an overlap, Under the metallic screen a tinned copper wire is longitudinally applied.

Inner sheath (jacket)
The armoured cables shall have a PVC inner sheath.

Armour
The armoured cables shall have a double steel tape armour/steel wire armour, helically applied.

Oversheath (jacket)
The cables shall have an oversheath of PVC.



GENERAL AND ELECTRICAL CHARACTERISTICS (20°C)

Ohmic resistance at 20°C dc (Ω/km)	Minimum	120
	Maximum	133.2
Mutual capacitance at 50kHz (nF/km)	Minimum	80
	Maximum	130
Impedance characteristic at 50kHz (Ohm)	Minimum	75
	Maximum	115
Minimum insulation resistance at 20°C, 500Vdc		100 MΩ x km
Dielectric strength (Vac) (60s)	Cond-Cond	1500
	Cond-Screen	1500

DIMENSIONAL CHARACTERISTICS

- (1) – Quad - PVC insulation • Al screen • PVC sheath – Telephone Cable non-arm.
(2) – Quad - PVC insulation • Al screen • PVC sheath • Armour • PVC sheath – Telephone Cable arm.

N.º of Quad	Non-Armoured (1)		Armoured (2)	
	Diameter (mm)	Weight (kg/km)	Diameter	Weight (kg/km)
			(mm)	
1	5.3	40	10	140

LOW VOLTAGE CABLES

CONTROL & INSTRUMENTATION

LOW VOLTAGE CABLES CONTROL & INSTRUMENTATION CABLES

Multicore - Overall Screen - Unarmoured
Cu - PVC or PE or XLPE Insulator - Al or
Copper Screen - PVC or LSHF BS 5308-IEC

APPLICATION

Cables for signalling systems, instrumentation and control of electrical mechanisms, Maximum rated voltage 500 V (peak value, not for power supply). Indicated for fixed installations, indoor or outdoor, protected or not.

CABLE DESIGNATION

- Cu / PVC / Al or Copper screen / PVC
- Cu / PE / Al or Copper screen / PVC
- Cu / XLPE / Al or Copper screen / PVC
- Cu / XLPE / Al or Copper screen / LSHF

CONSTRUCTION CHARACTERISTICS

Conductor

Rigid (class 2) or flexible (class 5) copper, sizes 0.5 mm²; 1.0 mm² and 1.5 mm², as per IEC 60228.

Insulation

PVC. solid polyethylene or cross-linked polyethylene.

Arrangement (formation)

Multicore, stranded.

Core assembly

Concentric layers.

Core wrapping

Dielectric tape, helically applied with an overlap.

Shield (screen)

Aluminium / polyester tape, applied helically with an overlap. A tinned copper drain wire is applied under the tape. Alternatively, a copper tape , helically applied with an overlap may be used.

Over sheath (jacket)

Extruded PVC or LSHF – Low Smoke Halogen Free compound.



GENERAL AND ELECTRICAL CHARACTERISTICS (20°C)

		0.5 mm ²	1.0 mm ²	1.5 mm ²
Maximum resistance of conductor at 20°C dc(Q/km)	Class 2	36.0	18.1	12.1
	Class 5	39.0	19.5	13.3
Dielectric strength (60s) – 500 V rating	3 kV _{dc} or 2.0 kV _{ac}			

DIMENSIONAL CHARACTERISTICS

Rigid Cu • PVC • Al screen • PVC – 500V rating

N.º of conductors	0.5 mm ²		1.0 mm ²		1.5 mm ²	
	Diameter (mm)	Weight (kg/km)	Diameter (mm)	Weight (kg/km)	Diameter (mm)	Weight (kg/km)
4	7.5	80	8.5	110	9.5	140
7	9.0	120	10.0	160	11.0	210
9	11.0	150	12.0	200	13.5	260
12	11.5	180	13.0	250	14.5	330
19	13.5	260	15.5	370	17.0	490
27	16.5	360	18.5	510	20.5	670
37	18.5	480	20.5	670	23.0	890
48	21.0	610	23.5	850	26.5	1 150
61	23.0	740	26.0	1 060	29.0	1 430

Flexible Cu • PVC • Al screen • PVC – 500V rating

N.º of conductors	0.5 mm ²		1.0 mm ²		1.5 mm ²	
	Diameter (mm)	Weight (kg/km)	Diameter (mm)	Weight (kg/km)	Diameter (mm)	Weight (kg/km)
4	7.5	80	9.0	110	9.5	130
7	9.0	120	10.5	160	11.0	200
9	11.0	150	12.5	210	13.5	250
12	11.5	180	13.5	260	14.5	320
19	13.5	260	15.5	380	17.0	470
27	16.0	350	19.0	520	20.5	650
37	18.0	460	21.0	690	23.0	860
48	21.0	580	24.5	880	26.5	1 100
61	23.0	700	26.0	1 090	29.5	1 360

APPLICATION

Cables for signalling systems, instrumentation and control of electrical mechanisms, halogen free. Maximum rated voltage 500 V (peak value. not for power supply), Indicated for fixed installations, indoor or outdoor, protected or not.

CABLE DESIGNATION

Cu / LSHF / Al screen / LSHF

CONSTRUCTION CHARACTERISTICS

Conductor

Rigid (class 2) copper, sizes 1.5 mm² and 2.5 mm², as per IEC 60228.

Insulation

Low Smoke Halogen Free compound.

Arrangement (formation)

Multicore, stranded.

Core assembly

Concentric layers.

Core wrapping

Dielectric tape, helically applied with an overlap.

Shield (screen)

Aluminium / polyester tape, applied helically with an overlap. A tinned copper drain wire is applied under the tape. Alternatively, a copper tape , helically applied with an overlap may be used.

Oversheath (jacket)

LSHF – Low Smoke Halogen Free thermoplastic compound.

FAST CABLES

GENERAL AND ELECTRICAL CHARACTERISTICS (20°C)

		1.5 mm ²	2.5 mm ²
Maximum resistance of conductor at 20°C dc(Ω/km)	Class 2	12.1	7.41
Dielectric strength (60s) – 500 V rating	3 kV _{dc} or 2.0 kV _{ac}		

DIMENSIONAL CHARACTERISTICS

Cu • LSHF • Al screen • LSHF – 500V rating

N.º of conductors	1.5 mm ²		2.5 mm ²	
	Diameter (mm)	Weight (kg/km)	Diameter (mm)	Weight (kg/km)
4	9.5	130	11.0	190
7	11.0	210	13.5	300
9	13.5	260	16.0	380
12	14.5	330	17.5	490
19	17.0	490	20.5	750
27	20.5	680	24.5	1030
37	23.0	910	28.0	1380
48	26.5	1160	32.0	1780
61	29.0	1450	35.5	2250

APPLICATION

Cables ranging from 4 to 61 conductors used as signaling and control cables. The sheath offers special protection of the core against rodents.

CABLE DESIGNATION

A: Cu / PE / Al screen / PE / Corrugated Armour / PE

B: Cu / PE / Al screen / LSHF / Corrugated Armour / LSHF

CONSTRUCTION CHARACTERISTICS

Conductor

Annealed copper, nominal diameter 1.4 mm.

Insulation

Solid polyethylene.

Arrangement (formation)

Multicore, stranded.

Core assembly

Concentric layers.

Core wrapping

Dielectric tape, helically applied with an overlap.

Shield (screen)

Aluminium tape with copolymer on both sides, applied longitudinally with an overlap.

Inner sheath (jacket)

Black, low density polyethylene (PE) or LSHF – Low Smoke Halogen Free thermoplastic compound.

