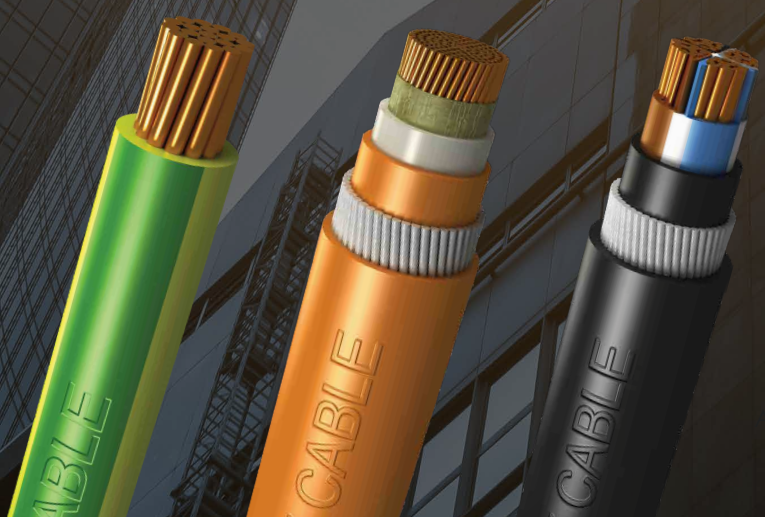
KEYSTONE CABLE

Power Cables

Building & Infrastructure



Keystone Cable is a Leading Singapore-based Cable Manufacturer and Supplier

Welcome to Keystone Cable, the trusted source for top-quality cables in Singapore. We bring 3 decades of experience focusing on Extra Low Voltage, Low Voltage, and Medium Voltage cable manufacturing and supply.

Our team is driven by a commitment to innovation, proven legacy, and an understanding of our customers' unique needs in Singapore and beyond. We are a longstanding supplier of cables. As a forward-looking company, we continously invest in our cable machinery, growing our expertise as a cable specialist and creating a greener tomorrow.

CERTIFICATIONS

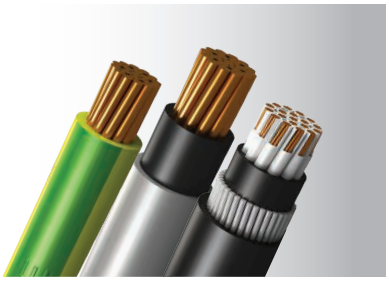
Keystone Cable **Business Solutions**

INDUSTRIES

Building | Infrastructure | Industrial | Communication | Transmission & Distribution | Sustainable Energy

This catalogue showcases our range of cables used in the Building & Infrastructure Industry.
These cables are designed, manufactured, and tested in accordance with stringent industry standards.

For more information on our offerings in other industries,
please visit our website: www.keystone-cable.com



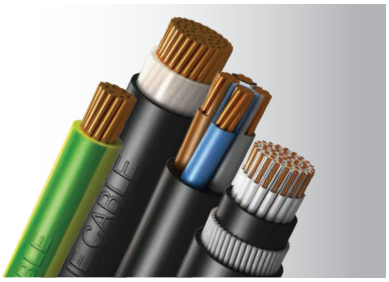
PVC Insulated Cables

PVC Insulated Cables are widely used and have a long-term permissible operating temperature of up to 70°C. These cables have verastile bending properties for easy installation and maintenance, which makes them a popular choice for indoor and outdoor uses with voltage requirements of 1kV and below. Should there be a requirement for ground emplacement, the armoured cable is preferred for higher electrical and mechanical protection.

XLPE Insulated Cables

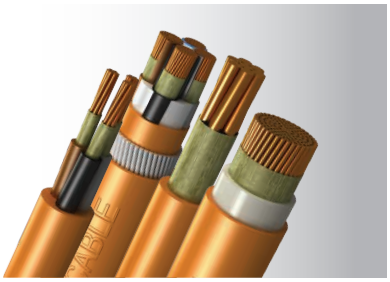
XLPE (cross-linked polyethylene) is an excellent insulation material that has several advantages over conventional thermoplastic insulating material. Some advantages include zero halogen and permissible operational temperature up to 90˚C, enabling the cables to withstand a greater current rating compared with PVC Cables. XLPE Insulated Cables are widely chosen where bigger cables are required for main power supply.

On the other hand, XLPE Insulated Cables are less flexible compared with PVC Cables, hence making it a less favourable choice for smaller conductor size cables where the current rating advantage is less significant.



LSZH Flame Retardant Cables

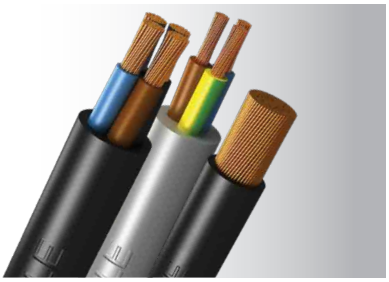
When LSZH (low smoke zero halogen) material is used, the cable is deemed a high-security cable. In the event of a fire, these cables emit little smoke and no toxic gases, thus protecting public health and avoiding possible damages to electronic equipment. It is therefore highly recommended for use in public places such as underground passenger systems, hospitals, schools, museums, airports, bus terminals, and petrochemical plants.



LSZH Fire Resistant Cables

In addition to the advantages of a LSZH Flame Retardant Cable where there is low smoke emission and no toxic gas is released, LSZH Fire Resistant Cables also ensure that critical electrical installations such as fire alarms, smoke detectors, emergency lights, sprinklers, and public address systems continue to perform their functions in the event of a fire.

The key difference lies in an added fire barrier insulation for such cables. Keystone LSZH Fire Resistant Cables have been engineered and tested under the most stringent conditions and are certified to conduct electricity for at least 3 hours at a temperature of 950˚C.



Flexible Cables

PVC or LSZH Flexible Cables are generally known to be versatile and can withstand adverse conditions including oily, acidic, or alkaline environments, as well as mechanical, or thermal stress. Due to the good cable flexibility, Flexible Cables can be installed in general indoor and outdoor purposes such as in industrial and office equipment. LSZH Cables are generally used in public areas where smoke and toxic fumes may cause a threat to life and equipment.

KEYFAB™ Prefabricated Branch Cables

These cables are customized to order for each project. The sub-cables that branch out from the main riser are pre-fabricated under factory conditions providing the advantages of low installation costs and expertise, high moisture and shock resistance, and short manufacturing lead time when compared with the traditional bus duct system. Suitable installations include residential and light commercial projects where the power requirement for each floor is generally known.

Contents

Certification, Testing & Standards

KEYSTONE CABLE
tel (65) 6367 0107 fax (65) 6365 2963
www.keystone-cable.com

Keystone Cable's products are certified by TÜV SÜD, a Germany-based international third-party testing laboratory. Keystone Cable is certified under TÜV SÜD PSB Product Listing Scheme (Class 1A).

TÜV SÜD PSB Certification


ZERTIFIKAT ◆ CERTIFICATE ◆ 認證書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

PSB Singapore

LICENCE

PRODUCT LISTING SCHEME
CLASS 1A

Keystone Cable (S) Pte Ltd
57 Senoko Drive
Woodlands East Industrial Estate
SINGAPORE 758236
SINGAPORE

Is hereby granted the right and licence to use the TÜV SÜD PSB PLS Mark of TÜV SÜD PSB Pte Ltd.

Product(s) for which the use of the mark is granted	Standard(s) to which the product(s) is to be produced
1) Fire Resistant Cables 2) XLPE insulated wire armoured & PVC sheathed cables 3) XLPE insulated PVC sheathed cables 4) PVC insulated Non-sheath cables 5) PVC insulated PVC sheathed cables 6) Flame retardant cables	Refer to individual Certificate of Conformity which forms an integral part of this licence

Vice-President (Certification Department)
TÜV SÜD PSB

Licence No:	Date of Original Issue:	Date of Last Revision:	Date of Expiry:
00135	18/06/2002	25/06/2020	17/06/2025

This licence is granted subject to the company's compliance with the requirements of TÜV SÜD PSB Product Listing Scheme and all terms and conditions laid down in the scheme. This licence may not be reproduced, unless written permission has been obtained from the Vice President (Certification), TÜV SÜD PSB Pte Ltd. Details of the Certificate of Conformity (COC) may be obtained from TÜV SÜD PSB Pte Ltd.

TÜV SÜD PSB Pte Ltd · 1 Science Park Drive · Singapore 118221

TÜV

PSB Product Listing Scheme
Class 1A

Products for which the use of PSB mark is granted:

- Flame Retardant Cable (LSZH)
- Fire Resistant Cable
- XLPE Insulated, Steel Wire Armoured/Aluminium Wire Armoured, PVC Sheathed Cable
- XLPE Insulated, PVC Sheathed Cable
- PVC Insulated, Non-Sheathed Cable
- PVC Insulated, PVC Sheathed Cable

Please contact us for copies of the certificates.

Testing & Standards

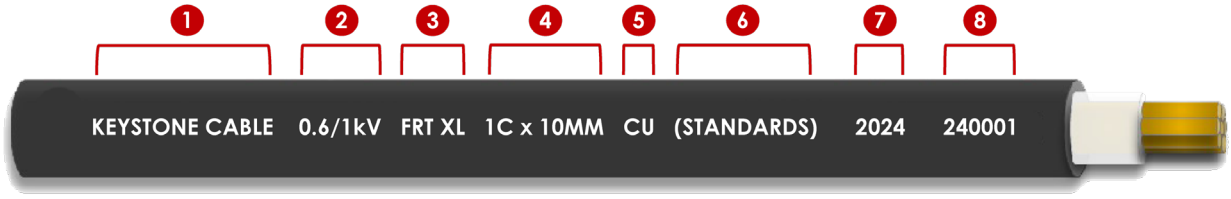
Main Cable Specifications		Material Tests
IEC 60228	BS EN 50525-3-41 (BS 7211)	BS 2627
BS EN 60228	BS 5467	BS 6469
SS 358-3	BS 6724	BS EN 50363 (BS 7655)
IEC 60227-3	BS 7629	BS EN 60811
BS EN 50525-2-31 (BS 6004)	BS 7846	IEC 60811
BS 2004	BS 8592	UL 1581 (UV)
BS EN 50525-2-11 (BS 6500)	AS/NZS 5000.1	
IEC 60502-1	BPO CW1308	

Flame Retardant Tests	Fire Resistant Tests	Tests on Acid Gas Evolved	Smoke Density Tests
BS EN 60332-1	AS/NZS 3013	BS EN 60754	BS EN 61034
BS EN 60332-3	BS 6387 CAT CWZ	IEC 60754	IEC 61034
IEC 60332-1	IEC 60331		
IEC 60332-3	SS 299 CAT CWZ		

Cable Marking Guide

KEYSTONE CABLE
tel (65) 6367 0107 fax (65) 6365 2963
www.keystone-cable.com

Keystone Cable is committed to high quality cable manufacturing with cable markings.
Refer to the guide below on how to decode our cable markings.



1. **Manufacturer Name**
2. **Voltage**
3. **Cable Type & Model Code**
4. **Number and Nominal Size of Cable Cores**
5. **Short Abbreviation of Conductor Material**
6. **PLS-Listed Standard No. & License No. or Standard No. for non-PLS**
7. **Year of Manufacture**
8. **Batch No.**

Note : *Refer to table below for full Keystone model code listing
**PLS denotes TÜV SÜD PSB Product Listing Scheme

Model Code

Keystone Cable uses a standardized short form model code or cable type for cable identification and marking.

Cable Description/Type	Model Code
CU/PVC	PVC
CU/PVC Flexible (90˚C)	H05V2-K or H07V2-K/ 07V2-K
CU/PVC/PVC	PP
CU/PVC/PVC/SWA/PVC	PPSP
CU/XLPE/PVC	XP
CU/XLPE/PVC/AWA/PVC	XPAP
CU/XLPE/PVC/SWA/PVC	XPSP
CU/LSZH	LSZH
CU/LSZH Flexible (90˚C)	H05Z-K or H07Z-K
CU/XLPE/LSZH	XL
CU/XLPE/LSZH/AWA/LSZH	XLAL
CU/XLPE/LSZH/SWA/LSZH	XLSL
CU/MT/LSZH	ML
CU/MT/XLPE/LSZH	MXL
CU/MT/XLPE/LSZH/AWA/LSZH	MXLAL
CU/MT/XLPE/LSZH/SWA/LSZH	MXLSL
CU/EPR/CPE Neoprene	H07RN-F

Additive	Suffix
Anti-termite	AT
Anti-rodent	AR
Pest-resistant	PR
Sunlight-resistant	UV
Oil-resistant	OILR

Note : Model name having a suffix "AT-UV", (Example: LSZH-AT-UV) means the cable's LSZH material is incorporated with anti-termite additive and UV stabilizer.

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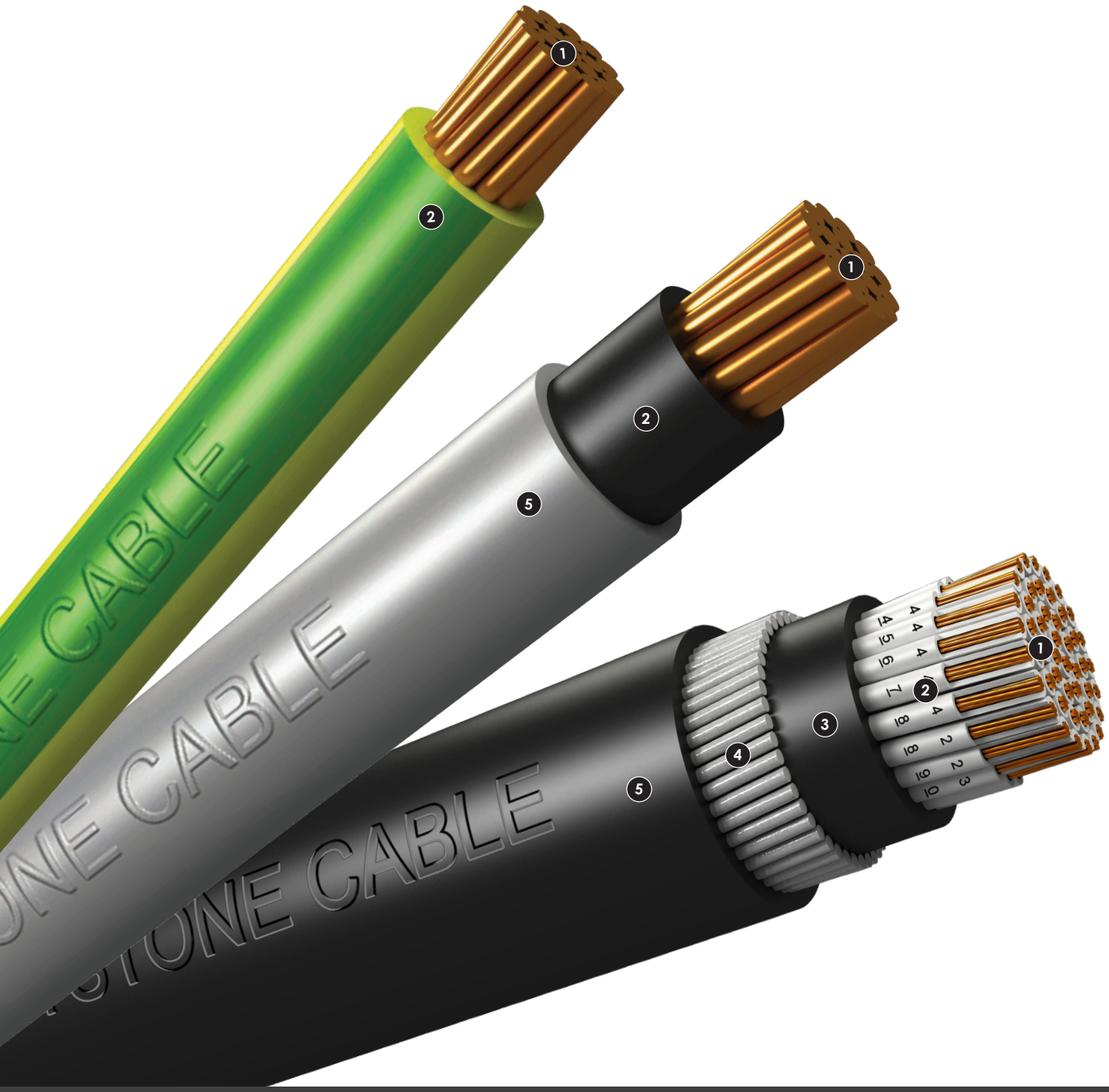

PVC Insulated Cables

1	Conductor	Plain Annealed Copper
2	Insulation	PVC
3	Bedding	PVC
4	Armouring	Galvanized Steel Wire
5	Oversheath	PVC

PVC Insulated Cables

KEYSTONE CABLE
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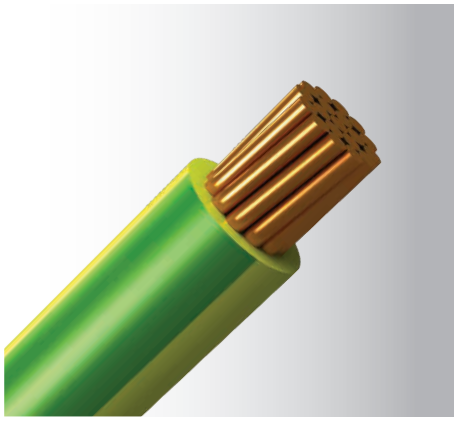
450/750V Single-Core
PVC Insulated, Non-Sheathed Cable