Armour

Corrugated Steel tape applied longitudinally with an overlap.

Oversheath (jacket)

Black, low density polyethylene (PE) or LSHF – Low Smoke Halogen Free thermoplastic compound.
Fire retardant.

GENERAL AND ELECTRICAL CHARACTERISTICS (20°C)

Maximum resistance of conductor at 20°C dc(Ω/km)	Average: 11.2 ± 0.5 Maximum value: 12.1
Insulation resistance (MΩ x km, 15°C, 500Vcc.)	Minimum value: 35 000
Dielectric strength (Vcc-3 s)	Cond-Cond: 3 000



DIMENSIONAL CHARACTERISTICS

A: Cu • PE • Al screen • PE • Corrugated Armour • PE
B: Cu • PE • Al screen • LSHF • Corrugated Armour • LSHF

N.º of conductors	Diameter (mm)	(A) Weight (kg/km)	(B) Weight (kg/km)
4	13.4	230	280
7	15.4	310	370
9	17.5	380	440
12	17.5	430	500
19	19.5	580	650
27	22.8	770	860
37	25.8	970	1080
48	29.1	1220	1350
61	30.6	1460	1600

APPLICATION

Cables for signalling systems, instrumentation and control of electrical mechanisms grouped in pairs.
Maximum rated voltage 500 V (peak value, not for power supply), Indicated for fixed installations, indoor or outdoor, protected or not.

CABLE DESIGNATION

Cu / PVC / Al screen / PVC
Cu / PE / Al screen / PVC
Cu / XLPE / Al screen / PVC
Cu / XLPE / Al screen / LSHF

CONSTRUCTION CHARACTERISTICS

- Conductor**
Rigid (class 2) of flexible (class 5) copper, sizes 0.5 mm²; 1.0 mm² and 1.5 mm², as per IEC 60228.
- Insulation**
PVC, solid polyethylene or cross-linked polyethylene.
- Arrangement (formation)**
Stranded pairs.
- Core assembly**
Concentric layers.
- Core wrapping**
Dielectric tape, helically applied with an overlap.
- Shield (screen)**
Aluminium / polyester tape applied helically with an overlap.
A 0.5 mm² tinned copper drain wire is applied under the tape.
- Oversheath (jacket)**
Extruded PVC or LSHF – Low Smoke Halogen Free thermoplastic compound.Fire retardant.



GENERAL AND ELECTRICAL CHARACTERISTICS (20°C)

		0.5 mm ²	1.0 mm ²	1.5 mm ²
Maximum resistance of conductor at 20°C dc(Q/km)	Class 2	36.7	18.5	12.3
	Class 5	39.8	19.9	13.6
Dielectric strength (60s) – 500 V rating		3 kV _{dc} or 2.0 kV _{ac}		
Mutual capacitance		Polyolefin: < 150 nF/km PVC: < 250 nF/km		
Capacitance unbalance		500 pF/500m		

DIMENSIONAL CHARACTERISTICS

Rigid Cu • PE • Al screen • PVC – 500V rating

N.º of pairs	0.5 mm ²		1.0 mm ²		1.5 mm ²	
	Diameter (mm)	Weight (kg/km)	Diameter (mm)	Weight (kg/km)	Diameter (mm)	Weight (kg/km)
4	11.0	130	12.5	170	14.0	230
7	13.5	190	15.0	270	16.5	360
9	16.5	250	18.5	350	20.5	470
12	18.0	320	20.0	430	22.0	580
19	21.0	460	24.0	650	26.5	890
27	25.5	640	28.5	900	31.5	1 230
37	28.5	840	32.0	1 200	36.0	1 650

Flexible Cu • PE • Al screen • PVC – 500V rating

N.º of pairs	0.5 mm ²		1.0 mm ²		1.5 mm ²	
	Diameter (mm)	Weight (kg/km)	Diameter (mm)	Weight (kg/km)	Diameter (mm)	Weight (kg/km)
4	11.0	130	12.5	180	14.0	230
7	13.0	190	15.5	280	17.0	350
9	16.0	250	19.0	360	20.5	450
12	17.5	310	20.5	450	22.5	560
19	21.0	440	24.5	670	26.5	850
27	25.0	610	29.5	930	32.0	1170
37	28.5	790	33.0	1220	36.5	1570

APPLICATION

Armoured cables for signalling systems, instrumentation and control of electrical mechanisms grouped in pairs. Maximum rated voltage 500 V (peak value, not for power supply), Indicated for fixed installations, indoor or outdoor, protected or not. Can be installed directly or buried.

CABLE DESIGNATION

Cu / PVC / Al Screen / PVC / STA (Steel tape armour) / PVC
Cu / PVC / Al Screen / PVC / SWA(Steel wire armour) / PVC
Cu / PE / Al Screen / PVC / STA (Steel tape armour) / PVC
Cu / PE / Al Screen / PVC / SWA(Steel wire armour) / PVC
Cu / XLPE / Al Screen / PVC / STA (Steel tape armour) / PVC
Cu / XLPE / Al Screen / PVC / SWA(Steel wire armour) / PVC
Cu / XLPE / Al Screen / LSHF / STA (Steel tape armour) / LSHF
Cu / XLPE / Al Screen / LSHF / SWA(Steel wire armour) / LSHF

CONSTRUCTION CHARACTERISTICS

- Conductor
- Rigid (class 2) of flexible (class 5) copper, sizes 0.5 mm²; 1.0 mm² and 1.5 mm², as per IEC 60228.
- Insulation
- PVC. solid polyethylene or cross-linked polyethylene.
- Arrangement (formation)
- Stranded pairs.
- Core assembly
- Concentric layers.
- Core wrapping
- Dielectric tape, helically applied with an overlap.
- Shield (screen)
- Aluminium / polyester tape applied helically with an overlap.
A 0.5 mm² tinned copper drain wire is applied under the tape.

- Inner sheath (jacket)
- Extruded PVC or LSHF – Low Smoke Halogen Free thermoplastic compound.
- Armour
- Two steel tapes armour or galvanised steel wire armour, helically applied.
- Oversheath (jacket)
- Extruded PVC or LSHF – Low Smoke Halogen Free thermoplastic compound.



GENERAL AND ELECTRICAL CHARACTERISTICS (20°C)

		0.5 mm ²	1.0 mm ²	1.5 mm ²
Maximum resistance of conductor at 20°C dc(Ω/km)	Class 2	36.7	18.5	12.3
	Class 5	39.8	19.9	13.6
Dielectric strength (60s) – 500 V rating		3 kV _{dc} or 2.0 kV _{ac}		
Mutual capacitance		Polyolefin: < 150 nF/km PVC: < 250 nF/km		
Capacitance unbalance		500 pF/500m		

DIMENSIONAL CHARACTERISTICS

Rigid Cu • PE • Al screen • PVC • SWA • PVC – 500V rating

N.º of pairs	0.5 mm ²		1.0 mm ²		1.5 mm ²	
	Diameter (mm)	Weight (kg/km)	Diameter (mm)	Weight (kg/km)	Diameter (mm)	Weight (kg/km)
4	15.5	420	17.0	480	18.0	570
7	17.5	520	19.5	630	21.0	750
9	20.5	650	22.5	780	25.5	1 130
12	22.0	730	25.0	1 090	27.5	1 310
19	26.0	1 140	29.0	1 400	31.5	1 720
27	30.5	1 440	33.5	1 790	37.5	2 450
37	33.5	1 730	37.5	2 200	42.0	3 050

Flexible Cu • PE • Al screen • PVC • SWA • PVC – 500V rating

N.º of pairs	0.5 mm ²		1.0 mm ²		1.5 mm ²	
	Diameter (mm)	Weight (kg/km)	Diameter (mm)	Weight (kg/km)	Diameter (mm)	Weight (kg/km)
4	15.5	410	17.0	490	18.5	570
7	17.5	520	20.0	650	21.0	740
9	20.5	630	23.0	790	26.0	1120
12	22.0	720	25.5	1 110	27.5	1290
19	26.0	1 110	29.5	1 440	31.5	1690
27	30.0	1 400	34.5	1 840	38.0	2390
37	33.5	1 680	38.0	2 250	42.5	2990

APPLICATION

Cables for signalling systems. instrumentation and control of electrical mechanisms, grouped in individual shielded pairs. Maximum rated voltage 500 V (peak value, not for power supply). Indicated for fixed installations. indoor or outdoor, protected or not.

CABLE DESIGNATION

Cu / PVC / Al Screen / Al Screen / PVC
Cu / PE / Al Screen / Al Screen / PVC
Cu / XLPE / Al Screen / Al Screen / PVC
Cu / XLPE / Al Screen / Al Screen / LSHF

CONSTRUCTION CHARACTERISTICS

Conductor

Rigid (class 2) of flexible (class 5) copper, sizes 0.5 mm²; 1.0 mm² and 1.5 mm², as per IEC 60228.

Insulation

PVC, solid polyethylene or cross-linked polyethylene.

Arrangement (formation)

Stranded pairs.

Shield (Pair)

Aluminium / polyester tape applied helically with an overlap.
A 0.5 mm² tinned copper drain wire is applied under the tape.

Core assembly

Concentric layers.

Core wrapping

Dielectric tape. helically applied with an overlap.

Shield (screen)

Aluminium / polyester tape applied helically with an overlap.
A 0.5 mm² tinned copper drain wire is applied under the tape.

Oversheath (jacket)

Extruded PVC or LSHF – Low Smoke Halogen Free thermoplastic compound. Fire retardant.



GENERAL AND ELECTRICAL CHARACTERISTICS (20°C)

		0.5 mm ²	1.0 mm ²	1.5 mm ²
Maximum resistance of conductor at 20°C dc(Ω/km)	Class 2	36.7	18.5	12.3
	Class 5	39.8	19.9	13.6
Dielectric strength (60s) – 500 V rating		3 kV _{dc} or 2.0 kV _{ac}		
Mutual capacitance		Polyolefin: < 150 nF/km PVC: < 250 nF/km		
Capacitance unbalance		500 pF/500m		

DIMENSIONAL CHARACTERISTICS

Rigid Cu • XLPE • Al screen • Al screen • PVC – 500V rating

N.º of pairs	0.5 mm ²		1.0 mm ²		1.5 mm ²	
	Diameter (mm)	Weight (kg/km)	Diameter (mm)	Weight (kg/km)	Diameter (mm)	Weight (kg/km)
4	12.5	140	14.0	190	15.0	240
7	15.0	210	17.0	290	18.5	370
9	18.5	270	20.5	380	23.0	500
12	20.0	340	22.5	480	25.0	630
19	23.5	490	26.5	690	29.5	930
27	28.5	670	32.0	970	36.0	1 300
37	32.5	900	36.5	1 270	40.5	1 740

Flexible Cu • XLPE • Al screen • Al screen • PVC – 500V rating

N.º of pairs	0.5 mm ²		1.0 mm ²		1.5 mm ²	
	Diameter (mm)	Weight (kg/km)	Diameter (mm)	Weight (kg/km)	Diameter (mm)	Weight (kg/km)
4	12.5	140	14.5	200	15.5	240
7	15.0	210	17.0	300	18.5	360
9	18.5	270	21.0	390	23.0	480
12	20.0	330	23.0	490	25.0	610
19	23.5	470	27.5	710	30.0	890
27	28.5	650	33.0	990	36.5	1240
37	32.0	850	37.5	1 300	41.0	1650

APPLICATION

Armoured cables for signalling systems, instrumentation and control of electrical mechanisms, grouped in individual shielded pairs. Maximum rated voltage 500 V (peak value. not for power supply) . Indicated for fixed installations, indoor or outdoor, protected or not, Can be installed directly or buried.

CABLE DESIGNATION

Cu / PVC / Al Screen / Al Screen / PVC / STA (Steel tape armour) / PVC
Cu / PVC / Al Screen / Al Screen / PVC / SWA(Steel wire armour) / PVC
Cu / PE / Al Screen / Al Screen / PVC / STA (Steel tape armour) / PVC
Cu / PE / Al Screen / Al Screen / PVC / SWA(Steel wire armour) / PVC
Cu / XLPE / Al Screen / Al Screen / PVC / STA (Steel tape armour) / PVC
Cu / XLPE / Al Screen / Al Screen / PVC / SWA(Steel wire armour) / PVC
Cu / XLPE / Al Screen / Al Screen / LSHF / STA (Steel tape armour) / LSHF
Cu / XLPE / Al Screen / Al Screen / LSHF / SWA(Steel wire armour) / LSHF
F – Flexible

CONSTRUCTION CHARACTERISTICS

Conductor

Rigid (class 2) of flexible (class 5) copper, sizes 0.5 mm²; 1.0 mm² and 1.5 mm², as per IEC 60228.

Insulation

PVC, solid polyethylene or cross-linked polyethylene.

Arrangement (formation)

Stranded pairs.

Shield (Pair)

Aluminium / polyester tape applied helically with an overlap.
A 0.5 mm² tinned copper drain wire is applied under the tape.

Core assembly

Concentric layers.

Core wrapping

Dielectric tape, helically applied with an overlap.

Shield (screen)

Aluminium / polyester tape applied helically with an overlap.
A 0.5 mm² tinned copper drain wire is applied under the tape.

Inner sheath (jacket)

Extruded PVC or LSHF – Low Smoke Halogen Free thermoplastic compound, fire retardant.

Armour

Double steel tape armour or galvanised steel wire armour, helically applied.

Oversheath (jacket)

Extruded PVC or LSHF – Low Smoke Halogen Free thermoplastic compound.Fire retardant.

FAST CABLES

GENERAL AND ELECTRICAL CHARACTERISTICS (20°C)		0.5 mm2	1.0 mm2	1.5 mm2
Maximum resistance of conductor at 20°C dc(Q/km)	Class 2	36.7	18.5	12.3
	Class 5	39.8	19.9	13.6
Dielectric strength (60s) – 500 V rating		3 kV _{dc} or 2.0 kV _{ac}		
Mutual capacitance		Polyolefin: < 150 nF/km PVC: < 250 nF/km		
Capacitance unbalance		500 pF/500m		