Description: CU/PVC
Model Code: PVC



Application :	This cable is used in light fitting, and in switching and control equipment. It can be installed on cable trays, in conduit, and cable trunking.
Voltage rating :	450/750V
Construction :	Plain annealed copper (IEC 60228 Class 2), PVC insulated cable
Insulation colour :	Brown, Black, Grey, Blue, Green/Yellow (Other colour upon request)
Specification :	SS 358-3, IEC 60227-3, IEC 60332-1-2
Operating temperature :	70˚C

Conductor			Insulation	Part No.	Approx. Overall Diam.	Approx. Weight
Nominal Area	No./Diam. of Strand	Approx. Diam.	Thickness			
(mm^2)	(no./mm)	(mm)	(mm)		(mm)	(kg/km)
1.5	7/0.53	1.59	0.7	**0701**30**	3.1	22
2.5	7/0.67	2.01	0.8	**0801**30**	3.7	34
4	7/0.85	2.55	0.8	**0901**30**	4.3	50
6	7/1.04	3.12	0.8	**1001**30**	4.8	70
10	7/1.35	4.05	1.0	**1101**30**	6.2	124
16	7/1.70	5.10	1.0	**1201**30**	7.2	183
25 (cs)	7/2.14	6.20	1.2	**1301**30**	9.0	280
35 (cs)	19/1.53	7.30	1.2	**1401**30**	10.0	380
50 (cs)	19/1.78	8.20	1.4	**1501**30**	11.2	500
70 (cs)	19/2.14	10.00	1.4	**1601**30**	13.0	715
95 (cs)	19/2.52	11.80	1.6	**1701**30**	15.2	990
120 (cs)	37/2.03	13.00	1.6	**1801**30**	16.4	1220
150 (cs)	37/2.25	14.40	1.8	**1901**30**	18.3	1500
185 (cs)	37/2.52	16.20	2.0	**2001**30**	20.4	1890
240 (cs)	61/2.25	18.80	2.2	**2101**30**	23.4	2460
300 (cs)	61/2.52	21.20	2.4	**2201**30**	26.4	3080
400 (cs)	61/2.85	24.30	2.6	**2301**30**	30.0	3920
500 (cs)	61/3.20	27.40	2.8	**2401**30**	33.5	4920
630	127/2.52	32.76	2.8	**2501**30**	38.7	6260

**Stands for colour code: Brown (01) Black (02) Grey (03) Blue (04) Green/Yellow (05)

Current rating and voltage drop
Please refer to Table 2 & 3 (Page 54)

(cs) : Circular Compact Stranded Conductor

PVC Insulated Cables

KEYSTONE CABLE
tel (65) 6367 0107 fax (65) 6365 2963
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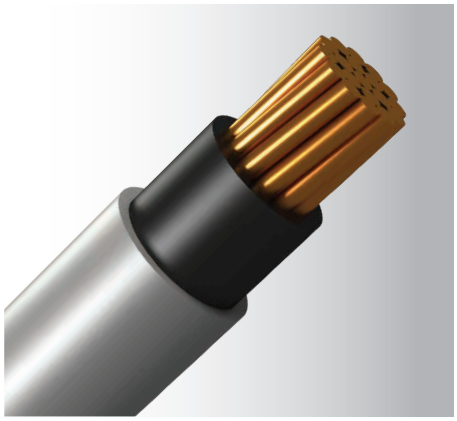
0.6/1kV Single-Core
PVC Insulated, PVC Sheathed Cable

Description: CU/PVC/PVC
Model Code: PP



Application :	This cable is primarily used for main power supply. It can be installed on cable trays, in cable ducts, cable ladders, and cable trunking.
Voltage rating :	0.6/1kV
Construction :	Plain annealed copper (IEC 60228 Class 2), PVC insulated, PVC sheathed cable
Insulation colour :	Black or Red
Sheath colour :	Grey (Other colour upon request)
Specification :	IEC 60502-1, IEC 60332-1-2
Operating temperature :	70˚C

Conductor			Insulation	Part No.	Approx. Overall Diam.	Approx. Weight
Nominal Area	No./Diam. of Strand	Approx. Diam.	Thickness			
(mm^2)	(no./mm)	(mm)	(mm)		(mm)	(kg/km)
1.5	7/0.53	1.59	0.8	**0701**31**	6.3	55
2.5	7/0.67	2.01	0.8	**0801**31**	6.7	65
4	7/0.85	2.55	1.0	**09015031**	7.8	95
6	7/1.04	3.12	1.0	**10015031**	8.3	125
10	7/1.35	4.05	1.0	**11015031**	9.2	170
16	7/1.70	5.10	1.0	**12015031**	10.4	240
25 (cs)	7/2.14	6.20	1.2	**13015031**	11.9	350
35 (cs)	19/1.53	7.30	1.2	**14015031**	13.0	460
50 (cs)	19/1.78	8.20	1.4	**15015031**	14.3	580
70 (cs)	19/2.14	10.00	1.4	**16015031**	16.2	820
95 (cs)	19/2.52	11.80	1.6	**17015031**	18.6	1100
120 (cs)	37/2.03	13.00	1.6	**18015031**	19.8	1360
150 (cs)	37/2.25	14.40	1.8	**19015031**	21.9	1660
185 (cs)	37/2.52	16.20	2.0	**20015031**	24.3	2060
240 (cs)	61/2.25	18.80	2.2	**21015031**	27.6	2680
300 (cs)	61/2.52	21.20	2.4	**22015031**	30.6	3340
400 (cs)	61/2.85	24.30	2.6	**23015031**	34.4	4250
500 (cs)	61/3.20	27.40	2.8	**24015031**	38.2	5300
630	127/2.52	32.76	2.8	**25015031**	43.7	6700
800	127/2.85	37.05	2.8	**26015031**	48.2	8400
1000	127/3.20	41.60	3.0	**27015031**	53.8	10600

**Stands for colour code: Black/Grey (50) Red/Grey (58)

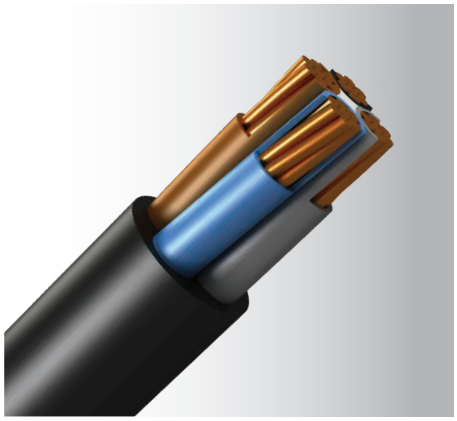
Current rating and voltage drop
Please refer to Table 2 & 3 (Page 54)

(cs) : Circular Compact Stranded Conductor

PVC Insulated Cables

KEYSTONE CABLE
tel (65) 6367 0107 fax (65) 6365 2963
www.keystone-cable.com

0.6/1kV 2-Core ~ 4-Core
PVC Insulated, PVC Sheathed Cable
Description: CU/PVC/PVC
Model Code: PP



Application :	This cable is primarily used for main power supply. It can be installed on cable trays, cable ladders, in cable ducts, and cable trunking.
Voltage rating :	0.6/1kV
Construction :	Plain annealed copper (IEC 60228 Class 2), PVC insulated, PVC sheathed cable
Insulation colour :	2-Core: Brown, Blue; 3-Core: Brown, Black, Grey; Brown, Blue, Green/Yellow; 4-Core: Brown, Black, Grey, Blue; Brown, Black, Grey, Green/Yellow; (Other colour upon request)
Sheath colour :	Black
Specification :	IEC 60502-1, IEC 60332-1-2
Operating temperature :	70˚C

2-CORE [2C]
(Brown, Blue) (1-phase and neutral)

Conductor Nominal Area	Insulation Thickness	Part No.	Approx. Overall Diam.	Approx. Weight
(mm^2)	(mm)		(mm)	(kg/km)
1.5	0.8	**07023004**	11.2	150
2.5	0.8	**08023004**	11.6	180
4	1.0	**09023004**	13.7	260
6	1.0	**10023004**	15.2	290
10	1.0	**11023004**	16.8	385
16	1.0	**12023004**	18.8	528
25 (cs)	1.2	**13023004**	22.0	761
35 (cs)	1.2	**14023004**	24.4	983
50 (cs)	1.4	**15023004**	27.7	1288
70 (cs)	1.4	**16023004**	31.6	1772
95 (cs)	1.6	**17023004**	36.2	2397
120 (cs)	1.6	**18023004**	38.8	2934
150 (cs)	1.8	**19023004**	42.7	3562
185 (cs)	2.0	**20023004**	47.6	4445
240 (cs)	2.2	**21023004**	54.0	5751
300 (cs)	2.4	**22023004**	60.2	7166
400 (cs)	2.6	**23023004**	67.6	9082

Current rating and voltage drop
Please refer to Table 6 & 7 (Page 56)

(cs) : Circular Compact Stranded Conductor

PVC Insulated Cables

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0.6/1kV 2-Core ~ 4-Core
PVC Insulated, PVC Sheathed Cable
Description: CU/PVC/PVC
Model Code: PP

3-CORE [3C]
(Brown, Black, Grey) (3-phase, three wire)

Conductor Nominal Area	Insulation Thickness	Part No.	Approx. Overall Diam.	Approx. Weight
(mm^2)	(mm)		(mm)	(kg/km)
1.5	0.8	**07033005**	11.3	165
2.5	0.8	**08033005**	12.3	200
4	1.0	**09033005**	14.2	300
6	1.0	**10033005**	15.8	380
10	1.0	**11033005**	17.7	545
16	1.0	**12033005**	20.0	760
25 (cs)	1.2	**13033005**	23.1	1046
35 (cs)	1.2	**14033005**	26.0	1365
50 (cs)	1.4	**15033005**	30.1	1822
70 (cs)	1.4	**16033005**	33.7	2494
95 (cs)	1.6	**17033005**	38.9	3412
120 (cs)	1.6	**18033005**	41.7	4190
150 (cs)	1.8	**19033005**	45.9	5096
185 (cs)	2.0	**20033005**	51.2	6364
240 (cs)	2.2	**21033005**	58.2	8282
300 (cs)	2.4	**22033005**	64.6	10295
400 (cs)	2.6	**23033005**	72.8	13098

3-CORE [3G]
(Brown, Blue, Green/Yellow) (1-phase and earth)

Conductor Nominal Area	Insulation Thickness	Part No.	Approx. Overall Diam.	Approx. Weight
(mm^2)	(mm)		(mm)	(kg/km)
1.5	0.8	**07033011**	11.3	165
2.5	0.8	**08033011**	12.3	200
4	1.0	**09033011**	14.2	300
6	1.0	**10033011**	15.8	380
10	1.0	**11033011**	17.7	545
16	1.0	**12033011**	20.0	760
25 (cs)	1.2	**13033011**	24.7	1370
35 (cs)	1.2	**14033011**	26.0	1365
50 (cs)	1.4	**15033011**	30.1	1822
70 (cs)	1.4	**16033011**	33.7	2494
95 (cs)	1.6	**17033011**	38.9	3412
120 (cs)	1.6	**18033011**	41.7	4190
150 (cs)	1.8	**19033011**	45.9	5096
185 (cs)	2.0	**20033011**	51.2	6364
240 (cs)	2.2	**21033011**	58.2	8282
300 (cs)	2.4	**22033011**	64.6	10295
400 (cs)	2.6	**23033011**	72.8	13098

Current rating and voltage drop
Please refer to Table 6 & 7 (Page 56)

(cs) : Circular Compact Stranded Conductor

KEYSTONE CABLE
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www.keystone-cable.com

0.6/1kV 2-Core ~ 4-Core
PVC Insulated, PVC Sheathed Cable

Description: CU/PVC/PVC
Model Code: PP

4-CORE [4C]
(Brown, Black, Grey, Blue) (3-phase and neutral)

Conductor Nominal Area	Insulation Thickness	Part No.	Approx. Overall Diam.	Approx. Weight
(mm^2)	(mm)		(mm)	(kg/km)
1.5	0.8	**07043006**	12.3	210
2.5	0.8	**08043006**	13.2	265
4	1.0	**09043006**	15.2	385
6	1.0	**10043006**	16.9	440
10	1.0	**11043006**	19.3	675
16	1.0	**12043006**	21.9	925
25 (s)	1.2	**13043007**	24.7	1370
35 (s)	1.2	**14043007**	26.5	1740
50 (s)	1.4	**15043007**	30.0	2300
70 (s)	1.4	**16043007**	34.0	3180
95 (s)	1.6	**17043007**	38.3	4370
120 (s)	1.6	**18043007**	41.8	5400
150 (s)	1.8	**19043007**	47.5	6550
185 (s)	2.0	**20043007**	52.0	8180
240 (s)	2.2	**21043007**	58.0	10700
300 (s)	2.4	**22043007**	66.0	13200
400 (s)	2.6	**23043007**	73.5	17100

4-CORE [4G]
(Brown, Black, Grey, Green/Yellow) (3-phase and earth)

Conductor Nominal Area	Insulation Thickness	Part No.	Approx. Overall Diam.	Approx. Weight
(mm^2)	(mm)		(mm)	(kg/km)
1.5	0.8	**07043012**	12.3	210
2.5	0.8	**08043012**	13.2	265
4	1.0	**09043012**	15.2	385
6	1.0	**10043012**	16.9	440
10	1.0	**11043012**	19.3	675
16	1.0	**12043012**	21.9	925
25 (cs)	1.2	**13043012**	25.5	1410
35 (cs)	1.2	**14043012**	29.2	1800
50 (cs)	1.4	**15043012**	33.0	2390
70 (cs)	1.4	**16043012**	37.5	3290
95 (cs)	1.6	**17043012**	43.7	4485
120 (cs)	1.6	**18043012**	46.0	5350
150 (cs)	1.8	**19043012**	51.7	6750
185 (cs)	2.0	**20043012**	57.5	8300
240 (cs)	2.2	**21043012**	65.4	10610
300 (cs)	2.4	**22043012**	72.7	13160
400 (cs)	2.6	**23043012**	82.0	17100

Current rating and voltage drop
Please refer to Table 6 & 7 (Page 56)

(cs) : Circular Compact Stranded Conductor
(s) : Sector Shaped Stranded Conductor

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0.6/1kV Multi-Core
PVC Insulated, Unarmoured & Armoured, PVC Sheathed Auxiliary Cable

Description: CU/PVC/PVC or CU/PVC/PVC/SWA/PVC-AT

Model Code: PP or PPSP-AT

Application :	This auxiliary cable is used in supervisory electrical equipment and station control circuits, as well as in light, ordinary, or heavy duty industry where power distribution device is needed to transmit control signals or measure signal operations.
Voltage rating :	0.6/1kV
Construction :	Plain annealed copper (IEC 60228 Class 2), PVC insulated, unarmoured or galvanized steel wires armoured, PVC or anti-termite PVC (for armoured cable only) sheathed cable
Insulation colour :	White (With black numbering)
Sheath colour :	Black
Specification :	IEC 60502-1, IEC 60332-1-2
Operating temperature :	70˚C

No. of Core	Conductor Nominal Area	Insulation Thickness	Unarmoured Cable			Armoured Cable		
			Part No.	Approx. Overall Diam.	Approx. Weight	Part No.	Approx. Overall Diam.	Approx. Weight
	(mm^2)	(mm)		(mm)	(kg/km)		(mm)	(kg/km)
5	1.5	0.8	**07053009**	13.3	229	**07053021**	17.2	538
7			**07073009**	14.3	282	**07073021**	18.2	620
10			**07103009**	17.5	395	**07103021**	22.2	932
12			**07123009**	18.1	438	**07123021**	22.7	996
19			**07193009**	20.8	632	**07193021**	26.2	1434
27			**07273009**	24.6	878	**07273021**	29.9	1801
37			**07373009**	28.0	1164	**07373021**	32.9	2180
48			**07483009**	32.0	1491	**07483021**	37.7	2910
5	2.5	0.8	**08053009**	14.4	292	**08053021**	18.3	627
7			**08073009**	15.5	366	**08073021**	20.1	847
10			**08103009**	19.2	516	**08103021**	23.8	1100
12			**08123009**	19.8	577	**08123021**	24.4	1185
19			**08193009**	22.9	845	**08193021**	28.3	1725
27			**08273009**	27.2	1159	**08273021**	32.7	2215
37			**08373009**	31.0	1575	**08373021**	36.1	2721
48			**08483009**	35.6	2042	**08483021**	42.4	3720
5	4	1.0	**09053009**	17.0	421	**09053021**	21.6	935
7			**09073009**	18.4	536	**09073021**	23.0	1103
10			**09103009**	23.1	764	**09103021**	28.4	1631
12			**09123009**	23.8	860	**09123021**	29.1	1765
19			**09193009**	28.3	1296	**09193021**	33.2	2351
27			**09273009**	33.9	1802	**09273021**	40.5	3330
37			**09373009**	38.3	2428	**09373021**	44.5	4213
48			**09483009**	43.9	3111	**09483021**	52.3	5773

Current rating and voltage drop

For Unarmoured Cable, please refer to Table 6 & 7 (Page 56)
For Armoured Cable, please refer to Table 8 & 9 (Page 57)
For Rating Factors, please refer to Table 28 (Page 67)

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XLPE Insulated Cables

1	Conductor	Plain Annealed Copper
2	Insulation	XLPE
3	Bedding	PVC
4	Armouring	Al Wire/Galvanized Steel Wire
5	Oversheath	PVC

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0.6/1kV Single-Core
XLPE Insulated, Unarmoured & Armoured, PVC Sheathed Cable

Description: CU/XLPE/PVC or CU/XLPE/PVC/AWA/PVC-AT

Model Code: XP or XPAP-AT

Application :	This cable is primarily used for main power supply. It can be installed on cable trays, in cable ducts, cable ladders, cable trunking, and switch gears.
Voltage rating :	0.6/1kV
Construction :	Plain annealed copper (IEC 60228 Class 2), XLPE insulated, unarmoured or aluminium wires armoured, PVC or anti-termite PVC (for armoured cable only) compound sheathed cable
Insulation colour :	Natural
Sheath colour :	Black
Specification :	IEC 60502-1, IEC 60332-1-2
Operating temperature :	90˚C