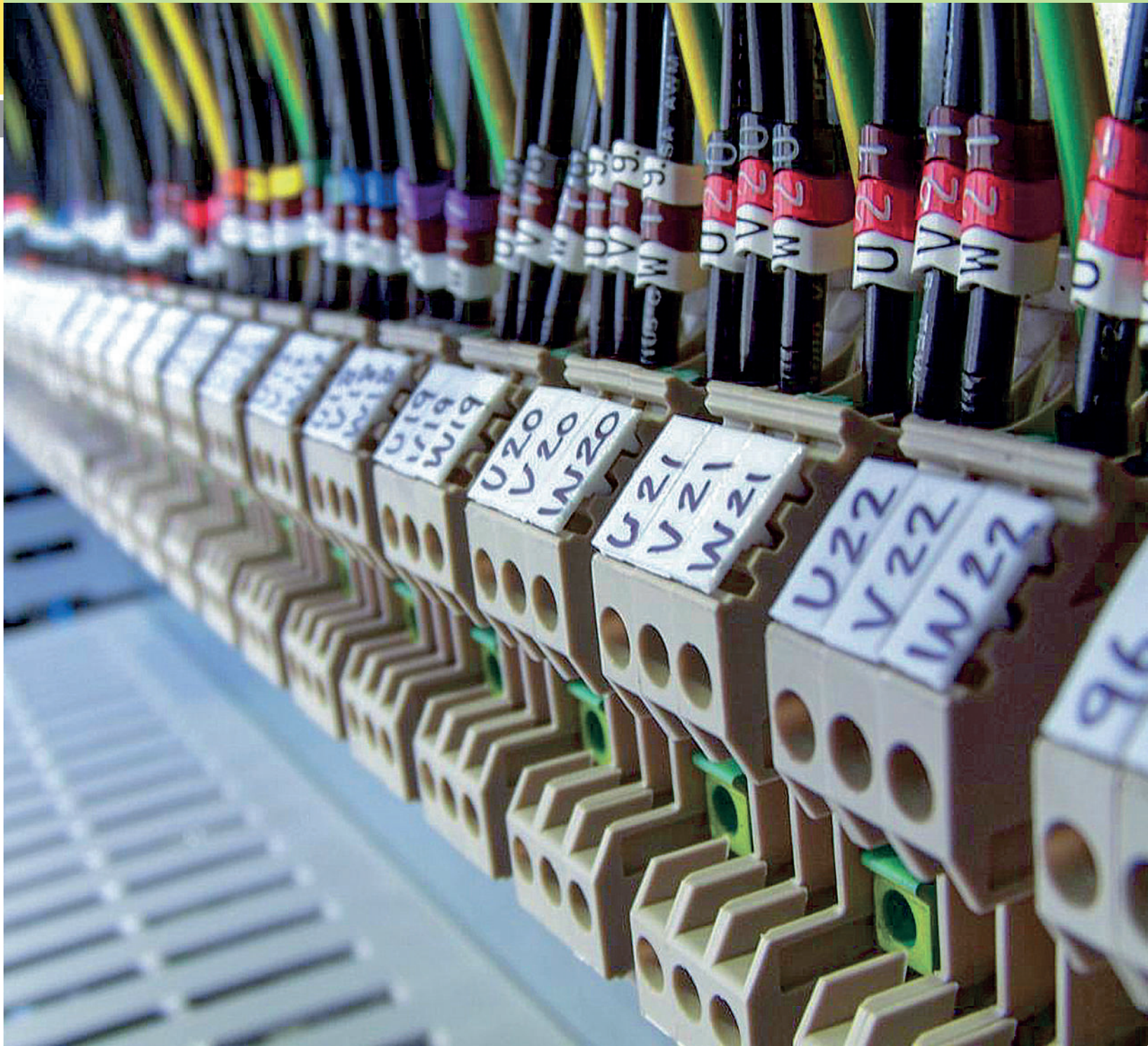
DIMENSIONAL CHARACTERISTICS

Rigid Cu • XLPE • Al screen • Al screen • PVC • SWA • PVC – 500V rating

N.º of pairs	0.5 mm ²		1.0 mm ²		1.5 mm ²	
	Diameter (mm)	Weight (kg/km)	Diameter (mm)	Weight (kg/km)	Diameter (mm)	Weight (kg/km)
4	17.0	460	18.5	540	19.5	610
7	19.5	580	21.0	690	23.5	990
9	23.5	890	26.0	1 060	28.0	1 220
12	25.0	990	27.5	1 200	30.0	1 420
19	29.0	1 250	31.5	1 530	34.5	1 850
27	33.5	1 580	38.0	2 170	42.0	2 680
37	38.0	2 120	42.5	2 690	47.0	3 590

Flexible Cu • XLPE • Al screen • Al screen • PVC • SWA • PVC – 500V rating

N.º of pairs	0.5 mm ²		1.0 mm ²		1.5 mm ²	
	Diameter (mm)	Weight (kg/km)	Diameter (mm)	Weight (kg/km)	Diameter (mm)	Weight (kg/km)
4	16.5	450	18.5	550	20.0	610
7	19.5	570	21.5	700	24.0	980
9	23.5	870	26.5	1 080	28.5	1 220
12	25.0	980	28.0	1 220	30.5	1 410
19	28.5	1 220	32.5	1 570	35.0	1 820
27	33.5	1 540	38.5	2 230	42.5	2 640
37	38.0	2 060	43.5	2 740	47.5	3 540



PROPERTIES OF ELECTRICITY

Conductance

Electricity is a subject that is frequently explained in terms of opposites. The term that is exactly the opposite of resistance is conductance. Conductance is the ability of a material to pass electrons. The unit of conductance is the mho or ohm spelled backwards. Whereas the symbol used to represent resistance is the Greek letter omega (Ω), the symbol used to represent conductance is the Greek letter omega upside down ($\Uparrow$). The relationship that exists between resistance and conductance is reciprocal. A reciprocal of a number is obtained by dividing the number into one. In terms of resistance and conductance:

$$G = \frac{1}{R} \quad \text{or} \quad R = \frac{1}{G}$$

If the resistance of material is known, dividing its value into one will give its conductance. Similarly, if the conductance is known, dividing its value into one will give its resistance. The relative conductance of several conductors of the same length and cross section is given below with copper as a standard of 100 and the remaining metals arranged in order of descending conductance.

Silver.....	106
Copper.....	100
Copper hard drawn.....	97
Gold.....	78
Aluminium.....	61
Mild Steel.....	12
Lead.....	8

Resistivity (P) and Conductivity (Y)

The resistivity P of a material is its ability to oppose the passage of electric current. Thus, if a conductor has resistance (R) , length (L), and cross sectional area A, its resistivity is expressed as:

$$P = \frac{RA}{L}$$

Conductivity is the reciprocal of resistivity.
A substance that has a high resistivity will have a low conductivity, and vice versa.
Thus, if a conductor has conductance G, length L, and cross-sectional area A,

$$Y = \frac{GL}{A}$$

Inductance (L) and Capacitance (C)

Inductance is the property of an electric circuit that opposes any change in the current through the circuit. That is, if the current increases, a self-induced voltage opposes the change. If current decreases, a self-induced voltage tends to prolong the current flow. The unit for measuring inductance is the henry (H). A henry is the unit employed when the induced electromotive force of one volt is produced by the inducing current changing at the rate of one ampere per second.

Capacitance, on the other hand, is the property of an electric circuit that opposes any change in the circuit, That if applied voltage is increased, capacitance opposes the change and delays the voltage increase across the circuit. The unit of measuring capacitance is the farad (F).

Reactance (X)

If the current applied to the circuit is not dc, the opposition is referred to as inductive reactance X_L . If on the other hand, the opposition is to the applied alternating EMF or voltage, it is referred to as capacitive reactance X_C . Total Reactance X equals the sum of inductive and capacitive reactance, $X_L + X_C$.
Alternating current and voltage are in phase only in a circuit containing pure resistance. Current lags voltage by 90 degrees in a pure inductive circuit and leads voltage by 90 degrees in a pure capacitive circuit.

Impedance (Z)

Impedance is the total opposition to the flow of alternating current in a circuit that contains both resistance R and reactance X. It is expressed in ohms as:

$$Z = \sqrt{R^2 + X^2}$$

Ohm's law for alternating current is similar to Ohm's law for direct current, with the difference that impedance is substituted for resistance in the formula:

$$E = IZ$$

A single-phase circuit is energized by a single alternating voltage. Two phase circuits are a combination of two circuits energized by alternating voltages differing in phase by 90 degrees. Three-phase circuits are a combination of three circuits energized by alternating voltages differing in phase by 120 degrees.

Electromotive Force

- Symbol: E or V
- Units:
 - 1 Volt (V) = 10^8 egs electromagnetic units [abvolts]
 - = 0.0033356 egs electrostatic unit [stat volt]
 - = 0.99958 international volt
- 1 kilovolt [kV] = 1000 volts
- 1 millivolt [mv] = 0.001 volt

Current

Symbol:I	
Units:	
1 ampere [amp]	=0.1 egs electromagnetic unit [abampere] =2.998 X 10 ⁹ egs electrostatic units [statamperes]
	= 1.0001 O international amperes
1 milliampere [mA]	=0.001 ampere
1 microampere [uA]	=0.001 milliampere = 10 ⁻⁶ ampere [one millionth of an ampere]

Frequency

Symbol: f	
Units:	
1 cycle per second [c]	
1 kilocycle per second [kc]	= 1000 cycles per second
1 megacycle per second [mc]	= 1000 kilocycles per second = 10 ⁶ cycles per second

The quantity 2πf which appears often in electrical formulas, is represented by the symbol w. The following are useful values of w.

f	w[=2πf]
25	157
50	314
60	377
1,000	6283
1,000,000	6.283 X 10 ⁶

Power Factor

Symbol=pf	
The power factor of an alternating current is the cosine to the angle of phase difference between current and voltage. It can also be defined as the ratio of active power to apparent power in a circuit.	
	pf=cosØ=P/S

Approx. Voltage Drop Per Amp Per Meter for PVC Insulated Cables Using CU Conductors

Armoured

Nominal area of conductor mm2	*Single core		Two core	Three core and Four core
	Two cables spaced	Three cable trefoil touching	Approximate volt drop per amp per meter mV/A/m	Approximate volt drop per amp per meter mV/A/m
	Approximate volt drop per amp per meter mV/A/m	Approximate volt drop per amp per meter mV/A/m		
1.5	-	-	29	25
2.5	-	-	18	15
4	-	-	11	9.5
6	-	-	7.3	6.4
10	-	-	4.4	3.8
16	-	-	2.8	2.4
25	-	-	1.75	1.5
35	-	-	1.25	1.1
50	0.95	0.82	0.94	0.81
70	0.68	0.58	0.65	0.57
95	0.52	0.45	0.50	0.43
120	0.43	0.37	0.41	0.35
150	0.37	0.32	0.34	0.29
185	0.32	0.27	0.29	0.25
240	0.27	0.23	0.24	0.21
300	0.24	0.21	0.21	0.185
400	0.22	0.195	0.185	0.160
500	0.21	0.18	-	-
630	0.195	0.17	-	-
800	0.185	0.16	-	-
1000	0.180	0.155	-	-

Un-Armoured

Nominal area of conductor mm2	*Single core			Two core	Three core and Four core
	Two cables spaced	Three cable trefoil touching	Cable touching flat spaced	Approximate volt drop per amp per meter mV/A/m	Approximate volt drop per amp per meter mV/A/m
	Approximate volt drop per amp per meter mV/A/m	Approximate volt drop per amp per meter mV/A/m	Approximate volt drop per amp per meter mV/A/m		
1	44	38	38	44	38
1.5	29	25	25	29	25
2.5	18	15	15	18	15
4	11	9.5	9.5	11	9.50
6	7.3	6.4	6.4	7.3	6.4
10	4.4	3.8	3.8	4.4	3.8
16	2.8	2.4	2.4	2.8	2.4
25	1.75	1.5	1.55	1.75	1.5
35	1.25	1.1	1.1	1.25	1.1
50	0.95	0.82	0.84	0.94	0.81
70	0.66	0.57	0.60	0.65	0.57
95	0.50	0.43	0.47	0.50	0.43
120	0.41	0.36	0.40	0.41	0.35
150	0.34	0.34	0.34	0.34	0.29
185	0.29	0.26	0.31	0.29	0.25
240	0.25	0.22	0.27	0.24	0.21
300	0.22	0.19	0.25	0.210	0.185
400	0.20	0.175	0.24	0.185	0.160
500	0.185	0.160	0.23	-	-
630	0.175	0.150	0.22	-	-
800	0.165	0.145	0.22	-	-
1000	0.160	0.140	0.21	-	-

*Spacings larger than one cable diameter will result in a larger voltage drop.

Approx. Voltage Drop Per Amp Per Meter for XLPE Insulated Cables Using CU Conductors

Ambient Temperature: 30°C

Conductor Operating Temperature: 90°C

Armoured

Nominal area of conductor	*Single core		Two core	Three core and Four core
	Two cables spaced	Three cable trefoil touching	Approximate volt drop per amp per meter mV/A/m	Approximate volt drop per amp per meter mV/A/m
	Approximate volt drop per amp per meter mV/A/m	Approximate volt drop per amp per meter mV/A/m		
mm2	mV/A/m	mV/A/m	mV/A/m	mV/A/m
1.5	-	-	31	27
2.5	-	-	19	16
4	-	-	12	10
6	-	-	7.9	6.8
10	-	-	4.7	4.0
16	-	-	2.9	2.5
25	-	-	1.9	1.65
35	-	-	1.35	1.15
50	1	0.87	1.00	0.87
70	0.71	0.62	0.69	0.60
95	0.55	0.47	0.52	0.45
120	0.45	0.39	0.42	0.37
150	0.38	0.33	0.35	0.3
185	0.33	0.28	0.29	0.26
240	0.28	0.24	0.24	0.21
300	0.25	0.21	0.21	0.185
400	0.22	0.195	0.19	0.165
500	0.21	0.180	-	-
630	0.195	0.170	-	-
800	0.190	0.165	-	-
1000	0.180	0.155	-	-

Un-Armoured

Ambient Temperature: 30°C

Conductor Operating Temperature: 90°C

Nominal area of conductor	*Single core			Two core	Three core and Four core
	Two cables spaced	Three cable trefoil touching	Cable touching flat spaced	Approximate volt drop per amp per meter	Approximate volt drop per amp per meter
	Approximate volt drop per amp per meter	Approximate volt drop per amp per meter	Approximate volt drop per amp per meter		
mm2	mV/A/m	mV/A/m	mV/A/m	mV/A/m	mV/A/m
1	46	40	40	46	40
1.5	31	27	27	31	27
2.5	19	16	16	19	16
4	12	10	10	12	10.00
6	7.9	6.8	6.8	7.9	6.8
10	4.7	4	4	4.7	4
16	2.9	2.5	2.5	2.9	2.5
25	1.85	1.6	1.6	1.9	1.65
35	1.35	1.15	1.15	1.35	1.15
50	1.00	0.87	0.87	1	0.87
70	0.71	0.61	0.62	0.69	0.6
95	0.52	0.45	0.46	0.52	0.45
120	0.43	0.37	0.38	0.42	0.37
150	0.36	0.31	0.32	0.35	0.31
185	0.3	0.26	0.28	0.29	0.26
240	0.25	0.22	0.24	0.24	0.21
300	0.22	0.195	0.21	0.210	0.185
400	0.20	0.175	0.195	0.19	0.165
500	0.185	0.160	0.18	-	-
630	0.175	0.150	0.17	-	-
800	0.170	0.145	0.165	-	-
1000	0.165	0.140	0.165	-	-

*Spacings larger than one cable diameter will result in a larger voltage drop.