Conductor			Insulation	Unarmoured Cable			Armoured Cable		
Nominal Area	No./Diam. of Strand	Approx Diam.	Thickness	Part No.	Approx. Overall Diam.	Approx. Weight	Part No.	Approx. Overall Diam.	Approx. Weight
(mm^2)	(no./mm)	(mm)	(mm)		(mm)	(kg/km)		(mm)	(kg/km)
1.5	7/0.53	1.59	0.7	**07018541**	6.1	50	**-**	-	-
2.5	7/0.67	2.01	0.7	**08018541**	6.5	62	**-**	-	-
4	7/0.85	2.55	0.7	**09018541**	7.0	81	**-**	-	-
6	7/1.04	3.12	0.7	**10018541**	7.5	100	**-**	-	-
10	7/1.35	4.05	0.7	**11018541**	8.5	150	**-**	-	-
16	7/1.70	5.10	0.7	**12018541**	9.5	200	**-**	-	-
25 (cs)	7/2.14	6.20	0.9	**13018541**	11.2	310	**-**	-	-
35 (cs)	19/1.53	7.30	0.9	**14018541**	12.3	420	**14018544**	19.4	680
50 (cs)	19/1.78	8.20	1.0	**15018541**	13.5	550	**15018544**	20.5	815
70 (cs)	19/2.14	10.00	1.1	**16018541**	15.3	770	**16018544**	22.2	1065
95 (cs)	19/2.52	11.80	1.1	**17018541**	17.4	1040	**17018544**	24.3	1355
120 (cs)	37/2.03	13.00	1.2	**18018541**	18.8	1300	**18018544**	26.3	1680
150 (cs)	37/2.25	14.40	1.4	**19018541**	20.8	1580	**19018544**	28.3	1990
185 (cs)	37/2.52	16.20	1.6	**20018541**	23.1	1970	**20018544**	30.5	2400
240 (cs)	61/2.25	18.80	1.7	**21018541**	26.3	2520	**21018544**	33.6	3005
300 (cs)	61/2.52	21.20	1.8	**22018541**	29.1	3150	**22018544**	36.2	3600
400 (cs)	61/2.85	24.30	2.0	**23018541**	32.9	4000	**23018544**	41.4	4765
500 (cs)	61/3.20	27.40	2.2	**24018541**	36.7	5000	**24018544**	45.3	5865
630	127/2.52	32.76	2.4	**25018541**	42.8	6500	**25018544**	51.4	7410
800	127/2.85	37.05	2.6	**26018541**	48.0	8200	**26018544**	57.5	9460
1000	127/3.20	41.60	2.8	**27018541**	53.0	10300	**27018544**	62.3	11750

Current rating and voltage drop
For Unarmoured Cable, please refer to Table 10 & 11 (Page 58)
For Armoured Cable, please refer to Table 12 & 13 (Page 59)

(cs) : Circular Compact Stranded Conductor

XLPE Insulated Cables

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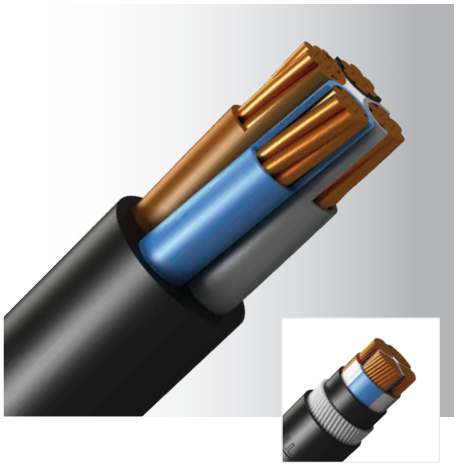
0.6/1kV 2-Core ~ 5-Core
XLPE Insulated, Unarmoured & Armoured, PVC Sheathed Cable

Description: CU/XLPE/PVC or CU/XLPE/PVC/SWA/PVC-AT
Model Code: XP or XPSP-AT



Application :	This cable is primarily used for main power supply. It can be installed in cable ducts, cable trunking, on cable trays, and cable ladders.
Voltage rating :	0.6/1kV
Construction :	Plain annealed copper (IEC 60228 Class 2), XLPE insulated, unarmoured or galvanized steel wires armoured, PVC or anti-termite PVC (for armoured cable only) compound sheathed cable
Insulation colour :	2-Core: Brown, Blue; 3-Core: Brown, Black, Grey; Brown, Blue, Green/Yellow; 4-Core: Brown, Black, Grey, Blue; Brown, Black, Grey, Green/Yellow; 5-Core: Brown, Black, Grey, Blue, Green/Yellow; (Other colour upon request)
Sheath colour :	Black
Specification :	IEC 60502-1, IEC 60332-1-2
Operating temperature :	90˚C

2-CORE [2C]
(Brown, Blue) (1-phase and neutral)

Conductor	Insulation	Unarmoured Cable			Armoured Cable		
Nominal Area	Thickness	Part No.	Approx. Overall Diam.	Approx. Weight	Part No.	Approx. Overall Diam.	Approx. Weight
(mm^2)	(mm)		(mm)	(kg/km)		(mm)	(kg/km)
1.5	0.7	**07026001**	10.1	130	**07026025**	14.5	325
2.5	0.7	**08026001**	11.0	160	**08026025**	15.5	400
4	0.7	**09026001**	12.0	200	**09026025**	16.5	475
6	0.7	**10026001**	13.1	260	**10026025**	17.5	570
10	0.7	**11026001**	16.0	380	**11026025**	20.8	800
16	0.7	**12026001**	18.0	480	**12026025**	22.9	1050
25 (cs)	0.9	**13026001**	21.2	709	**13026025**	26.7	1471
35 (cs)	0.9	**14026001**	23.4	925	**14026025**	29.0	1762
50 (cs)	1.0	**15026001**	25.8	1214	**15026025**	32.4	2150
70 (cs)	1.1	**16026001**	30.4	1675	**16026025**	36.3	2749
95 (cs)	1.1	**17026001**	34.0	2244	**17026025**	41.2	3776
120 (cs)	1.2	**18026001**	37.0	2799	**18026025**	44.2	4435
150 (cs)	1.4	**19026001**	41.0	3426	**19026025**	48.2	5222
185 (cs)	1.6	**20026001**	45.8	4264	**20026025**	54.4	6919
240 (cs)	1.7	**21026001**	51.8	5540	**21026025**	60.4	8387
300 (cs)	1.8	**22026001**	57.4	6873	**22026025**	66.3	10073
400 (cs)	2.0	**23026001**	65.0	8769	**23026025**	74.0	12327

Current rating and voltage drop
For Unarmoured Cable, please refer to Table 14 & 15 (Page 60)
For Armoured Cable, please refer to Table 16 & 17 (Page 61)

(cs) : Circular Compact Stranded Conductor

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0.6/1kV 2-Core ~ 5-Core
XLPE Insulated, Unarmoured & Armoured, PVC Sheathed Cable

Description: CU/XLPE/PVC or CU/XLPE/PVC/SWA/PVC-AT

Model Code: XP or XPSP-AT

3-CORE [3C]
(Brown, Black, Grey) (3-phase, three wire)

Conductor	Insulation	Unarmoured Cable			Armoured Cable		
Nominal Area	Thickness	Part No.	Approx. Overall Diam.	Approx. Weight	Part No.	Approx. Overall Diam.	Approx. Weight
(mm^2)	(mm)		(mm)	(kg/km)		(mm)	(kg/km)
1.5	0.7	**07036002**	10.5	145	**07036026**	15.0	390
2.5	0.7	**08036002**	11.4	190	**08036026**	16.0	435
4	0.7	**09036002**	12.8	250	**09036026**	17.0	550
6	0.7	**10036002**	14.0	320	**10036026**	18.5	660
10	0.7	**11036002**	16.9	480	**11036026**	21.7	900
16	0.7	**12036002**	19.0	645	**12036026**	24.0	1260
25 (cs)	0.9	**13036002**	22.5	968	**13036026**	28.0	1772
35 (cs)	0.9	**14036002**	25.0	1278	**14036026**	30.5	2175
50 (cs)	1.0	**15036002**	27.4	1688	**15036026**	33.7	2700
70 (cs)	1.1	**16036002**	32.6	2365	**16036026**	40.0	3805
95 (cs)	1.1	**17036002**	36.5	3197	**17036026**	44.0	4831
120 (cs)	1.2	**18036002**	39.7	3982	**18036026**	47.5	5772
150 (cs)	1.4	**19036002**	44.0	4872	**19036026**	53.2	7344
185 (cs)	1.6	**20036002**	49.2	6074	**20036026**	58.2	8813
240 (cs)	1.7	**21036002**	55.6	7903	**21036026**	65.0	11050
300 (cs)	1.8	**22036002**	61.6	9822	**22036026**	71.0	13312
400 (cs)	2.0	**23036002**	70.0	12533	**23036026**	80.5	17317

3-CORE [3G]
(Brown, Blue, Green/Yellow) (1-phase and earth)

Conductor	Insulation	Unarmoured Cable			Armoured Cable		
Nominal Area	Thickness	Part No.	Approx. Overall Diam.	Approx. Weight	Part No.	Approx. Overall Diam.	Approx. Weight
(mm^2)	(mm)		(mm)	(kg/km)		(mm)	(kg/km)
1.5	0.7	**07036006**	10.5	145	**07036030**	15.0	390
2.5	0.7	**08036006**	11.4	190	**08036030**	16.0	435
4	0.7	**09036006**	12.8	250	**09036030**	17.0	550
6	0.7	**10036006**	14.0	320	**10036030**	18.5	660
10	0.7	**11036006**	16.9	480	**11036030**	21.7	900
16	0.7	**12036006**	19.0	645	**12036030**	24.0	1260
25 (cs)	0.9	**13036006**	22.5	968	**13036030**	28.0	1772
35 (cs)	0.9	**14036006**	25.0	1278	**14036030**	30.5	2175
50 (cs)	1.0	**15036006**	27.4	1688	**15036030**	33.7	2700
70 (cs)	1.1	**16036006**	32.6	2365	**16036030**	40.0	3805
95 (cs)	1.1	**17036006**	36.5	3197	**17036030**	44.0	4831
120 (cs)	1.2	**18036006**	39.7	3982	**18036030**	47.5	5772
150 (cs)	1.4	**19036006**	44.0	4872	**19036030**	53.2	7344
185 (cs)	1.6	**20036006**	49.2	6074	**20036030**	58.2	8813
240 (cs)	1.7	**21036006**	55.6	7903	**21036030**	65.0	11050
300 (cs)	1.8	**22036006**	61.6	9822	**22036030**	71.0	13312
400 (cs)	2.0	**23036006**	70.0	12533	**23036030**	80.5	17317

Current rating and voltage drop
For Unarmoured Cable, please refer to Table 14 & 15 (Page 60)
For Armoured Cable, please refer to Table 16 & 17 (Page 61)

(cs) : Circular Compact Stranded Conductor

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0.6/1kV 2-Core ~ 5-Core
XLPE Insulated, Unarmoured & Armoured, PVC Sheathed Cable

Description: CU/XLPE/PVC or CU/XLPE/PVC/SWA/PVC-AT

Model Code: XP or XPSP-AT

4-CORE [4C]
(Brown, Black, Grey, Blue) (3-phase and neutral)

Conductor	Insulation	Unarmoured Cable			Armoured Cable		
Nominal Area	Thickness	Part No.	Approx. Overall Diam.	Approx. Weight	Part No.	Approx. Overall Diam.	Approx. Weight
(mm^2)	(mm)		(mm)	(kg/km)		(mm)	(kg/km)
1.5	0.7	**07046600**	11.5	180	**07046603**	15.5	430
2.5	0.7	**08046600**	12.5	230	**08046603**	16.5	495
4	0.7	**09046600**	14.0	315	**09046603**	18.0	610
6	0.7	**10046600**	15.0	395	**10046603**	20.0	810
10	0.7	**11046600**	18.4	590	**11046603**	23.2	1120
16	0.7	**12046600**	21.0	860	**12046603**	27.0	1480
25 (s)	0.9	**13046003**	22.0	1200	**13046027**	27.5	2000
35 (s)	0.9	**14046003**	25.0	1600	**14046027**	30.5	2400
50 (s)	1.0	**15046003**	28.0	2100	**15046027**	34.0	3100
70(s)	1.1	**16046003**	32.0	3000	**16046027**	39.5	4440
95 (s)	1.1	**17046003**	36.0	4100	**17046027**	44.0	5700
120 (s)	1.2	**18046003**	40.3	5160	**18046027**	50.0	7386
150 (s)	1.4	**19046003**	44.6	6300	**19046027**	54.5	8770
185 (s)	1.6	**20046003**	50.5	7881	**20046027**	59.0	10750
240 (s)	1.7	**21046003**	58.0	10500	**21046027**	68.0	13600
300 (s)	1.8	**22046003**	64.0	13100	**22046027**	73.0	16400
400 (s)	2.0	**23046003**	73.0	16700	**23046027**	85.0	21740

4-CORE [4G]
(Brown, Black, Grey, Green/Yellow) (3-phase and earth)

Conductor	Insulation	Unarmoured Cable			Armoured Cable		
Nominal Area	Thickness	Part No.	Approx. Overall Diam.	Approx. Weight	Part No.	Approx. Overall Diam.	Approx. Weight
(mm^2)	(mm)		(mm)	(kg/km)		(mm)	(kg/km)
1.5	0.7	**07046793**	11.5	180	**07046604**	15.5	430
2.5	0.7	**08046793**	12.5	230	**08046604**	16.5	495
4	0.7	**09046793**	14.0	315	**09046604**	18.0	610
6	0.7	**10046793**	15.0	395	**10046604**	20.0	810
10	0.7	**11046793**	18.4	590	**11046604**	23.2	1120
16	0.7	**12046793**	21.0	860	**12046604**	27.0	1480
25 (cs)	0.9	**13046793**	25.0	1265	**13046024**	30.8	2160
35 (cs)	0.9	**14046793**	27.4	1665	**14046024**	33.8	2690
50 (cs)	1.0	**15046793**	31.4	2200	**15046024**	36.7	3365
70 (cs)	1.1	**16046793**	36.0	3100	**16046024**	43.7	4795
95 (cs)	1.1	**17046793**	41.3	4190	**17046024**	48.6	6095
120 (cs)	1.2	**18046793**	45.0	5060	**18046024**	53.2	7580
150 (cs)	1.4	**19046793**	49.6	6380	**19046024**	58.0	9190
185 (cs)	1.6	**20046793**	55.5	7920	**20046024**	64.0	11050
240 (cs)	1.7	**21046793**	62.7	10060	**21046024**	72.0	13780
300 (cs)	1.8	**22046793**	69.5	12500	**22046024**	78.4	16520
400 (cs)	2.0	**23046793**	78.6	16480	**23046024**	89.4	22120

Current rating and voltage drop
For Unarmoured Cable, please refer to Table 14 & 15 (Page 60)
For Armoured Cable, please refer to Table 16 & 17 (Page 61)

(cs) : Circular Compact Stranded Conductor
(s) : Sector Shaped Stranded Conductor

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0.6/1kV 2-Core ~ 5-Core
XLPE Insulated, Unarmoured & Armoured, PVC Sheathed Cable

Description: CU/XLPE/PVC or CU/XLPE/PVC/SWA/PVC-AT

Model Code: XP or XPSP-AT

5-CORE [5G]

(Brown, Black, Grey, Blue, Green/Yellow) (3-phase, neutral and earth)

Conductor	Insulation	Unarmoured Cable			Armoured Cable		
Nominal Area	Thickness	Part No.	Approx. Overall Diam.	Approx. Weight	Part No.	Approx. Overall Diam.	Approx. Weight
(mm^2)	(mm)		(mm)	(kg/km)		(mm)	(kg/km)
1.5	0.7	**07056004**	12.8	208	**07056028**	16.8	455
2.5	0.7	**08056004**	13.9	263	**08056028**	17.8	540
4	0.7	**09056004**	15.4	355	**09056028**	20.0	795
6	0.7	**10056004**	16.9	465	**10056028**	21.8	956
10	0.7	**11056004**	19.8	700	**11056028**	24.8	1272
16	0.7	**12056004**	22.5	1020	**12056028**	28.6	1845
25 (cs)	0.9	**13056004**	27.0	1530	**13056028**	32.6	2500
35 (cs)	0.9	**14056004**	30.0	2035	**14056028**	36.2	3140
50 (cs)	1.0	**15056004**	33.7	2720	**15056028**	41.5	4300
70 (cs)	1.1	**16056004**	39.6	3825	**16056028**	46.8	5585
95 (cs)	1.1	**17056004**	45.0	5185	**17056028**	53.0	7675
120 (cs)	1.2	**18056004**	49.2	6320	**18056028**	57.6	9125
150 (cs)	1.4	**19056004**	54.5	7800	**19056028**	63.0	10824
185 (cs)	1.6	**20056004**	61.1	9800	**20056028**	70.0	13211
240 (cs)	1.7	**21056004**	69.2	12520	**21056028**	79.2	17466

Current rating and voltage drop

For Unarmoured Cable, please refer to Table 14 & 15 (Page 60)

For Armoured Cable, please refer to Table 16 & 17 (Page 61)

(cs) : Circular Compact Stranded Conductor

KEYSTONE CABLE
tel (65) 6367 0107 fax (65) 6365 2963
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0.6/1kV Multi-Core
XLPE Insulated, Unarmoured & Armoured, PVC Sheathed Cable