Approx. Voltage Drop Per Amp Per Meter for PVC Insulated Cables Using Al Conductors

Ambient Temperature: 30°C

Conductor Operating Temperature: 70°C

Armoured

Nominal area of conductor	*Single core		Two core	Three core and Four core
	Two cables spaced	Three cable trefoil touching	Approximate volt drop per amp per meter mV/A/m	Approximate volt drop per amp per meter mV/A/m
	Approximate volt drop per amp per meter mV/A/m	Approximate volt drop per amp per meter mV/A/m		
mm2				
1.5	-	-	-	-
2.5	-	-	-	-
4	-	-	-	-
6	-	-	-	-
10	-	-	-	-
16	-	-	4.5	3.9
25	-	-	2.9	2.5
35	-	-	2.1	1.8
50	1.55	1.35	1.55	1.35
70	1.1	0.93	1.05	0.92
95	0.81	0.70	0.79	0.68
120	0.66	0.57	-	0.55
150	0.54	0.47	-	0.44
185	0.45	0.39	-	0.37
240	0.37	0.32	-	0.30
300	0.32	0.27	-	0.25
400	-	-	-	-
500	-	-	-	-
630	-	-	-	-
800	-	-	-	-
1000	-	-	-	-

Un-Armoured

Ambient Temperature: 30°C

Conductor Operating Temperature: 70°C

Nominal area of conductor	*Single core			Two core	Three core and Four core
	Two cables spaced	Three cable trefoil touching	Cable touching flat spaced	Approximate volt drop per amp per meter	Approximate volt drop per amp per meter
	Approximate volt drop per amp per meter	Approximate volt drop per amp per meter	Approximate volt drop per amp per meter		
mm2	mV/A/m	mV/A/m	mV/A/m	mV/A/m	mV/A/m
1	-	-	-	-	-
1.5	-	-	-	-	-
2.5	-	-	-	-	-
4	-	-	-	-	-
6	-	-	-	-	-
10	-	-	-	-	-
16	-	-	-	4.5	3.9
25	-	-	-	2.9	2.5
35	-	-	-	2.1	1.8
50	1.55	1.35	1.35	1.55	1.35
70	1.05	0.92	0.94	1.05	0.92
95	0.79	0.69	0.71	0.79	0.68
120	0.64	0.55	0.58	-	0.55
150	0.52	0.64	0.48	-	0.44
185	0.43	0.37	0.41	-	0.37
240	0.35	0.30	0.35	-	0.30
300	0.30	0.26	0.31	-	0.25
400	-	-	-	-	-
500	-	-	-	-	-
630	-	-	-	-	-
800	-	-	-	-	-
1000	-	-	-	-	-

*Spacings larger than one cable diameter will result in a larger voltage drop.

Approx. Voltage Drop Per Amp Per Meter for XLPE Insulated Cables Using Al Conductors

Armoured

Nominal area of conductor mm2	*Single core		Two core	Three core and Four core
	Two cables spaced	Three cable trefoil touching	Approximate volt drop per amp per meter mV/A/m	Approximate volt drop per amp per meter mV/A/m
	Approximate volt drop per amp per meter mV/A/m	Approximate volt drop per amp per meter mV/A/m		
16	-	-	4.8	4.2
25	-	-	3.1	2.7
35	-	-	2.2	1.95
50	1.6	1.4	1.65	1.45
70	1.15	0.98	1.5	0.97
95	0.85	0.74	0.84	0.72
120	0.69	0.60	-	0.58
150	0.57	0.49	-	0.47
185	0.47	0.41	-	0.39
240	0.39	0.34	-	0.31
300	0.33	0.29	-	0.26
400	-	-	-	-
500	-	-	-	-
630	-	-	-	-
800	-	-	-	-
1000	-	-	-	-

Ambient Temperature: 30°C

Conductor Operating Temperature: 90°C

Un-Armoured

Nominal area of conductor mm2	*Single core			Two core	Three core and Four core
	Two cables spaced	Three cable trefoil touching	Cable touching flat spaced	Approximate volt drop per amp per meter mV/A/m	Approximate volt drop per amp per meter mV/A/m
	Approximate volt drop per amp per meter mV/A/m	Approximate volt drop per amp per meter mV/A/m	Approximate volt drop per amp per meter mV/A/m		
16	-	-	-	4.8	4.2
25	-	-	-	3.1	2.7
35	-	-	-	2.2	1.95
50	1.66	1.45	1.46	1.65	1.45
70	1.14	0.98	1.00	1.15	0.97
95	0.84	0.73	0.75	0.84	0.72
120	0.67	0.59	0.61	-	0.58
150	0.55	0.47	0.5	-	0.47
185	0.46	0.39	0.43	-	0.39
240	0.36	0.32	0.35	-	0.31
300	0.31	0.27	0.31	-	0.26
400	-	-	-	-	-
500	-	-	-	-	-
630	-	-	-	-	-
800	-	-	-	-	-
1000	-	-	-	-	-

Ambient Temperature: 30°C

Conductor Operating Temperature: 90°C

Rating factors for ambient air temperatures other than 30°C to be applied for cables installed in free air or on tray or clipped directly.

Ambient temperature (°C)	Insulation	
	70°C Thermoplastic	90°C Thermosetting
25	1.03	1.02
30	1	1
35	0.94	0.96
40	0.87	0.91
45	0.79	0.87
50	0.71	0.82
55	0.61	0.76
60	0.5	0.71
65	-	0.65
70	-	0.58
75	-	0.50
80	-	0.41

Rating factors for ambient ground temperatures other than 20°C to be applied for cables burried directly in the ground or in an underground conduit system according to BS EN 50086-2-4

Ambient temperature (°C)	Insulation	
	70°C Thermoplastic	90°C Thermosetting
10	1.1	1.07
15	1.05	1.04
20	1	1.00
25	0.95	0.96
30	0.89	0.93
35	0.84	0.89
40	0.77	0.85
45	0.71	0.8
50	0.63	0.76
55	0.55	0.71
60	0.45	0.65
65	-	0.60
70	-	0.53
75	-	0.46
80	-	0.38

Conductor for Electric Cables

Comparison between Standard Imperial and the nearest Standard Metric Size

Standard Imperial Stranding / Wire Diameter Inch	Column (1) Converted to (mm²)	Nearest Metric Standard Size (mm²)
(3/ .029")	(1.29)	1.5
(3/ .036")	(1.94)	1.5
(7/ .029")	(2.90)	2.5
(7/ .036")	(4.52)	4
(7/ .044")	(6.45)	6
(7/ .052")	(9.35)	10
(7/ .064")	(14.52)	16
(19/ .052")	(25.81)	25
(19/ .064")	(38.71)	35
(19/ .072")	(48.39)	50
(19/ .083")	(64.52)	70
(37/ .072")	(96.77)	95
(37/ .083")	(129.0)	120
(37/ .093")	(161.3)	150
(37/ .0103")	(196.6)	185
(61/ .093")	(258.1)	240
(61/ .0103")	(322.6)	300
(91/ .093")	(387.1)	400
(91/ .0103")	(483.9)	500
(127/ .0103")	(645.2)	630
	(806.4)	800
	(967.7)	1000

Note:
Size (3/.029", 7/.029") are manufactured by us in imperial Size.