Description: CU/XLPE/PVC or CU/XLPE/PVC/SWA/PVC-AT

Model Code: XP or XPSP-AT

Application :	This cable is primarily used for main power supply. It can be installed in cable ducts, cable trunking, on cable trays, and cable ladders.
Voltage rating :	0.6/1kV
Construction :	Plain annealed copper (IEC 60228 Class 2), XLPE compound insulated, unarmoured or galvanized steel wires armoured, PVC or anti-termite PVC (for armoured cable only) compound sheathed cable
Insulation colour :	White (With black numbering)
Sheath colour :	Black
Specification :	IEC 60502-1, IEC 60332-1-2
Operating temperature :	90˚C

No. of Core	Conductor		Insulation	Unarmoured Cable			Armoured Cable		
	Nominal Area	No./Diam. of Strand	Thickness	**Part No.**	Approx. Overall Diam.	Approx. Weight	**Part No.**	Approx. Overall Diam.	Approx. Weight
	(mm^2)	(no./mm)	(mm)		(mm)	(kg/km)		(mm)	(kg/km)
5	1.5	7/0.53	0.7	**07056005**	12.8	215	**07056029**	16.5	497
7				**07076005**	13.7	260	**07076029**	17.5	565
10				**07106005**	16.8	365	**07106029**	21.5	850
12				**07126005**	17.3	405	**07126029**	22.0	905
19				**07196005**	19.9	570	**07196029**	24.7	1150
27				**07276005**	23.5	770	**07276029**	29.5	1624
37				**07376005**	26.1	1000	**07376029**	32.0	1940
48				**07486005**	30.3	1255	**07486029**	36.5	2384
5	2.5	7/0.67	0.7	**08056005**	13.8	280	**08056029**	18.0	583
7				**08076005**	14.9	350	**08076029**	20.1	787
10				**08106005**	18.4	485	**08106029**	23.7	1011
12				**08126005**	19.0	545	**08126029**	24.6	1096
19				**08196005**	21.9	780	**08196029**	28.2	1570
27				**08276005**	25.9	1060	**08276029**	32.3	2000
37				**08376005**	29.5	1380	**08376029**	36.0	2470
48				**08486005**	33.7	1770	**08486029**	41.6	3340
5	4	7/0.85	0.7	**09056005**	15.4	375	**09056029**	20.8	812
7				**09076005**	16.7	476	**09076029**	22.1	957
10				**09106005**	20.8	670	**09106029**	27.0	1400
12				**09126005**	21.5	760	**09126029**	27.6	1510
19				**09196005**	24.9	1105	**09196029**	31.2	2000
27				**09276005**	30.2	1520	**09276029**	36.4	2630
37				**09376005**	33.9	2000	**09376029**	41.5	3580
48				**09486005**	39.0	2600	**09486029**	46.4	4370

Current rating and voltage drop

For Unarmoured Cable, please refer to Table 14 & 15 (Page 60)
For Armoured Cable, please refer to Table 16 & 17 (Page 61)
For Rating Factors, please refer to Table 28 (Page 67)

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LSZH* Flame Retardant Cables

1	Conductor	Plain Annealed Copper
2	Insulation	XLPE / LSZH*
3	Bedding	LSZH*
4	Armouring	Galvanized Steel Wire
5	Oversheath	LSZH*

* LSZH: Low Smoke Zero Halogen

KEYSTONE CABLE
tel (65) 6367 0107 fax (65) 6365 2963
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LSZH* Fire Resistant Cables

1	Conductor	Plain Annealed Copper
2	Fire Barrier	Mica Tape
3	Filler	LSZH* Yarn
4	Insulation	XLPE/LSZH*
5	Bedding	LSZH*
6	Armouring	Galavanized Steel Wire
7	Oversheath	LSZH*

* LSZH: Low Smoke Zero Halogen

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Flame Propagation Tests (IEC 60332, BS EN 60332)

Tests on Electric Cables under Fire Conditions

Part 1 : Tests on a single vertical insulated wire or cable
Part 3 : Tests on bunched wires and cables under fire condition

Flame retardant cables prevent flame propagation during a fire emergency. Our cable's protective material includes additives such as aluminium hydroxide or magnesium hydroxide. When the protective materials comes into contact with fire, the by-product from the endothermic reaction is gaseous water which will help envelop the flame, and thereby exclude oxygen from the fire.

$$Mg(OH)_2 \rightarrow MgO + H_2O \quad \text{or} \quad 2Al(OH)_3 \rightarrow Al_2O_3 + 3H_2O$$

In this reaction, the decomposition products are non-toxic and the mineral phases MgO and Al_2O_3 are alkaline, reducing the likelihood of acidic, corrosive gases exiting the plastic. This ensures higher levels of safety.

This test is also conducted on both a single cable as well as bunched vertical cables. This is because flame propagation along a vertical bunch of cables depends on other factors such as the volume of combustible material exposed and cables' geometrical configuration, which differ across single and bunched cables.

The IEC 60332-3 specifies methods for assessing flame retardance of bunched cables comprising of varying densities of combustible material.

IEC 60332-3	Total volume of non-metallic material in the bunched cables on a vertical ladder	Duration exposed to flame
	(litres)	(mins)
IEC 60332-3-22 (Cat. A)	7	40
IEC 60332-3-23 (Cat. B)	3.5	40
IEC 60332-3-24 (Cat. C)	1.5	20

Passing criteria: After the burning has ceased, the charred portion should not exceed a height of 2.5 meters.

Acid Gas Emission Tests (IEC 60754, BS EN 60754)

Test on Gases Evolved During Combustion of Materials from Cables

When fire comes into contact with polyvinyl chloride (PVC) or chlorine-containing material, hydrogen chloride gas (HCl) is released. The HCl gas could cause irritation to the eyes, mouth, throat, nose, and lungs. At Keystone Cable, all our fire resistant and flame retardant cables use Low Smoke Zero Halogen (LSZH) compounds to prevent the formation of HCl gases from the burning of cables.

The standards determine the degree of acidity of gases evolved during the combustion of cable materials by measuring pH and conductivity.

Passing Criteria: The weighted pH value is not less than 4.3 when related to 1 litre of water, and the weighted value of conductivity is not more than 10μS/mm when related to 1 litre of water.

Smoke Emission Tests (IEC 61034, BS EN 61034)

Measurement of Smoke Density of Electric Cables Burning under Defined Conditions

The "3-meter cube test" measures the amount of smoke generated by cables in the event of a fire.
The cables are placed in a $3m^3$ enclosure. A beam of light is transmitted from one window of the chamber to the opposite window. The cables are subjected to fire in the chamber, and the light transmission is recorded.

Passing Criteria: A minimum light transmission value of 60%.

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Fire Resistant Tests (SS 299, BS 6387, IEC 60331)

Specification for Performance Requirements for Cables Required to Maintain Circuit Integrity under Fire Conditions

During fire evacuations, it is important for critical electrical installations including fire alarms, smoke detectors, sprinklers, emergency lightings, and exit lights to function optimally. At Keystone Cable, we conduct these stringent tests by simulating the environment for our fire resistant cables to ensure that they pass the safety requirements and will perform during such emergencies. The protocol letter assigned to the cable reflects the level of testing the cable has gone through and passed.

SS 299:2021, BS 6387:2013 are recognised as the stringent fire resistant test standards for power cables.

Resistance to Fire Alone (SS 299:2021, BS 6387:2013)

Protocol C	Cables are subjected to fire at 950°C for 3 hours

Resistance to Fire with Water (SS 299:2021, BS 6387:2013)

Protocol W	Cables are subjected to fire at 650°C for 15 minutes, then at 650°C with water spray for another 15 minutes.

Resistance to Fire with Mechanical Shock (SS 299:2021, BS 6387:2013)

Protocol Z	Cables are subjected to fire at 950°C for 15 minutes with mechanical shock applied every 30s.

IEC 60331-21 is commonly used as a basic fire resistant test standard.

Resistance to Fire Alone (IEC 60331-21 for common test)

	Cables are subjected to fire at 750°C for 90 minutes

SS 299:2021 does not specify the essential construction standard and test requirement for small power, instrument, and control cables of less than 0.6/1kV. Based on market's requirement, SS 299-1:1998 will be used for these cables to test circuit integrity accordingly.

Resistance to Fire Alone (SS 299 Part 1:1998)

Category A	Cables are subjected to fire at 650°C for 3 hours
Category B	Cables are subjected to fire at 750°C for 3 hours
Category C	Cables are subjected to fire at 950°C for 3 hours

Resistance to Fire with Water (SS 299 Part 1:1998)

Category W	Cables are subjected to fire at 650°C for 15 minutes, then at 650°C with water spray for another 15 minutes.

Resistance to Fire with Mechanical Shock (SS 299 Part 1:1998)

Category X	Cables are subjected to fire at 650°C for 15 minutes with mechanical shock applied every 30s.
Category Y	Cables are subjected to fire at 750°C for 15 minutes with mechanical shock applied every 30s.
Category Z	Cables are subjected to fire at 950°C for 15 minutes with mechanical shock applied every 30s.

Passing criteria: No short circuit during the respective testing period.

LSZH Flame Retardant Cables

KEYSTONE CABLE
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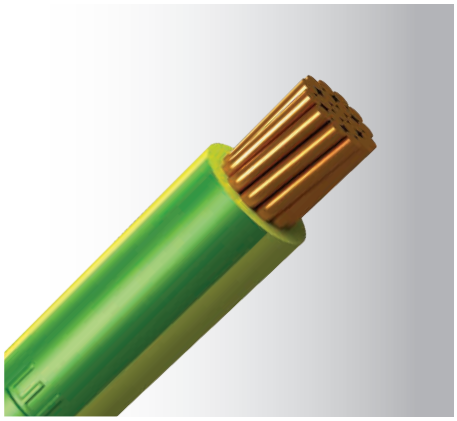
0.6/1kV Single-Core
LSZH Insulated, Non-Sheathed Cable
Description: CU/LSZH-AT-UV
Model Code: LSZH-AT-UV



Application :	This cable is mainly used in power stations, mass transit underground passenger systems, airports, petrochemical plants, hospitals, and high-rise buildings. Suitable for fixed protected installation.
Voltage rating :	0.6/1kV
Construction :	Plain annealed copper (IEC 60228 Class 2), anti-termite and UV resistant cross-linked polyolefin EI 5 compound insulated cable
Insulation colour :	Brown, Black, Grey, Blue, Green/Yellow (Other colour upon request)
Specification :	BS EN 50525-3-41, IEC 60332-1-2, IEC 60332-3, IEC 60754, IEC 61034-2
Operating temperature :	90˚C

Conductor			Insulation	**Part No.**	Approx. Overall Diam.	Approx. Weight
Nominal Area	No./Diam. of Strand	Approx. Diam.	Thickness			
(mm^2)	(no./mm)	(mm)	(mm)		(mm)	(kg/km)
1.5	7/0.53	1.59	0.7	**0701**54**	3.1	22
2.5	7/0.67	2.01	0.8	**0801**54**	3.7	34
4	7/0.85	2.55	0.8	**0901**54**	4.3	50
6	7/1.04	3.12	0.8	**1001**54**	4.8	70
10	7/1.35	4.05	1.0	**1101**54**	6.2	124
16	7/1.70	5.10	1.0	**1201**54**	7.2	183
25 (cs)	7/2.14	6.20	1.2	**1301**54**	9.0	280
35 (cs)	19/1.53	7.30	1.2	**1401**54**	10.0	380
50 (cs)	19/1.78	8.20	1.4	**1501**54**	11.2	500
70 (cs)	19/2.14	10.00	1.4	**1601**54**	13.0	715
95 (cs)	19/2.52	11.80	1.6	**1701**54**	15.2	990
120 (cs)	37/2.03	13.00	1.6	**1801**54**	16.4	1220
150 (cs)	37/2.25	14.40	1.8	**1901**54**	18.3	1500
185 (cs)	37/2.52	16.20	2.0	**2001**54**	20.4	1890
240 (cs)	61/2.25	18.80	2.2	**2101**54**	23.4	2460
300 (cs)	61/2.52	21.20	2.4	**2201**54**	26.4	3080
400 (cs)	61/2.85	24.30	2.6	**2301**54**	30.0	3920
500 (cs)	61/3.20	27.40	2.8	**2401**54**	33.5	4920
630	127/2.52	32.76	2.8	**2501**54**	38.7	6260

**Stands for colour code: Brown (01) Black (02) Grey (03) Blue (04) Green/Yellow (05)

Current rating and voltage drop
Please refer to Table 10 & 11 (Page 58)

(cs) : Circular Compact Stranded Conductor

LSZH Flame Retardant Cables

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0.6/1kV Single-Core
XLPE Insulated, Unarmoured & Armoured, LSZH Sheathed Cable

Description: CU/XLPE/LSZH-AT-UV or CU/XLPE/LSZH/AWA/LSZH-AT-UV
Model Code: XL-AT-UV or XLAL-AT-UV

Application :	This cable is mainly used in power stations, mass transit underground passenger systems, airports, petrochemical plants, hotels, hospitals, and high-rise buildings.
Voltage rating :	0.6/1kV
Construction :	Plain annealed copper (IEC 60228 Class 2), XLPE compound insulated, unarmoured or aluminium wires armoured, anti-termite and UV resistant LSZH compound sheathed cable
Insulation colour :	Natural
Sheath colour :	Black (Other colour upon request)
Specification :	IEC 60502-1, BS 6724, IEC 60332-1-2, IEC 60332-3, IEC 60754, IEC 61034-2
Operating temperature :	90˚C

Conductor		Insulation	Unarmoured Cable			Armoured Cable		
Nominal Area	No./Diam. of Strand	Thickness	**Part No.**	Approx. Overall Diam.	Approx. Weight	**Part No.**	Approx. Overall Diam.	Approx. Weight
(mm^2)	(no./mm)	(mm)		(mm)	(kg/km)		(mm)	(kg/km)
1.5	7/0.53	0.7	**07018590**	6.1	52	**-**	-	-
2.5	7/0.67	0.7	**08018590**	6.6	67	**-**	-	-
4	7/0.85	0.7	**09018590**	7.0	85	**-**	-	-
6	7/1.04	0.7	**10018590**	7.5	110	**-**	-	-
10	7/1.35	0.7	**11018590**	8.5	155	**-**	-	-
16	7/1.70	0.7	**12018590**	9.5	225	**-**	-	-
25 (cs)	7/2.14	0.9	**13018590**	11.2	335	**-**	-	-
35 (cs)	19/1.53	0.9	**14018590**	12.3	435	**-**	-	-
50 (cs)	19/1.78	1.0	**15018590**	13.5	570	**15018543**	20.5	815
70 (cs)	19/2.14	1.1	**16018590**	15.3	800	**16018543**	22.2	1065
95 (cs)	19/2.52	1.1	**17018590**	17.4	1080	**17018543**	24.3	1355
120 (cs)	37/2.03	1.2	**18018590**	18.8	1330	**18018543**	26.3	1680
150 (cs)	37/2.25	1.4	**19018590**	20.8	1630	**19018543**	28.3	1990
185 (cs)	37/2.52	1.6	**20018590**	23.1	2030	**20018543**	30.5	2400
240 (cs)	61/2.25	1.7	**21018590**	26.3	2650	**21018543**	33.6	3005
300 (cs)	61/2.52	1.8	**22018590**	29.1	3260	**22018543**	36.2	3600
400 (cs)	61/2.85	2.0	**23018590**	32.9	4140	**23018543**	41.4	4765
500 (cs)	61/3.20	2.2	**24018590**	36.7	5200	**24018543**	45.3	5865
630	127/2.52	2.4	**25018590**	42.8	6650	**25018543**	51.4	7410
800	127/2.85	2.6	**26018590**	48.0	8450	**26018543**	57.5	9460
1000	127/3.20	2.8	**27018590**	53.0	10600	**27018543**	62.3	11750

Current rating and voltage drop
For Unarmoured Cable, please refer to Table 10 & 11 (Page 58)
For Armoured Cable, please refer to Table 12 & 13 (Page 59)

(cs) : Circular Compact Stranded Conductor

LSZH Flame Retardant Cables

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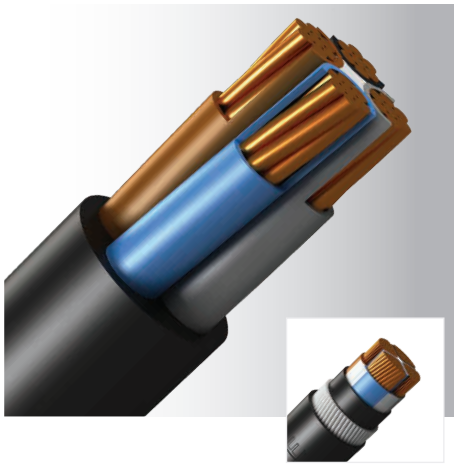
0.6/1kV 2-Core ~ 5-Core
XLPE Insulated, Unarmoured & Armoured, LSZH Sheathed Cable
Description: CU/XLPE/LSZH-AT-UV or CU/XLPE/LSZH/SWA/LSZH-AT-UV
Model Code: XL-AT-UV or XLSL-AT-UV



Application :	This cable is mainly used in power stations, mass transit underground passenger systems, airports, petrochemical plants, hotels, hospitals, and high-rise buildings.
Voltage rating :	0.6/1kV
Construction :	Plain annealed copper (IEC 60228 Class 2), XLPE compound insulated, unarmoured or galvanized steel wires armoured, anti-termite and UV resistant LSZH compound sheathed cable
Insulation colour :	2-Core: Brown, Blue; 3-Core: Brown, Black, Grey; Brown, Blue, Green/Yellow; 4-Core: Brown, Black, Grey, Blue; Brown, Black, Grey, Green/Yellow; 5-Core: Brown, Black, Grey, Blue, Green/Yellow; (Other colour upon request)
Sheath colour :	Black (Other colour upon request)
Specification :	IEC 60502-1, BS 6724, IEC 60332-1-2, IEC 60332-3, IEC 60754, IEC 61034-2
Operating temperature :	90˚C

2-CORE [2C]
(Brown, Blue) (1-phase and neutral)

Conductor	Insulation	Unarmoured Cable			Armoured Cable		
Nominal Area	Thickness	**Part No.**	Approx. Overall Diam.	Approx. Weight	**Part No.**	Approx. Overall Diam.	Approx. Weight
(mm^2)	(mm)		(mm)	(kg/km)		(mm)	(kg/km)
1.5	0.7	**07026777**	10.1	130	**07026791**	14.5	362
2.5	0.7	**08026777**	11.0	165	**08026791**	15.5	410
4	0.7	**09026777**	12.0	215	**09026791**	16.5	490
6	0.7	**10026777**	13.1	270	**10026791**	18.0	580
10	0.7	**11026777**	16.0	390	**11026791**	20.8	800
16	0.7	**12026777**	18.0	495	**12026791**	22.9	1050
25 (cs)	0.9	**13026777**	21.2	726	**13026791**	26.7	1473
35 (cs)	0.9	**14026777**	23.4	944	**14026791**	29.0	1780
50 (cs)	1.0	**15026777**	25.8	1257	**15026791**	32.4	2188
70 (cs)	1.1	**16026777**	30.4	1724	**16026791**	36.3	2805
95 (cs)	1.1	**17026777**	34.0	2299	**17026791**	41.2	3827
120 (cs)	1.2	**18026777**	37.0	2848	**18026791**	44.2	4488
150 (cs)	1.4	**19026777**	41.0	3479	**19026791**	48.2	5277
185 (cs)	1.6	**20026777**	45.8	4323	**20026791**	54.4	6860
240 (cs)	1.7	**21026777**	51.8	5608	**21026791**	60.4	8445
300 (cs)	1.8	**22026777**	57.4	6948	**22026791**	66.3	10132
400 (cs)	2.0	**23026777**	65.0	8854	**23026791**	74.0	12388

Current rating and voltage drop
For Unarmoured Cable, please refer to Table 14 & 15 (Page 60)
For Armoured Cable, please refer to Table 16 & 17 (Page 61)

(cs): Circular Compact Stranded Conductor

LSZH Flame Retardant Cables

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0.6/1kV 2-Core ~ 5-Core
XLPE Insulated, Unarmoured & Armoured, LSZH Sheathed Cable
Description: CU/XLPE/LSZH-AT-UV or CU/XLPE/LSZH/SWA/LSZH-AT-UV
Model Code: XL-AT-UV or XLSL-AT-UV

3-CORE [3C]
(Brown, Black, Grey) (3-phase, three wire)

Conductor	Insulation	Unarmoured Cable			Armoured Cable		
Nominal Area	Thickness	Part No.	Approx. Overall Diam.	Approx. Weight	Part No.	Approx. Overall Diam.	Approx. Weight
(mm^2)	(mm)		(mm)	(kg/km)		(mm)	(kg/km)
1.5	0.7	**07036809**	10.5	145	**07036824**	15.0	390
2.5	0.7	**08036809**	11.4	190	**08036824**	16.0	435
4	0.7	**09036809**	12.8	250	**09036824**	17.0	550
6	0.7	**10036809**	14.0	320	**10036824**	18.5	660
10	0.7	**11036809**	16.9	480	**11036824**	21.7	900
16	0.7	**12036809**	19.0	645	**12036824**	24.0	1260
25 (cs)	0.9	**13036809**	22.5	968	**13036824**	28.0	1772
35 (cs)	0.9	**14036809**	25.0	1278	**14036824**	30.5	2175
50 (cs)	1.0	**15036809**	27.4	1688	**15036824**	33.7	2700
70 (cs)	1.1	**16036809**	32.6	2365	**16036824**	40.0	3805
95 (cs)	1.1	**17036809**	36.5	3197	**17036824**	44.0	4831
120 (cs)	1.2	**18036809**	39.7	3982	**18036824**	47.5	5772
150 (cs)	1.4	**19036809**	44.0	4872	**19036824**	53.2	7344
185 (cs)	1.6	**20036809**	49.2	6074	**20036824**	58.2	8813
240 (cs)	1.7	**21036809**	55.6	7903	**21036824**	65.0	11050
300 (cs)	1.8	**22036809**	61.6	9822	**22036824**	71.0	13312
400 (cs)	2.0	**23036809**	70.0	12624	**23036824**	80.5	17317

3-CORE [3G]
(Brown, Blue, Green/Yellow) (1-phase and earth)

Conductor	Insulation	Unarmoured Cable			Armoured Cable		
Nominal Area	Thickness	Part No.	Approx. Overall Diam.	Approx. Weight	Part No.	Approx. Overall Diam.	Approx. Weight
(mm^2)	(mm)		(mm)	(kg/km)		(mm)	(kg/km)
1.5	0.7	**07036365**	10.5	145	**07036014**	15.0	390
2.5	0.7	**08036365**	11.4	190	**08036014**	16.0	435
4	0.7	**09036365**	12.8	250	**09036014**	17.0	550
6	0.7	**10036365**	14.0	320	**10036014**	18.5	660
10	0.7	**11036365**	16.9	480	**11036014**	21.7	900
16	0.7	**12036365**	19.0	645	**12036014**	24.0	1260
25 (cs)	0.9	**13036365**	22.5	968	**13036014**	28.0	1772
35 (cs)	0.9	**14036365**	25.0	1278	**14036014**	30.5	2175
50 (cs)	1.0	**15036365**	27.4	1688	**15036014**	33.7	2700
70 (cs)	1.1	**16036365**	32.6	2365	**16036014**	40.0	3805
95 (cs)	1.1	**17036365**	36.5	3197	**17036014**	44.0	4831
120 (cs)	1.2	**18036365**	39.7	3982	**18036014**	47.5	5772
150 (cs)	1.4	**19036365**	44.0	4872	**19036014**	53.2	7344
185 (cs)	1.6	**20036365**	49.2	6074	**20036014**	58.2	8813
240 (cs)	1.7	**21036365**	55.6	7903	**21036014**	65.0	11050
300 (cs)	1.8	**22036365**	61.6	9822	**22036014**	71.0	13312
400 (cs)	2.0	**23036365**	70.0	12533	**23036014**	80.5	17317

Current rating and voltage drop
For Unarmoured Cable, please refer to Table 14 & 15 (Page 60)
For Armoured Cable, please refer to Table 16 & 17 (Page 61)

(cs): Circular Compact Stranded Conductor

LSZH Flame Retardant Cables

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0.6/1kV 2-Core ~ 5-Core
XLPE Insulated, Unarmoured & Armoured, LSZH Sheathed Cable
Description: CU/XLPE/LSZH-AT-UV or CU/XLPE/LSZH/SWA/LSZH-AT-UV
Model Code: XL-AT-UV or XLSL-AT-UV

4-CORE [4C]
(Brown, Black, Grey, Blue) (3-phase and neutral)

Conductor	Insulation	Unarmoured Cable			Armoured Cable		
Nominal Area	Thickness	Part No.	Approx. Overall Diam.	Approx. Weight	Part No.	Approx. Overall Diam.	Approx. Weight
(mm^2)	(mm)		(mm)	(kg/km)		(mm)	(kg/km)
1.5	0.7	**07046790**	11.5	180	**07046819**	15.5	430
2.5	0.7	**08046790**	12.5	230	**08046819**	16.5	495
4	0.7	**09046790**	14.0	315	**09046819**	18.0	610
6	0.7	**10046790**	15.0	395	**10046819**	20.0	810
10	0.7	**11046790**	18.4	590	**11046819**	23.2	1120
16	0.7	**12046790**	21.0	860	**12046819**	27.0	1480
25 (s)	0.9	**13046789**	22.0	1225	**13046011**	27.5	2000
35 (s)	0.9	**14046789**	25.0	1625	**14046011**	30.5	2480
50 (s)	1.0	**15046789**	28.0	2200	**15046011**	34.0	3180
70 (s)	1.1	**16046789**	32.0	3050	**16046011**	39.5	4500
95 (s)	1.1	**17046789**	36.0	4110	**17046011**	44.0	5775
120 (s)	1.2	**18046789**	40.3	5915	**18046011**	50.0	7450
150 (s)	1.4	**19046789**	44.6	6350	**19046011**	54.5	8830
185 (s)	1.6	**20046789**	50.5	7985	**20046011**	59.0	10805
240 (s)	1.7	**21046789**	58.0	10595	**21046011**	68.0	13630
300 (s)	1.8	**22046789**	64.0	13220	**22046011**	73.0	16530
400 (s)	2.0	**23046789**	73.0	16805	**23046011**	85.0	21840

4-CORE [4G]
(Brown, Black, Grey, Green/Yellow) (3-phase and earth)

Conductor	Insulation	Unarmoured Cable			Armoured Cable		
Nominal Area	Thickness	Part No.	Approx. Overall Diam.	Approx. Weight	Part No.	Approx. Overall Diam.	Approx. Weight
(mm^2)	(mm)		(mm)	(kg/km)		(mm)	(kg/km)
1.5	0.7	**07046374**	11.5	180	**07046839**	15.5	430
2.5	0.7	**08046374**	12.5	230	**08046839**	16.5	495
4	0.7	**09046374**	14.0	315	**09046839**	18.0	610
6	0.7	**10046374**	15.0	395	**10046839**	20.0	810
10	0.7	**11046374**	18.4	590	**11046839**	23.2	1120
16	0.7	**12046374**	21.4	860	**12046839**	27.0	1480
25 (cs)	0.9	**13046374**	25.0	1265	**13046839**	30.8	2160
35 (cs)	0.9	**14046374**	27.4	1665	**14046839**	33.8	2690
50 (cs)	1.0	**15046374**	31.4	2200	**15046839**	36.7	3365
70 (cs)	1.1	**16046374**	36.0	3100	**16046839**	43.7	4795
95 (cs)	1.1	**17046374**	41.3	4190	**17046839**	48.6	6095
120 (cs)	1.2	**18046374**	45.0	5060	**18046839**	53.2	7580
150 (cs)	1.4	**19046374**	49.6	6380	**19046839**	58.0	9190
185 (cs)	1.6	**20046374**	55.5	7920	**20046839**	64.0	11050
240 (cs)	1.7	**21046374**	62.7	10060	**21046839**	72.0	13780
300 (cs)	1.8	**22046374**	69.5	12500	**22046839**	78.4	16520
400 (cs)	2.0	**23046374**	78.6	16480	**23046839**	89.4	22120

Current rating and voltage drop
For Unarmoured Cable, please refer to Table 14 & 15 (Page 60)
For Armoured Cable, please refer to Table 16 & 17 (Page 61)

(cs): Circular Compact Stranded Conductor
(s) : Sector Shaped Stranded Conductor

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0.6/1kV 2-Core ~ 5-Core
XLPE Insulated, Unarmoured & Armoured, LSZH Sheathed Cable

Description: CU/XLPE/LSZH-AT-UV or CU/XLPE/LSZH/SWA/LSZH-AT-UV
Model Code: XL-AT-UV or XLSL-AT-UV

5-CORE [5G]
(Brown, Black, Grey, Blue, Green/Yellow) (3-phase, neutral and earth)

Conductor	Insulation	Unarmoured Cable			Armoured Cable		
Nominal Area	Thickness	**Part No.**	Approx. Overall Diam.	Approx. Weight	**Part No.**	Approx. Overall Diam.	Approx. Weight
(mm^2)	(mm)		(mm)	(kg/km)		(mm)	(kg/km)
1.5	0.7	**07056275**	12.8	208	**07056363**	16.8	455
2.5	0.7	**08056275**	13.9	263	**08056363**	17.8	540
4	0.7	**09056275**	15.4	355	**09056363**	20.0	795
6	0.7	**10056275**	16.9	465	**10056363**	21.8	956
10	0.7	**11056275**	19.8	700	**11056363**	24.8	1272
16	0.7	**12056275**	22.5	1020	**12056363**	28.6	1845
25 (cs)	0.9	**13056275**	27.0	1530	**13056363**	32.6	2500
35 (cs)	0.9	**14056275**	30.0	2035	**14056363**	36.2	3140
50 (cs)	1.0	**15056275**	33.7	2720	**15056363**	41.5	4300
70 (cs)	1.1	**16056275**	39.6	3825	**16056363**	46.8	5585
95 (cs)	1.1	**17056275**	45.0	5185	**17056363**	53.0	7675
120 (cs)	1.2	**18056275**	49.2	6320	**18056363**	57.6	9125
150 (cs)	1.4	**19056275**	54.5	7800	**19056363**	63.0	10824
185 (cs)	1.6	**20056275**	61.1	9800	**20056363**	70.0	13211
240 (cs)	1.7	**21056275**	69.2	12520	**21056363**	79.2	17466

Current rating and voltage drop
For Unarmoured Cable, please refer to Table 14 & 15 (Page 60)
For Armoured Cable, please refer to Table 16 & 17 (Page 61)

(cs): Circular Compact Stranded Conductor

LSZH Flame Retardant Cables

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www.keystone-cable.com

0.6/1kV Multi-Core
XLPE Insulated, Unarmoured & Armoured, LSZH Sheathed Cable
Description: CU/XLPE/LSZH-AT-UV or CU/XLPE/LSZH/SWA/LSZH-AT-UV
Model Code: XL-AT-UV or XLSL-AT-UV

Application :	This cable is mainly used in power stations, mass transit underground passenger systems, airports, petrochemical plants, hotels, hospitals, and high-rise buildings.
Voltage rating :	0.6/1kV
Construction :	Plain annealed copper (IEC 60228 Class 2), XLPE compound insulated, unarmoured or galvanized steel wires armoured, anti-termite and UV resistant LSZH compound sheathed cable
Insulation colour :	White (With black numbering)
Sheath colour :	Black
Specification :	IEC 60502-1, BS 6724, IEC 60332-1-2, IEC 60332-3, IEC 60754, IEC 61034-2
Operating temperature :	90˚C

No. of Core	Conductor		Insulation	Unarmoured Cable			Armoured Cable		
	Nominal Area	No./Diam. of Strand	Thickness	Part No.	Approx. Overall Diam.	Approx. Weight	Part No.	Approx Overall Diam.	Approx. Weight
	(mm^2)	(no./mm)	(mm)		(mm)	(kg/km)		(mm)	(kg/km)
5	1.5	7/0.53	0.7	**07056478**	12.8	215	**07056284**	16.5	497
7				**07076478**	13.7	260	**07076284**	17.5	565
10				**07106478**	16.8	365	**07106284**	21.5	850
12				**07126478**	17.3	405	**07126284**	22.0	905
19				**07196478**	19.9	570	**07196284**	24.7	1150
27				**07276478**	23.5	770	**07276284**	29.5	1624
37				**07376478**	26.1	1000	**07376284**	32.0	1940
48				**07486478**	30.3	1255	**07486284**	36.5	2384
5	2.5	7/0.67	0.7	**08056478**	13.8	280	**08056284**	18.0	583
7				**08076478**	14.9	350	**08076284**	20.1	787
10				**08106478**	18.4	485	**08106284**	23.7	1011
12				**08126478**	19.0	545	**08126284**	24.6	1096
19				**08196478**	21.9	780	**08196284**	28.2	1570
27				**08276478**	25.9	1060	**08276284**	32.3	2000
37				**08376478**	29.5	1380	**08376284**	36.0	2470
48				**08486478**	33.7	1770	**08486284**	41.6	3340
5	4	7/0.85	0.7	**09056478**	15.4	375	**09056284**	20.8	812
7				**09076478**	16.7	476	**09076284**	22.1	957
10				**09106478**	20.8	670	**09106284**	27.0	1400
12				**09126478**	21.5	760	**09126284**	27.6	1510
19				**09196478**	24.9	1105	**09196284**	31.2	2000
27				**09276478**	30.2	1520	**09276284**	36.4	2630
37				**09376478**	33.9	2000	**09376284**	41.5	3580
48				**09486478**	39.0	2600	**09486284**	46.4	4370

Current rating and voltage drop
For Unarmoured Cable, please refer to Table 14 & 15 (Page 60)
For Armoured Cable, please refer to Table 16 & 17 (Page 61)
For Rating Factors, please refer to Table 28 (Page 67)

LSZH Fire Resistant Cables

KEYSTONE CABLE
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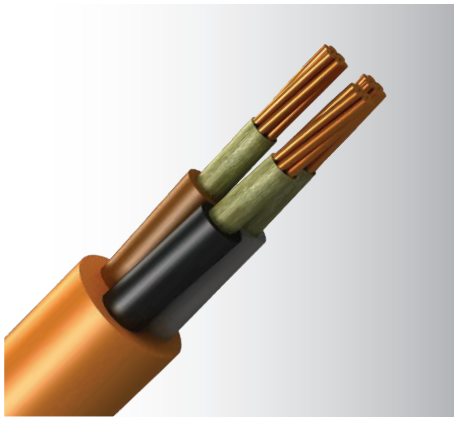
300/500V 2-Core ~ 4-Core
Mica Tape, XLPE Insulated, LSZH Sheathed Cable
Description: CU/MT/XLPE/LSZH-AT-UV
Model Code: MXL-AT-UV