Characteristics	Annealed Copper	Hard drawn Copper	Cadmium Copper	Hard drawn Aluminium	Aluminium Alloy	Galvanized Steel
Conductivity percent	100 (average)	97 (minimum)	79.2 (minimum)	61 (minimum)	52.5	-
Volume resistivity at 20°C ohm-mm²/m micro ohm/inch²	0.017241 (std.) 0.67879	0.01771 (avg.) 0.69712	0.021769 (max.) 0.85705	0.028264 (max.) 1.1128	0.03280 (std.) 1.2677	-
Mass resistivity at 20°C ohm/gramme/m ohm-pound/mile	0.15328 875.2	0.15741 898.83	0.19472 1111.9	0.076398 436.23	0.08694 496.42	-
Resistance at 20°C ohm-mm²/km ohm-inch²/1000 yards	17.241 0.024437	17.71 0.025096	21.768 0.030854	28.264 0.040059	32.80 0.045637	-
Density at 20°C Grams/ cm³	8.89	8.89	8.94	2.703	2.700	7.78
Weight Lb/Ohm-mm²/km Lb/inch²/1000 yards	8.89 11562	8.89 11562	8.94 11634	2.703 3516	2.700 3518	7.78 10197
Temperature coefficient of resistance at 20°C (68 F) per °C	0.00393	0.00381	0.00403	0.00403	0.00360	0.0045
Coefficient of linear expansion at 20°C (68°F) Per°C Per°F	17×10 ⁻⁶ 9.44 ×10 ⁻⁶	17×10 ⁻⁶ 9.44×10 ⁻⁶	17×10 ⁻⁶ 9.44×10 ⁻⁶	23×10 ⁻⁶ 12.78×10 ⁻⁶	23×10 ⁻⁶ 12.78×10 ⁻⁶	11.5×10 ⁻⁶ 6.4×10 ⁻⁶
Ultimate tensile stress (approximate) kgf / mm² lbf / inch²	25.3 36000	42.2 60000	63.3 90000	16.5 23500	30 42500	136 194000
Modulus of elasticity kgf / mm² lb / inch²	9 to 10.5 × 10³ 13 to 15 × 10²	12.66×10³ 18×10⁶	12.66×10³ 18×10⁶	6.96×10³ 9.9×10⁶	7.0×10³ 9.9×10⁶	19.7×10³ 28×10

Gauge			Diameter	Sectional Area		Aluminium Wire Weight	Copper Wire Weight
S.W.G.	A.W.G	B.W.G	mm	in²	mm²	Kg/km	Kg/km
7/0	-	5/0	12.700	0.1964	126.70	342.1	1126
-	-	-	12.000	0.1753	113.10	305.4	1005
6/0	-	-	11.786	0.1691	109.10	294.65	969.8
-	4/0	-	11.684	0.1662	107.20	289.4	953.2
-	-	4/0	11.532	0.1619	104.40	281.9	940.8
5/0	-	-	10.973	0.1466	94.56	255.3	840.7
-	-	3/0	10.795	0.1419	91.52	247.1	823.8
-	3/0	-	10.404	0.1318	85.03	229.6	755.7
4/0	-	-	10.160	0.1257	81.07	218.9	720.7
-	-	-	10.000	0.1217	78.54	212.1	698.2
-	-	2/0	9.652	0.1134	7317	197.6	647.5
3/0	-	-	9.449	0.1087	70.12	189.3	623.4
-	2/0	-	9.266	0.1045	67.42	182.0	599.5
-	-	-	9.000	0.09859	63.62	171.8	565.6
2/0	-	-	8.839	0.09512	61.36	165.7	545.5
-	-	0	8.636	0.09079	58.58	158.2	524.6
-	0	-	8.250	0.08291	53.49	144.4	475.5
0	-	-	8.230	0.08245	53.19	143.6	472.9
-	-	-	8.000	0.07793	50.27	136.7	446.9
1	-	1	7.620	0.07069	45.60	123.1	405.4
-	1	-	7.348	0.06573	42.41	114.5	377.1
-	-	2	7.214	0.06335	40.87	110.3	354.4
2	-	-	7.010	0.05983	38.60	104.2	343.2
-	-	-	7.000	0.05966	38.48	103.9	342.1
-	-	3	6.579	0.05269	33.99	91.77	295.0
-	2	-	6.544	0.05212	33.63	90.80	298.0
-	-	-	6.500	0.05143	33.18	89.59	295.0
3	-	-	6.401	0.04988	32.18	86.89	286.1
-	-	4	6.045	0.04449	28.70	77.49	254.6
-	-	-	6.000	0.04382	28.27	76.33	251.4
4	-	-	5.893	0.04227	27.27	73.63	242.4
-	3	-	5.827	0.04133	26.66	71.98	237.0
-	-	5	5.588	0.03801	24.52	66.20	226.4
-	-	-	5.500	0.03681	23.72	64.04	219.8
5	-	-	5.385	0.03530	22.77	61.48	202.4
-	4	-	5.189	0.03278	21.15	57.11	188.02
-	-	6	5.156	0.03237	20.88	56.38	184.05
-	-	-	5.000	0.03045	19.63	53.00	174.55
6	-	-	4.877	0.02895	18.68	50.30	166.06
-	5	-	4.621	0.02599	16.77	45.28	149.05
-	-	7	4.572	0.02545	16.42	44.33	145.3
-	-	-	4.500	0.02466	15.90	42.93	141.3
7	-	-	4.470	0.02433	15.70	42.39	139.53
-	-	8	4.191	0.02138	13.80	37.26	123.07
-	6	-	4.115	0.02061	13.30	35.91	118.22
8	-	-	4.065	0.02011	12.97	35.02	115.32
-	-	9	4.000	0.01948	12.57	33.94	111.71
-	-	-	3.759	0.01720	11.10	29.97	98.65

Gauge			Diameter	Sectional Area		Aluminum Wire Weight	Copper Wire Weight
S.W.G.	A.W.G	B.W.G	mm	in²	mm²	Kg/km	Kg/km
-	7	-	3.665	0.01635	10.55	28.49	93.78
9	-	-	3.658	0.01629	10.52	28.40	93.43
-	-	-	3.500	0.01491	9.621	25.98	85.53
-	-	10	3.404	0.01410	9.098	24.57	80.71
-	8	-	3.264	0.01297	8.368	22.59	74.37
10	-	-	3.251	0.01287	8.302	22.42	73.79
-	-	-	3.200	0.01247	8.042	21.71	71.50
-	-	11	3.048	0.01131	7.297	19.70	64.87
11	-	-	2.946	0.01057	6.818	18.41	60.63
-	9	-	2.906	0.01028	6.632	17.91	58.97
-	-	-	2.900	0.01024	6.605	17.83	58.72
-	-	12	2.769	0.009331	6.020	16.25	54.04
12	-	-	2.642	0.008495	5.481	14.80	48.72
-	-	-	2.600	0.008246	5.309	14.33	47.20
-	10	-	2.588	0.008156	5.262	14.21	46.76
-	-	13	2.413	0.007088	4.573	12.35	40.57
13	-	-	2.337	0.006648	4.289	11.58	38.13
-	11	-	2.305	0.006467	4.172	11.26	37.36
-	-	-	2.300	0.006439	4.155	11.22	36.94
-	-	14	2.108	0.005411	3.491	9.426	31.03
-	12	-	2.053	0.005129	3.309	8.934	29.41
14	-	-	2.032	0.005027	3.243	8.756	28.83
-	-	-	2.00	0.004869	3.142	8.483	27.93
15	-	15	1.829	0.004072	2.627	7.093	23.35
-	13	-	1.828	0.004067	2.624	7.085	23.21
-	-	-	1.800	0.003945	2.545	6.872	22.62
-	-	16	1.651	0.003318	2.141	5.781	19.009
-	14	-	1.628	0.003225	2.081	5.619	18.509
16	-	-	1.626	0.003217	2.075	5.603	18.451
-	-	-	1.600	0.003116	2.011	5.430	17.874
-	-	17	1.473	0.002642	1.705	4.604	15.153
-	15	-	1.450	0.002558	1.650	4.455	14.680
17	-	-	1.422	0.002463	1.589	4.290	14.126
-	-	-	1.400	0.002386	1.539	4.155	13.685
-	16	-	1.291	0.002029	1.309	3.534	11.625
-	-	18	1.245	0.001886	1.217	3.286	10.910
18	-	-	1.219	0.001810	1.167	3.151	10.379
-	-	-	1.200	0.001753	1.131	3.054	10.054
-	17	-	1.150	0.001608	1.037	2.800	9.243

Remarks
S.W.G British Standard Wire Gauge
A.W.G. American Wire Gauge (Brown & Sharp Wire Gauge)
B.W.G Birmingham (Stub,s) Iron Wire Gauge
Copper wire weight: Kg/km = Area mm² × 8.889 g/cm³
Aluminium wire weight: Kg/km = Area mm² × 2.705 g/cm³

Factors for Correcting Resistance at Various Temperatures

Factors for correcting resistance at various temperatures to the standard reference temperature of 20°C, and reciprocals of the factors, for calculating resistance at other temperatures from the value at 20°C.

1	2	3
Temperature °C	Temperature correction factor	Reciprocal of factor
5	1.0643	0.9396
5.5	1.0621	0.9416
6	1.0598	0.9436
6.5	1.0575	0.9456
7	1.0553	0.9476
7.5	1.0530	0.9496
8	1.0508	0.9516
8.5	1.0486	0.9537
9	1.0464	0.9557
9.5	1.0442	0.9577
10	1.0420	0.9597
10.5	1.0398	0.9617
11	1.0376	0.937
11.5	1.03555	0.9657
12	1.0333	0.9678
12.5	1.0312	0.9698
13	1.0290	0.9718
13.5	1.0269	0.9738
14	1.0248	0.9758
14.5	1.0227	0.9778
15	1.0206	0.9799
15.5	1.0185	0.9819
16	1.0164	0.9839
16.5	1.0143	0.9859
17	1.0122	0.9879
17.5	1.0102	0.9899
18	1.0081	0.9919
18.5	1.0061	0.9940
19	1.0041	0.9960
19.5	1.0020	0.9980
20	1.0000	1.0000
20.5	0.9980	1.0020
21	0.9960	1.0040
21.5	0.9940	1.0060
22	0.9920	1.0081
22.5	0.9900	1.0101
23	0.9881	1.0121
23.5	0.9861	1.0141
24	0.9841	1.0161
24.5	0.9822	1.0181
25	0.9802	1.0202
25.5	0.9783	1.0222
26	0.9764	1.0242
26.5	0.9745	1.0262
27	0.9726	1.0282
27.5	0.9707	1.0302

1	2	3
Temperature °C	Temperature correction factor	Reciprocal of factor
28	0.9688	1.0322
28.5	0.9669	1.0343
29	0.9650	1.0363
29.5	0.9631	1.0383
30	0.9613	1.0403
30.5	0.9594	1.0423
31	0.9576	1.0443
31.5	0.9557	1.0463
32	0.9539	1.0484
32.5	0.9520	1.0504
33	0.9502	1.0524
33.5	0.9481	1.0544
34	0.9466	1.0564
34.5	0.9448	1.0584
35	0.9430	1.0605
35.5	0.9412	1.0625
36	0.9394	1.0645
36.5	0.9377	1.0665
37	0.9359	1.0685
37.5	0.9341	1.0705
38	0.9324	1.0725
38.5	0.9306	1.0746
39	0.9289	1.0766
39.5	0.9271	1.0786
40	0.9254	1.0806
40.5	0.9237	1.0826
41	0.220	1.0846
41.5	0.9203	1.0866
42	0.9186	1.0887
42.5	0.9169	1.0907
43	0.9152	1.0927
43.5	0.9135	1.0947
44	0.118	1.0967
44.5	0.9101	1.0987
45	0.9085	1.1008
45.5	0.9068	1.1028
46	0.9052	1.1048
46.5	0.9035	1.1068
47	0.9019	1.1088
47.5	0.9002	1.1108
48	0.8986	1.1128
48.5	0.8970	1.1149
49	0.8954	1.1169
49.5	0.8937	1.1189
50	0.8921	1.1209

To Convert	Multiply by
mm to in.	0.03937
mm² to in²	0.00155
cm³ to in³	0.06102
cm⁴ to in⁴	0.02403
m to ft	3.2808
m² to ft²	10.7639
m³ to ft³	35.3147
km. to mile	0.6214
m to yd	1.0936
m² to yd²	1.1960
m³ to yd³	1.3080
kg. to lb.	2.2046
kg. to cwt.	0.01968
kg. to tons.	0.0009842
lb. to tons.	0.0004464
short tons to tons	0.8929
tones (metric) to tons	0.985
kg/mm² to lb./in²	1422.33
ton/in² to lb./in²	2240
grams/cm³ to lb./in³	0.03613
kg./m to lb./ft	0.6720
kg./m² to lb./ft²	0.2048
kg./mm² to ton/in²	0.6350
N to lbf.	0.2248
N to kgf.	0.1020
bar to N/m²	10⁵
bar to lbf/in²	14.5
N/m² to lbf/in²	1.450 × 10⁴
Kgf/cm² to lbf/in²	14.223
1 (litre) to gal (UK)	0.2202
1 (litre) to gal (US)	0.2642

To Convert	Multiply by
In. to mm.	25.4
In² to mm²	645.16
In³ to cm³	16.3871
In⁴ to cm⁴	41.6231
ft. to m.	0.3048
ft² to m²	0.09291
ft³ to m³	0.02832
mile to km	1.6093
yd to m	0.9144
yd² to m²	0.8361
yd³ to m³	0.764
lb. to kg.	0.4536
cwt. to kg.	50.8023
tons. to kg	1016.0461
tons. to lb.	2240
tons. to short tons.	1.12
tons . to tones (metric)	1.0160
lb./in² to kg./mm²	0.0007031
lb./in² to tons./mm²	0.0004464
lb./in³ to grams/mm³	27.6799
lb./ft to kg./ m²	1.4882
lb./ft² to kg./ m²	4.8824
ton/in² to kg./mm²	1.5749
lbs. to N	4.4482
kgf to N	9.8067
N/m² to bar	10⁻⁵
lbf/in² to bar	68.9476 × 10²
lbf/in² to N/m²	6894.76
lbf/in² to kgf/cm²	0.07031
gal (UK) to 1 (litre)	4.541
gal (US) to 1 (litre)	3.785

Multiple and Sub Multiple Metric Units

Multiple	Prefix	Symbol
10 ¹²	tera	T
10 ⁹	giga	G
10 ⁶	mega	M
10 ³	kilo	k
10 ²	hector	h
10	deca	da

Sub-Multiple	Prefix	Symbol
10 ⁻¹	deci	d
10 ⁻²	centi	c
10 ⁻³	milli	m
10 ⁻⁶	micro	μ
10 ⁻⁹	nano	n
10 ⁻¹²	pico	p