Application :	This cable is designed for areas where the integrity of the electrical circuit is critical in maintaining power supply. Applications include emergency lightings, control and power circuits, power stations, fire alarm systems, underground tunnels, sewage treatment plants, and high-rise buildings.
Voltage rating :	300/500V
Construction :	Plain annealed copper (IEC 60228 Class 2), mica tape fire barrier, XLPE insulated, anti-termite and UV resistant LSZH compound sheathed cable
Insulation colour :	2-Core: Brown, Blue; 3-Core: Brown, Black, Grey; Brown, Blue, Green/Yellow; 4-Core: Brown, Black, Grey, Blue; Brown, Black, Grey, Green/Yellow; (Other colour upon request)
Sheath colour :	Orange (Other colour upon request)
Specification :	SS 299 Part 1:1998, IEC 60331, IEC 60332-1-2, IEC 60754, IEC 61034-2
Operating temperature :	90˚C

2-CORE [2C]
(Brown, Blue) (1-phase and neutral)

Conductor		Part No.	Insulation	Approx. Overall Diam.	Approx. Weight
Nominal Area	No./Diam. of Strand		Thickness		
(mm^2)	(no./mm)		(mm)	(mm)	(kg/km)
1.5	7/0.53	**07024667**	0.5	8.5	70
2.5	7/0.67	**08024667**	0.5	9.3	93
4	7/0.85	**09024667**	0.5	10.4	128

3-CORE [3C]
(Brown, Black, Grey) (3-phase, three wire)

Conductor		Part No.	Insulation	Approx. Overall Diam.	Approx. Weight
Nominal Area	No./Diam. of Strand		Thickness		
(mm^2)	(no./mm)		(mm)	(mm)	(kg/km)
1.5	7/0.53	**07034102**	0.5	9.0	95
2.5	7/0.67	**08034102**	0.5	10.0	128
4	7/0.85	**09034102**	0.5	11.2	190

3-CORE [3G]
(Brown, Blue, Green/Yellow) (1-phase and earth)

Conductor		Part No.	Insulation	Approx. Overall Diam.	Approx. Weight
Nominal Area	No./Diam. of Strand		Thickness		
(mm^2)	(no./mm)		(mm)	(mm)	(kg/km)
1.5	7/0.53	**07034665**	0.5	9.0	95
2.5	7/0.67	**08034665**	0.5	10.0	128
4	7/0.85	**09034665**	0.5	11.2	190

Current rating and voltage drop
Please refer to Table 14 & 15 (Page 60)

LSZH Fire Resistant Cables

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300/500V 2-Core ~ 4-Core
Mica Tape, XLPE Insulated, LSZH Sheathed Cable
Description: CU/MT/XLPE/LSZH-AT-UV
Model Code: MXL-AT-UV

4-CORE [4C]
(Brown, Black, Grey, Blue) (3-phase and neutral)

Conductor		Part No.	Insulation	Approx. Overall Diam.	Approx. Weight
Nominal Area	No./Diam. of Strand		Thickness		
(mm^2)	(no./mm)		(mm)	(mm)	(kg/km)
1.5	7/0.53	**07044668**	0.5	10.0	134
2.5	7/0.67	**08044668**	0.5	11.0	180
4	7/0.85	**09044668**	0.5	12.4	255

4-CORE [4G]
(Brown, Black, Grey, Green/Yellow) (3-phase and earth)

Conductor		Part No.	Insulation	Approx. Overall Diam.	Approx. Weight
Nominal Area	No./Diam. of Strand		Thickness		
(mm^2)	(no./mm)		(mm)	(mm)	(kg/km)
1.5	7/0.53	**07044643**	0.5	10.0	134
2.5	7/0.67	**08044643**	0.5	11.0	180
4	7/0.85	**09044643**	0.5	12.4	255

Current rating and voltage drop
Please refer to Table 14 & 15 (Page 60)

LSZH Fire Resistant Cables

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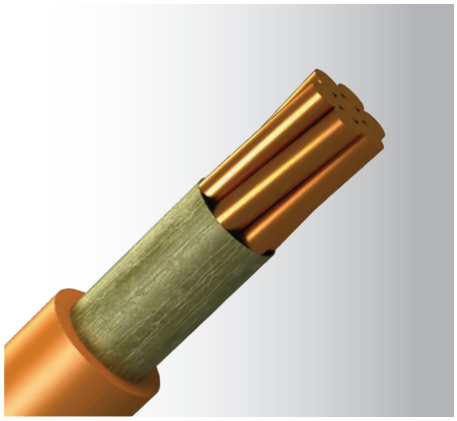
450/750V (0.6/1kV*) Single-Core
Mica Tape, LSZH Insulated, Non-Sheathed Cable
Description: CU/MT/LSZH-AT-UV
Model Code: ML-AT-UV



Application :	This cable is used in fire alarm systems, voice alarm systems, emergency lighting systems, high-rise buildings, hotels, hospitals, subways, and public facilities.
Voltage rating :	450/750V (0.6/1kV* REF IEC 60502-1)
Construction :	Plain annealed copper (IEC 60228 Class 2), mica tape fire barrier, anti-termite and UV resistant cross-linked polyolefin EI 5 compound insulated cable
Insulation colour :	Orange (Other colour upon request)
Specification :	BS 8592, BS EN 50525-3-41, SS 299, BS 6387, IEC 60331-3, BS EN 60332-1-2, BS EN 60332-3, BS EN 60754, BS EN 61034-2
Operating temperature :	90˚C

Conductor			Insulation	Part No.	Approx. Overall Diam.	Approx. Weight
Nominal Area	No./Diam. of Strand	Approx. Diam.	Thickness			
(mm^2)	(no./mm)	(mm)	(mm)		(mm)	(kg/km)
1.5	7/0.53	1.59	0.7	**07011080**	3.9	28
2.5	7/0.67	2.01	0.8	**08011080**	4.5	42
4	7/0.85	2.55	0.8	**09011080**	5.1	60
6	7/1.04	3.12	0.8	**10011080**	5.7	83
10	7/1.35	4.05	1.0	**11011080**	7.0	141
16	7/1.70	5.10	1.0	**12011080**	8.0	200
25 (cs)	7/2.14	6.20	1.2	**13011080**	9.5	304
35 (cs)	19/1.53	7.30	1.2	**14011080**	11.3	402
50 (cs)	19/1.78	8.20	1.4	**15011080**	12.6	537
70 (cs)	19/2.14	10.00	1.4	**16011080**	14.5	742
95** (cs)	19/2.52	11.80	1.6	**17011080**	16.7	1020
120** (cs)	37/2.03	13.00	1.6	**18011080**	17.8	1250
150** (cs)	37/2.25	14.40	1.8	**19011080**	19.7	1520
185** (cs)	37/2.52	16.20	2.0	**20011080**	21.9	1900
240** (cs)	61/2.25	18.80	2.2	**21011080**	25.0	2435
300** (cs)	61/2.52	21.20	2.4	**22011080**	27.9	3030
400** (cs)	61/2.85	24.30	2.6	**23011080**	31.4	3925
500** (cs)	61/3.20	27.40	2.8	**24011080**	35.0	4905
630**	127/2.52	32.76	2.8	**25011080**	40.2	6370

**Stands for 95mm^2 ~ 630mm^2 construction design to BS EN 50525-3-41

Current rating and voltage drop
Please refer to Table 10 & 11 (Page 58)

(cs): Circular Compact Stranded Conductor

LSZH Fire Resistant Cables

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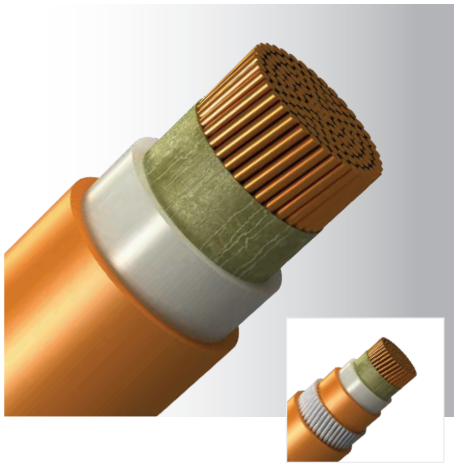
0.6/1kV Single-Core
Mica Tape, XLPE Insulated, Unarmoured & Armoured, LSZH Sheathed Cable

Description: CU/MT/XLPE/LSZH-AT-UV or CU/MT/XLPE/LSZH/AWA/LSZH-AT-UV

Model Code: MXL-AT-UV or MXLAL-AT-UV



Application :	This cable is designed for areas where the integrity of the electrical circuit is critical in maintaining power supply. Applications include emergency lightings, control and power circuits, power stations, fire alarm systems, underground tunnels, sewage treatment plants, and high-rise buildings.
Voltage rating :	0.6/1kV
Construction :	Plain annealed copper (IEC 60228 Class 2), mica tape fire barrier, XLPE compound insulated, unarmoured or aluminium wires armoured, anti-termite and UV resistant LSZH compound sheathed cable
Insulation colour :	Natural
Sheath colour :	Orange (Other colour upon request)
Specification :	IEC 60502-1, SS 299, BS 6387, IEC 60331, IEC 60332-1-2, IEC 60332-3, IEC 60754, IEC 61034-2
Operating temperature :	90˚C

Conductor			Insulation	Unarmoured Cable			Armoured Cable		
Nominal Area	No./Diam. of Strand	Approx. Diam.	Thickness	**Part No.**	Approx. Overall Diam.	Approx. Weight	**Part No.**	Approx. Overall Diam.	Approx. Weight
(mm^2)	(no./mm)	(mm)	(mm)		(mm)	(kg/km)		(mm)	(kg/km)
1.5	7/0.53	1.59	0.7	**07018813**	6.7	61	-	-	-
2.5	7/0.67	2.01	0.7	**08018813**	7.1	75	-	-	-
4	7/0.85	2.55	0.7	**09018813**	7.8	94	-	-	-
6	7/1.04	3.12	0.7	**10018813**	8.5	122	-	-	-
10	7/1.35	4.05	0.7	**11018813**	9.6	170	-	-	-
16	7/1.70	5.10	0.7	**12018813**	10.6	235	-	-	-
25 (cs)	7/2.14	6.20	0.9	**13018813**	12.3	343	-	-	-
35 (cs)	19/1.53	7.30	0.9	**14018813**	13.7	455	**14018870**	20.2	705
50 (cs)	19/1.78	8.20	1.0	**15018813**	15.1	590	**15018870**	21.4	816
70 (cs)	19/2.14	10.00	1.1	**16018813**	16.6	820	**16018870**	23.5	1047
95 (cs)	19/2.52	11.80	1.1	**17018813**	19.0	1075	**17018870**	25.3	1353
120 (cs)	37/2.03	13.00	1.2	**18018813**	20.5	1350	**18018870**	27.4	1689
150 (cs)	37/2.25	14.40	1.4	**19018813**	22.7	1640	**19018870**	29.3	2010
185 (cs)	37/2.52	16.20	1.6	**20018813**	25.1	2040	**20018870**	31.5	2440
240 (cs)	61/2.25	18.80	1.7	**21018813**	28.1	2650	**21018870**	34.5	3060
300 (cs)	61/2.52	21.20	1.8	**22018813**	30.9	3260	**22018870**	37.1	3690
400 (cs)	61/2.85	24.30	2.0	**23018813**	34.8	4130	**23018870**	42.3	4780
500 (cs)	61/3.20	27.40	2.2	**24018813**	38.7	5200	**24018870**	46.0	5970
630	127/2.52	32.76	2.4	**25018813**	44.9	6600	**25018870**	52.2	7530
800	127/2.85	37.05	2.6	**26018813**	50.0	8300	**26018870**	58.6	9680
1000	127/3.20	41.60	2.8	**27018813**	55.1	10458	**27018870**	64.4	11980

Current rating and voltage drop
For Unarmoured Cable, please refer to Table 10 & 11 (Page 58)
For Armoured Cable, please refer to Table 12 & 13 (Page 59)

(cs) : Circular Compact Stranded Conductor

LSZH Fire Resistant Cables

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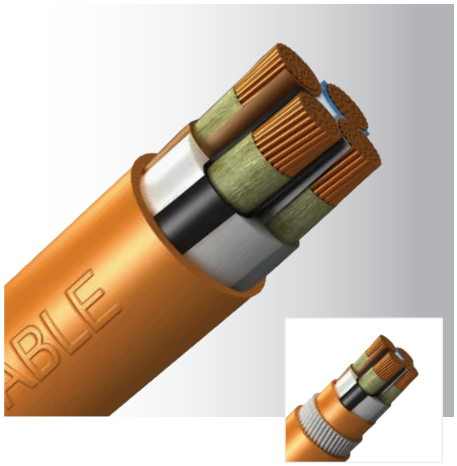
0.6/1kV 2-Core ~ 5-Core
Mica Tape, XLPE Insulated, Unarmoured & Armoured, LSZH Sheathed Cable

Description: CU/MT/XLPE/LSZH-AT-UV or CU/MT/XLPE/LSZH/SWA/LSZH-AT-UV

Model Code: MXL-AT-UV or MXLSL-AT-UV



Application :	This cable is designed for areas where the integrity of the electrical circuit is critical in maintaining power supply. Applications include emergency lightings, control and power circuits, power stations, fire alarm systems, underground tunnels, sewage treatment plants, and high-rise buildings.
Voltage rating :	0.6/1kV
Construction :	Plain annealed copper (IEC 60228 Class 2), mica tape fire barrier, XLPE compound insulated, unarmoured or galvanized steel wires armoured, anti-termite and UV resistant LSZH compound sheathed cable
Insulation colour :	2-Core: Brown, Blue; 3-Core: Brown, Black, Grey; Brown, Blue, Green/Yellow; 4-Core: Brown, Black, Grey, Blue; Brown, Black, Grey, Green/Yellow; 5-Core: Brown, Black, Grey, Blue, Green/Yellow; (Other colour upon request)
Sheath colour :	Orange (Other colour upon request)
Specification :	IEC 60502-1, SS 299, BS 6387, IEC 60331, IEC 60332-1-2, IEC 60332-3, IEC 60754, IEC 61034-2
Operating temperature :	90˚C

2-CORE [2C]
(Brown, Blue) (1-phase and neutral)

Conductor	Insulation	Unarmoured Cable			Armoured Cable		
Nominal Area	Thickness	**Part No.**	Approx. Overall Diam.	Approx. Weight	**Part No.**	Approx. Overall Diam.	Approx. Weight
(mm^2)	(mm)		(mm)	(kg/km)		(mm)	(kg/km)
1.5	0.7	**07024065**	12.2	150	**07024054**	16.4	450
2.5	0.7	**08024065**	12.6	193	**08024054**	17.3	511
4	0.7	**09024065**	13.8	250	**09024054**	18.4	595
6	0.7	**10024065**	15.0	326	**10024054**	19.5	809
10	0.7	**11024065**	17.5	411	**11024054**	22.1	940
16	0.7	**12024065**	19.5	550	**12024054**	24.3	1100
25 (cs)	0.9	**13024065**	22.5	792	**13024054**	28.0	1634
35 (cs)	0.9	**14024065**	26.0	1043	**14024054**	31.5	2000
50 (cs)	1.0	**15024065**	29.0	1337	**15024054**	34.0	2450
70 (cs)	1.1	**16024065**	32.3	1828	**16024054**	39.0	3200
95 (cs)	1.1	**17024065**	36.0	2419	**17024054**	43.5	4149

Current rating and voltage drop
For Unarmoured Cable, please refer to Table 14 & 15 (Page 60)
For Armoured Cable, please refer to Table 16 & 17 (Page 61)

(cs) : Circular Compact Stranded Conductor

LSZH Fire Resistant Cables

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0.6/1kV 2-Core ~ 5-Core
Mica Tape, XLPE Insulated, Unarmoured & Armoured, LSZH Sheathed Cable
Description: CU/MT/XLPE/LSZH-AT-UV or CU/MT/XLPE/LSZH/SWA/LSZH-AT-UV
Model Code: MXL-AT-UV or MXLSL-AT-UV

3-CORE [3C]
(Brown, Black, Grey) (3-phase, three wire)

Conductor	Insulation	Unarmoured Cable			Armoured Cable		
Nominal Area	Thickness	**Part No.**	Approx. Overall Diam.	Approx. Weight	**Part No.**	Approx. Overall Diam.	Approx. Weight
(mm^2)	(mm)		(mm)	(kg/km)		(mm)	(kg/km)
1.5	0.7	**07034623**	12.3	170	**07034049**	17.1	420
2.5	0.7	**08034623**	13.8	200	**08034049**	18.0	500
4	0.7	**09034623**	15.2	300	**09034049**	18.9	600
6	0.7	**10034623**	16.8	380	**10034049**	20.1	883
10	0.7	**11034623**	18.6	550	**11034049**	23.1	1086
16	0.7	**12034623**	21.0	760	**12034049**	25.2	1370
25 (cs)	0.9	**13034623**	24.0	1068	**13034049**	29.2	1900
35 (cs)	0.9	**14034623**	27.4	1420	**14034049**	33.2	2458
50 (cs)	1.0	**15034623**	30.5	1838	**15034049**	36.8	3006
70 (cs)	1.1	**16034623**	34.5	2536	**16034049**	42.0	4206
95 (cs)	1.1	**17034623**	39.0	3401	**17034049**	46.1	5400
120 (cs)	1.2	**18034623**	42.5	4203	**18034049**	49.4	6450
150 (cs)	1.4	**19034623**	46.5	5100	**19034049**	55.0	8200
185 (cs)	1.6	**20034623**	52.0	6357	**20034049**	60.0	9800
240 (cs)	1.7	**21034623**	58.6	8226	**21034049**	68.0	12300
300 (cs)	1.8	**22034623**	64.5	10212	**22034049**	74.2	14800
400 (cs)	2.0	**23034623**	73.0	13000	**23034049**	83.0	17600

3-CORE [3G]
(Brown, Blue, Green/Yellow) (1-phase and earth)

Conductor	Insulation	Unarmoured Cable			Armoured Cable		
Nominal Area	Thickness	**Part No.**	Approx. Overall Diam.	Approx. Weight	**Part No.**	Approx. Overall Diam.	Approx. Weight
(mm^2)	(mm)		(mm)	(kg/km)		(mm)	(kg/km)
1.5	0.7	**07034164**	12.3	170	**07034019**	17.1	420
2.5	0.7	**08034164**	13.8	200	**08034019**	18.0	500
4	0.7	**09034164**	15.2	300	**09034019**	18.9	600
6	0.7	**10034164**	16.8	380	**10034019**	20.1	883
10	0.7	**11034164**	18.6	550	**11034019**	23.1	1086
16	0.7	**12034164**	21.0	760	**12034019**	25.2	1370
25 (cs)	0.9	**13034164**	24.0	1068	**13034019**	29.2	1900
35 (cs)	0.9	**14034164**	27.4	1420	**14034019**	33.2	2458
50 (cs)	1.0	**15034164**	30.5	1838	**15034019**	36.8	3006
70 (cs)	1.1	**16034164**	34.5	2536	**16034019**	42.0	4206
95 (cs)	1.1	**17034164**	39.0	3401	**17034019**	46.1	5400
120 (cs)	1.2	**18034164**	42.5	4203	**18034019**	49.4	6450
150 (cs)	1.4	**19034164**	46.5	5100	**19034019**	55.0	8200
185 (cs)	1.6	**20034164**	52.0	6357	**20034019**	60.0	9800
240 (cs)	1.7	**21034164**	58.6	8226	**21034019**	68.0	12300
300 (cs)	1.8	**22034164**	64.5	10212	**22034019**	74.2	14800
400 (cs)	2.0	**23034164**	73.0	13000	**23034019**	83.0	17600

Current rating and voltage drop
For Unarmoured Cable, please refer to Table 14 & 15 (Page 60)
For Armoured Cable, please refer to Table 16 & 17 (Page 61)

(cs) : Circular Compact Stranded Conductor

LSZH Fire Resistant Cables

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0.6/1kV 2-Core ~ 5-Core
Mica Tape, XLPE Insulated, Unarmoured & Armoured, LSZH Sheathed Cable
Description: CU/MT/XLPE/LSZH-AT-UV or CU/MT/XLPE/LSZH/SWA/LSZH-AT-UV
Model Code: MXL-AT-UV or MXLSL-AT-UV

4-CORE [4C]
(Brown, Black, Grey, Blue) (3-phase and neutral)

Conductor	Insulation	Unarmoured Cable			Armoured Cable		
Nominal Area	Thickness	**Part No.**	Approx. Overall Diam.	Approx. Weight	**Part No.**	Approx. Overall Diam.	Approx. Weight
(mm^2)	(mm)		(mm)	(kg/km)		(mm)	(kg/km)
1.5	0.7	**07044008**	14.3	190	**07044165**	18.0	475
2.5	0.7	**08044008**	15.2	248	**08044165**	18.9	570
4	0.7	**09044008**	16.5	335	**09044165**	20.1	690
6	0.7	**10044008**	18.0	440	**10044165**	22.5	940
10	0.7	**11044008**	20.6	670	**11044165**	24.5	1267
16	0.7	**12044008**	23.0	933	**12044165**	28.1	1776
25 (cs)	0.9	**13044008**	26.7	1364	**13044165**	31.6	2400
35 (cs)	0.9	**14044008**	30.4	1822	**14044165**	36.1	2973
50 (cs)	1.0	**15044008**	34.1	2386	**15044165**	40.6	4027
70 (cs)	1.1	**16044008**	38.5	3324	**16044165**	46.0	5300
95(cs)	1.1	**17044008**	43.0	4435	**17044165**	51.3	6910
120 (cs)	1.2	**18044008**	46.5	5492	**18044165**	55.3	8500
150 (cs)	1.4	**19044008**	51.5	6691	**19044165**	60.2	9683
185 (cs)	1.6	**20044008**	57.5	8341	**20044165**	66.4	11764
240 (cs)	1.7	**21044008**	65.0	10798	**21044165**	74.0	14610
300 (cs)	1.8	**22044008**	71.9	13411	**22044165**	82.0	17598
400 (cs)	2.0	**23044008**	81.0	17000	**23044165**	92.0	25500

4-CORE [4G]
(Brown, Black, Grey, Green/Yellow) (3-phase and earth)

Conductor	Insulation	Unarmoured Cable			Armoured Cable		
Nominal Area	Thickness	**Part No.**	Approx. Overall Diam.	Approx. Weight	**Part No.**	Approx. Overall Diam.	Approx. Weight
(mm^2)	(mm)		(mm)	(kg/km)		(mm)	(kg/km)
1.5	0.7	**07044029**	14.3	190	**07044020**	18.0	475
2.5	0.7	**08044029**	15.2	248	**08044020**	18.9	570
4	0.7	**09044029**	16.5	335	**09044020**	20.1	690
6	0.7	**10044029**	18.0	440	**10044020**	22.5	940
10	0.7	**11044029**	20.6	670	**11044020**	24.5	1267
16	0.7	**12044029**	23.0	933	**12044020**	28.1	1776
25 (cs)	0.9	**13044029**	26.7	1364	**13044020**	31.6	2400
35 (cs)	0.9	**14044029**	30.4	1822	**14044020**	36.1	2973
50 (cs)	1.0	**15044029**	34.1	2386	**15044020**	40.6	4027
70 (cs)	1.1	**16044029**	38.5	3324	**16044020**	46.0	5300
95 (cs)	1.1	**17044029**	43.0	4435	**17044020**	51.3	6910
120 (cs)	1.2	**18044029**	46.5	5492	**18044020**	55.3	8500
150 (cs)	1.4	**19044029**	51.5	6691	**19044020**	60.2	9683
185 (cs)	1.6	**20044029**	57.5	8341	**20044020**	66.4	11764
240 (cs)	1.7	**21044029**	65.0	10798	**21044020**	74.0	14610
300 (cs)	1.8	**22044029**	71.9	13411	**22044020**	82.0	17598
400 (cs)	2.0	**23044029**	81.0	17000	**23044020**	92.0	25500

Current rating and voltage drop
For Unarmoured Cable, please refer to Table 14 & 15 (Page 60)
For Armoured Cable, please refer to Table 16 & 17 (Page 61)

(cs) : Circular Compact Stranded Conductor

LSZH Fire Resistant Cables

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0.6/1kV 2-Core ~ 5-Core
Mica Tape, XLPE Insulated, Unarmoured & Armoured, LSZH Sheathed Cable
Description: CU/MT/XLPE/LSZH-AT-UV or CU/MT/XLPE/LSZH/SWA/LSZH-AT-UV
Model Code: MXL-AT-UV or MXLSL-AT-UV

5-CORE [5G]
(Brown, Black, Grey, Blue, Green/Yellow) (3-phase, neutral and earth)

Conductor	Insulation	Unarmoured Cable			Armoured Cable		
Nominal Area	Thickness	**Part No.**	Approx. Overall Diam.	Approx. Weight	**Part No.**	Approx. Overall Diam.	Approx. Weight
(mm^2)	(mm)		(mm)	(kg/km)		(mm)	(kg/km)
1.5	0.7	**07054810**	15.2	273	**07054163**	19.2	588
2.5	0.7	**08054810**	16.4	330	**08054163**	20.6	674
4	0.7	**09054810**	17.8	434	**09054163**	22.9	928
6	0.7	**10054810**	19.5	547	**10054163**	24.6	1083
10	0.7	**11054810**	22.0	780	**11054163**	27.3	1679
16	0.7	**12054810**	24.8	1105	**12054163**	30.6	2096
25 (cs)	0.9	**13054810**	29.0	1625	**13054163**	34.8	2765
35 (cs)	0.9	**14054810**	33.8	2270	**14054163**	40.0	3415
50 (cs)	1.0	**15054810**	38.0	2876	**15054163**	45.0	4239
70 (cs)	1.1	**16054810**	43.0	3967	**16054163**	50.4	5920
95 (cs)	1.1	**17054810**	48.5	5355	**17054163**	57.2	8053
120 (cs)	1.2	**18054810**	52.6	6750	**18054163**	61.4	9582
150 (cs)	1.4	**19054810**	57.8	8220	**19054163**	67.2	11363
185 (cs)	1.6	**20054810**	64.5	10250	**20054163**	73.5	13725

Current rating and voltage drop
For Unarmoured Cable, please refer to Table 14 & 15 (Page 60)
For Armoured Cable, please refer to Table 16 & 17 (Page 61)

(cs) : Circular Compact Stranded Conductor

LSZH Fire Resistant Cables

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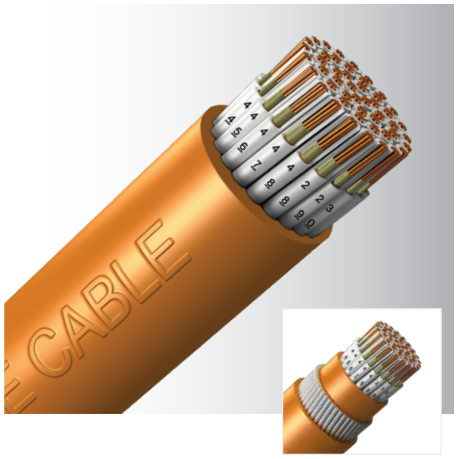
0.6/1kV Multi-Core
Mica Tape, XLPE Insulated, Unarmoured & Armoured, LSZH Sheathed Cable

Description: CU/MT/XLPE/LSZH-AT-UV or CU/MT/XLPE/LSZH/SWA/LSZH-AT-UV

Model Code: MXL-AT-UV or MXLSL-AT-UV

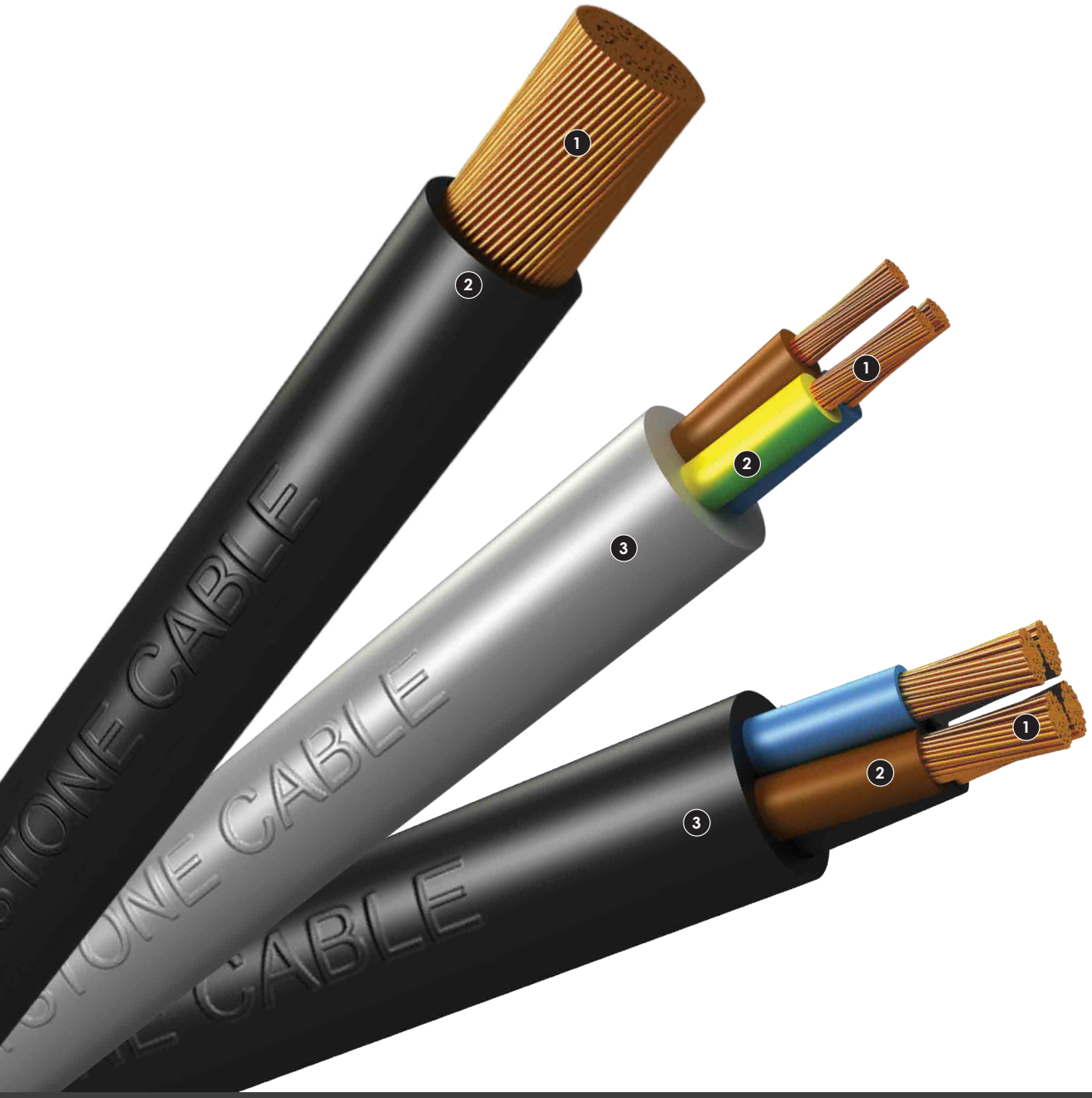


Application :	This cable is designed for areas where the integrity of the electrical circuit is critical in maintaining power supply. Applications include emergency lightings, control and power circuits, power stations, fire alarm systems, sewage treatment plants, and high-rise buildings.
Voltage rating :	0.6/1kV
Construction :	Plain annealed copper (IEC 60228 Class 2), mica tape barrier, XLPE compound insulated, unarmoured or galvanized steel wires armoured, anti-termite and UV resistant LSZH compound sheathed cable
Insulation colour :	White (With black numbering)
Sheath colour :	Orange
Specification :	IEC 60502-1, SS 299, BS 6387, IEC 60331, IEC 60332-1-2, IEC 60332-3, IEC 60754, IEC 61034-2
Operating temperature :	90˚C

Conductor			Insulation	Unarmoured Cable			Armoured Cable		
No. of Core	Nominal Area	No./Diam. of Strand	Thickness	Part No.	Approx. Overall Diam.	Approx. Weight	Part No.	Approx. Overall Diam.	Approx. Weight
	(mm^2)	(mm)	(mm)		(mm)	(kg/km)		(mm)	(kg/km)
5	1.5	7/0.53	0.7	**07054010**	15.3	285	**07054161**	19.3	585
7				**07074010**	16.7	345	**07074161**	20.6	685
10				**07104010**	20.5	457	**07104161**	25.7	1075
12				**07124010**	21.2	512	**07124161**	26.5	1133
19				**07194010**	24.7	715	**07194161**	29.7	1593
27				**07274010**	29.3	1000	**07274161**	35.0	2060
37				**07374010**	32.6	1305	**07374161**	38.3	2450
48				**07484010**	37.3	1640	**07484161**	43.3	2980
5	2.5	7/0.67	0.7	**08054010**	16.3	335	**08054161**	20.8	680
7				**08074010**	17.8	425	**08074161**	23.0	924
10				**08104010**	22.3	580	**08104161**	27.6	1378
12				**08124010**	23.0	650	**08124161**	28.2	1472
19				**08194010**	26.8	935	**08194161**	32.8	1890
27				**08274010**	31.8	1310	**08274161**	37.8	2460
37				**08374010**	35.5	1705	**08374161**	41.6	3000
48				**08484010**	40.9	2180	**08484161**	48.5	4090
5	4	7/0.85	0.7	**09054010**	18.0	450	**09054161**	23.3	990
7				**09074010**	19.6	570	**09074161**	24.8	1145
10				**09104010**	24.6	785	**09104161**	30.4	1665
12				**09124010**	25.4	900	**09124161**	31.2	1810
19				**09194010**	29.5	1305	**09194161**	35.5	2375
27				**09274010**	35.2	1790	**09274161**	41.4	3070
37				**09374010**	39.6	2370	**09374161**	47.3	4210
48				**09484010**	45.8	3060	**09484161**	53.1	5125

Current rating and voltage drop

For Unarmoured Cable, please refer to Table 14 & 15 (Page 60)
For Armoured Cable, please refer to Table 16 & 17 (Page 61)
For Rating Factors, please refer to Table 28 (Page 67)



Flexible Cables

1	Conductor	Plain Annealed Copper
2	Insulation	PVC/LSZH*
3	Oversheath	PVC

* LSZH: Low Smoke Zero Halogen for Single-Core Cable

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300/500V & 450/750V Single-Core LSZH or PVC Insulated, Non-Sheathed Flexible Cable

Description: CU/LSZH or CU/PVC

Model Code: H05Z-K, H07Z-K or H05V2-K, H07V2-K / 07V2-K

Application :	This cable is used for the internal wiring of electric motors and transformers. It is suitable for laying in pipes, surface wiring, and conduit installations. The LSZH version is generally used in public areas where smoke and toxic fumes may cause a threat to safety and equipment.
Voltage rating :	300/500V; 450/750V
Construction :	Plain or tinned copper (IEC 60228 Class 5), cross-linked polyolefin EI 5, or heat-resisting PVC TI 3 insulated cable
Insulation colour :	Brown, Black, Grey, Blue, Green/Yellow (Other colour upon request)
Specification :	BS EN 50525-3-41, BS EN 50525-2-31, IEC 60332-1-2
LSZH test :	IEC 60754, IEC 61034-2
Operating temperature :	90˚C
Certification :	VDE, CE, RoHS

Conductor		Insulation	H05Z-K	H05V2-K	Approx. Overall Diam.	Approx. Weight	Current Rating at 30°C (Method 3) 2 cables single-phase a.c. or d.c.
Nominal Area	Approx. Diam.	Thickness	Part No.	Part No.			
(mm^2)	(mm)	(mm)			(mm)	(kg/km)	(A)
0.5	0.92	0.6	**0401**50**	**0401**34**	2.2	7	12
0.75	1.13	0.6	**0501**50**	**0501**34**	2.4	10	15
1	1.31	0.6	**0601**50**	**0601**34**	2.6	12	18

Conductor		Insulation	H07Z-K	H07V2-K 07V2-K	Approx. Overall Diam.	Approx. Weight	Current Rating at 30°C (Method 3) 3 or 4 cables 3-phase a.c.
Nominal Area	Approx. Diam.	Thickness	Part No.	Part No.			
(mm^2)	(mm)	(mm)			(mm)	(kg/km)	(A)
1.5	1.57	0.7	**0701**50**	**0701**34**	3.1	21	19
2.5	2.04	0.8	**0801**50**	**0801**34**	3.7	33	26
4	2.59	0.8	**0901**50**	**0901**34**	4.3	48	35
6	3.16	0.8	**1001**50**	**1001**34**	4.9	66	45
10	4.3	1.0	**1101**50**	**1101**34**	6.4	112	63
16	5.5	1.0	**1201**50**	**1201**34**	7.5	167	85
25	6.7	1.2	**1301**50**	**1301**34**	9.2	254	111
35	7.9	1.2	**1401**50**	**1401**34**	10.8	340	138
50	9.5	1.4	**1501**50**	**1501**34**	12.8	485	168
70	11.3	1.4	**1601**50**	**1601**34**	14.6	674	214
95	13.0	1.6	**1701**50**	**1701**34**	16.8	894	259
120	14.6	1.6	**1801**50**	**1801**34**	18.4	1110	299
150	16.3	1.8	**1901**50**	**1901**34**	20.5	1400	328
185	18.1	2.0	**2001**50**	**2001**34**	22.7	1700	370
240	20.8	2.2	**2101**50**	**2101**34**	25.8	2230	433

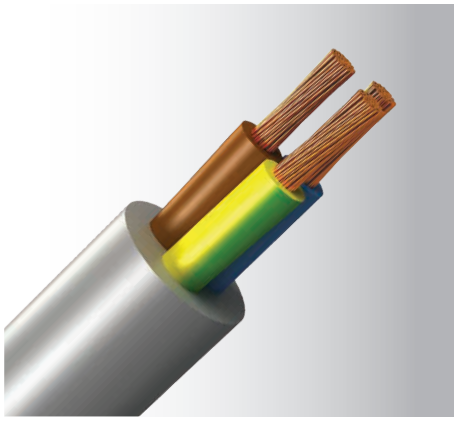
**Stands for colour code: Brown (01) Black (02) Grey (03) Blue (04) Green/Yellow (05)

Current rating and voltage drop
Please refer to Table 10 & 11 (Page 58)

KEYSTONE CABLE
tel (65) 6367 0107 fax (65) 6365 2963
www.keystone-cable.com

250/440V 2-Core ~ 4-Core
PVC Insulated, PVC Sheathed Flexible Cable

Description: CU/PVC/PVC



Application :	This cable is used for general indoor and outdoor purposes including portable tools, washing machines, and vacuum cleaners.
Voltage rating :	250/440V
Construction :	Flexible plain annealed copper conductor, PVC insulated, PVC sheathed cable
Insulation colour :	2-Core: Brown, Blue; 3-Core: Brown, Blue, Green/Yellow; 4-Core: Brown, Black, Blue, Green/Yellow; Brown, Black, Grey, Green/Yellow; (Other colour upon request)
Sheath colour :	Grey (Other colour upon request)
Specification :	BS 2004, IEC 60332-1-2
Operating temperature :	70˚C

2-CORE [2C]
(Brown, Blue) (1-phase and neutral)

Conductor		Insulation	Sheath	Part No.	Approx. Overall Diam.	Approx. Weight
Nominal Area	No./Diam. of Strand	Thickness	Thickness			
(mm^2)	(no./inch)	(mm)	(mm)		(mm)	(kg/km)
0.4	14/0.0076	0.64	1.02	**29023001**	6.6	56
0.7	23/0.0076	0.64	1.02	**30023001**	7.2	70
1.2	40/0.0076	0.64	1.02	**31023001**	7.7	88
2.0	70/0.0076	0.64	1.27	**32023001**	9.2	129
3.2	110/0.0076	0.64	1.27	**33023001**	10.0	167
4.7	162/0.0076	0.76	1.27	**34023001**	11.5	227

3-CORE [3G]
(Brown, Blue, Green/Yellow) (1-phase and earth)

Conductor		Insulation	Sheath	Part No.	Approx. Overall Diam.	Approx. Weight
Nominal Area	No./Diam. of Strand	Thickness	Thickness			
(mm^2)	(no./inch)	(mm)	(mm)		(mm)	(kg/km)
0.4	14/0.0076	0.64	1.02	**29033002**	6.9	67
0.7	23/0.0076	0.64	1.02	**30033002**	7.5	87
1.2	40/0.0076	0.64	1.02	**31033002**	8.2	107
2.0	70/0.0076	0.64	1.27	**32033002**	9.7	158
3.2	110/0.0076	0.64	1.27	**33033002**	10.6	208
4.7	162/0.0076	0.76	1.27	**34033002**	12.2	286

Current rating and voltage drop
Please refer to Table 18 (Page 62)

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250/440V 2-Core ~ 4-Core
PVC Insulated, PVC Sheathed Flexible Cable
Description: CU/PVC/PVC

4-CORE [4G]
(Brown, Black, Blue, Green/Yellow) (1-phase and earth)
Suitable for certain applications

Conductor		Insulation	Sheath	Part No.	Approx. Overall Diam.	Approx. Weight
Nominal Area	No./Diam. of Strand	Thickness	Thickness			
(mm^2)	(no./inch)	(mm)	(mm)		(mm)	(kg/km)
0.4	14/0.0076	0.64	1.02	**29043003**	7.4	79
0.7	23/0.0076	0.64	1.02	**30043003**	8.2	100
1.2	40/0.0076	0.64	1.27	**31043003**	9.4	141
2.0	70/0.0076	0.64	1.27	**32043003**	10.5	192
3.2	110/0.0076	0.64	1.27	**33043003**	11.5	258
4.7	162/0.0076	0.76	1.27	**34043003**	13.5	350

4-CORE [4G]
(Brown, Black, Grey, Green/Yellow) (3-phase and earth)

Conductor		Insulation	Sheath	Part No.	Approx. Overall Diam.	Approx. Weight
Nominal Area	No./Diam. of Strand	Thickness	Thickness			
(mm^2)	(no./inch)	(mm)	(mm)		(mm)	(kg/km)
0.4	14/0.0076	0.64	1.02	**29043809**	7.4	79
0.7	23/0.0076	0.64	1.02	**30043809**	8.2	100
1.2	40/0.0076	0.64	1.27	**31043809**	9.4	141
2.0	70/0.0076	0.64	1.27	**32043809**	10.5	192
3.2	110/0.0076	0.64	1.27	**33043809**	11.5	258
4.7	162/0.0076	0.76	1.27	**34043809**	13.5	350

Current rating and voltage drop
Please refer to Table 18 (Page 62)

KEYSTONE CABLE
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450/750V 1-Core ~ 5-Core
EPR Rubber Insulated, Chlorinated Polyethylene Sheathed Neoprene Cable

Description: CU/EPR/CPE

Model Code: H07RN-F

Application :	This flexible cable can be either installed as a fixed or mobile cable under adverse conditions such as in oily, acidic, or akaline environments, anti-UV and sunlight resistant.
Voltage rating :	450/750V (0.6/1kV REF IEC 60092-353)
Construction :	Plain annealed copper (IEC 60228 Class 5), EPR rubber insulated, chlorinated polyethylene (CPE) sheathed cable
Insulation colour :	1-Core: White; 2-Core: Brown, Blue; 3-Core: Brown, Blue, Green/Yellow; 4-Core: Brown, Black, Grey, Green/Yellow; 5-Core: Brown, Black, Grey, Blue, Green/Yellow; (Other colour upon request)
Sheath colour :	Black
Specification :	BS EN 50525-2-21, IEC 60332-1-2
Operating temperature :	-25˚C to 90˚C
Certification :	VDE

1-CORE [1C]

Conductor Nominal Area	Insulation Thickness	Sheath Thickness	Part No.	Approx. Overall Diam.	Approx. Weight
(mm^2)	(mm)	(mm)		(mm)	(kg/km)
1.5	0.8	1.4	**07019686**	6.0	50
2.5	0.9	1.4	**08019686**	6.5	65
4	1.0	1.5	**09019686**	7.5	90
6	1.0	1.6	**10019686**	8.5	115
10	1.2	1.8	**11019686**	10.0	180
16	1.2	1.9	**12019686**	11.5	255
25	1.4	2.0	**13019686**	13.0	365
35	1.4	2.2	**14019686**	15.0	485
50	1.6	2.4	**15019686**	17.0	680
70	1.6	2.6	**16019686**	19.0	900
95	1.8	2.8	**17019686**	21.5	1160
120	1.8	3.0	**18019686**	23.5	1460
150	2.0	3.2	**19019686**	25.5	1800
185	2.2	3.4	**20019686**	28.5	2200
240	2.4	3.5	**21019686**	31.5	2830
300	2.6	3.6	**22019686**	34.0	3480
400	2.8	3.8	**23019686**	38.5	4500
500	3.0	4.0	**24019686**	44.0	5800

Current rating and voltage drop

Please refer to Table 20 & 21 (Page 63)

KEYSTONE CABLE
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450/750V 1-Core ~ 5-Core
EPR Rubber Insulated, Chlorinated Polyethylene Sheathed Neoprene Cable

Description: CU/EPR/CPE
Model Code: H07RN-F

2-CORE [2C]
(Brown, Blue) (1-phase and neutral)

Conductor Nominal Area	Insulation Thickness	Sheath Thickness	Part No.	Approx. Overall Diam.	Approx. Weight
(mm^2)	(mm)	(mm)		(mm)	(kg/km)
1	0.8	1.3	**06028501**	8.3	90
1.5	0.8	1.5	**07028501**	9.2	115
2.5	0.9	1.7	**08028501**	11.0	165
4	1.0	1.8	**09028501**	12.6	230
6	1.0	2.0	**10028501**	14.2	300
10	1.2	3.1	**11028501**	19.2	545
16	1.2	3.3	**12028501**	22.0	765
25	1.4	3.6	**13028501**	25.4	1090

3-CORE [3G]
(Brown, Blue, Green/Yellow) (1-phase and earth)

Conductor Nominal Area	Insulation Thickness	Sheath Thickness	Part No.	Approx. Overall Diam.	Approx. Weight
(mm^2)	(mm)	(mm)		(mm)	(kg/km)
1	0.8	1.4	**06038502**	9.0	110
1.5	0.8	1.6	**07038502**	10.0	140
2.5	0.9	1.8	**08038502**	12.0	200
4	1.0	1.9	**09038502**	13.5	280
6	1.0	2.1	**10038502**	15.5	375
10	1.2	3.3	**11038502**	20.5	675
16	1.2	3.5	**12038502**	23.5	950
25	1.4	3.8	**13038502**	27.5	1360
35	1.4	4.1	**14038502**	30.5	1795
50	1.6	4.5	**15038502**	35.0	2480
70	1.6	4.8	**16038502**	39.0	3285
95	1.8	5.3	**17038502**	45.3	4210
120	1.8	5.6	**18038502**	49.0	5280
150	2.0	6.0	**19038502**	60.0	6420

Current rating and voltage drop
Please refer to Table 22 & 23 (Page 64)

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450/750V 1-Core ~ 5-Core
EPR Rubber Insulated, Chlorinated Polyethylene Sheathed Neoprene Cable

Description: CU/EPR/CPE
Model Code: H07RN-F

4-CORE [4G]
(Brown, Black, Grey, Green/Yellow) (3-phase and earth)

Conductor Nominal Area	Insulation Thickness	Sheath Thickness	Part No.	Approx. Overall Diam.	Approx. Weight
(mm^2)	(mm)	(mm)		(mm)	(kg/km)
1	0.8	1.5	**06048503**	10.0	135
1.5	0.8	1.7	**07048503**	11.0	170
2.5	0.9	1.9	**08048503**	13.0	250
4	1.0	2.0	**09048503**	15.0	350
6	1.0	2.3	**10048503**	17.0	470
10	1.2	3.4	**11048503**	22.5	830
16	1.2	3.6	**12048503**	25.5	1170
25	1.4	4.1	**13048503**	30.0	1700
35	1.4	4.4	**14048503**	34.0	2300
50	1.6	4.8	**15048503**	39.0	3160
70	1.6	5.2	**16048503**	43.5	4200
95	1.8	5.9	**17048503**	50.0	5450
120	1.8	6.0	**18048503**	54.0	6770

5-CORE [5G]
(Brown, Black, Grey, Blue, Green/Yellow) (3-phase, neutral and earth)

Conductor Nominal Area	Insulation Thickness	Sheath Thickness	Part No.	Approx. Overall Diam.	Approx. Weight
(mm^2)	(mm)	(mm)		(mm)	(kg/km)
1	0.8	1.6	**06058504**	11.0	160
1.5	0.8	1.8	**07058504**	12.0	205
2.5	0.9	2.0	**08058504**	14.5	300
4	1.0	2.2	**09058504**	16.5	420
6	1.0	2.5	**10058504**	19.0	580
10	1.2	3.6	**11058504**	25.0	1120
16	1.2	3.9	**12058504**	28.0	1440
25	1.4	4.4	**13058504**	33.5	2120

Current rating and voltage drop
Please refer to Table 22 & 23 (Page 64)

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KEYFAB™ Prefabricated Branch Cables

1	Conductor	Plain Annealed Copper
2	Fire Barrier	Mica Tape
3	Insulation	XLPE
4	Oversheath	PVC or LSZH*
5	Injection-molded	PVC or LSZH*

* LSZH: Low Smoke Zero Halogen

KEYFAB™ Prefabricated Branch Cables

KEYSTONE CABLE
tel (65) 6367 0107 fax (65) 6365 2963
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0.6/1kV Single-Core
XLPE Insulated, Unarmoured, PVC Sheathed Cable
Description: CU/XLPE/PVC
Model Code: XP

Application :	This cable is used in power supplies and distribution systems for high-rise residentials, commerical buildings, hotels, and factories.
Voltage rating :	0.6/1kV
Construction :	Plain annealed copper (IEC 60228 Class 2), XLPE insulated, unarmoured, PVC sheathed cable
Insulation colour :	Natural
Sheath colour :	Black
Specification :	IEC 60502-1, IEC 60332-1-2
Operating temperature :	90˚C

Conductor			Insulation	Part No.	Unarmoured Cable	
Nominal Area	No./Diam. of Strand	Approx. Diam.	Thickness		Approx. Overall Diam.	Approx. Weight
(mm^2)	(no./mm)	(mm)	(mm)		(mm)	(kg/km)
10	7/1.35	4.05	0.7	**1101B******	8.5	150
16	7/1.70	5.10	0.7	**1201B******	9.5	200
25 (cs)	7/2.14	6.20	0.9	**1301B******	11.5	310
35 (cs)	19/1.53	7.30	0.9	**1401B******	12.5	420
50 (cs)	19/1.78	8.20	1.0	**1501B******	14.0	550
70 (cs)	19/2.14	10.00	1.1	**1601B******	16.3	770
95 (cs)	19/2.52	11.80	1.1	**1701B******	18.2	1040
120 (cs)	37/2.03	13.00	1.2	**1801B******	20.0	1300
150 (cs)	37/2.25	14.40	1.4	**1901B******	22.0	1580
185 (cs)	37/2.52	16.20	1.6	**2001B******	24.5	1970
240 (cs)	61/2.25	18.80	1.7	**2101B******	27.5	2520
300 (cs)	61/2.52	21.20	1.8	**2201B******	30.5	3150
400 (cs)	61/2.85	24.30	2.0	**2301B******	34.0	4000
500 (cs)	61/3.20	27.40	2.2	**2401B******	38.6	5000
630	127/2.52	32.76	2.4	**2501B******	43.5	6500
800	127/2.85	37.05	2.6	**2601B******	48.5	8200
1000	127/3.20	41.60	2.8	**2701B******	53.6	10000

****Stands for branch size, please contact us for more information.
For technical specification, please refer to Table 24 (Page 65)

Current rating and voltage drop
Please refer to Table 10 & 11 (Page 58)

(cs) : Circular Compact Stranded Conductor

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0.6/1kV Single-Core
Mica Tape, XLPE Insulated, Unarmoured, LSZH Sheathed Cable

Description: CU/MT/XLPE/LSZH-AT-UV

Model Code: MXL-AT-UV

Application :	This cable is used in power supplies and distribution systems for high-rise residentials, hospitals, and airports where integrity of the electrical circuit is critical during a fire.
Voltage rating :	0.6/1kV
Construction :	Plain annealed copper (IEC 60228 Class 2), mica tape fire barrier, XLPE insulated, unarmoured, anti-termite and UV resistant LSZH compound sheathed cable
Insulation colour :	Natural
Sheath colour :	Orange
Specification :	IEC 60502-1, SS 299, BS 6387, IEC 60331, IEC 60332-1-2, IEC 60332-3, IEC 60754, IEC 61034-2
Operating temperature :	90˚C

Conductor			Insulation	Part No.	Unarmoured Cable	
Nominal Area	No./Diam. of Strand	Approx. Diam.	Thickness		Approx. Overall Diam.	Approx. Weight
(mm^2)	(no./mm)	(mm)	(mm)		(mm)	(kg/km)
10	7/1.35	4.05	0.7	**1101B******	9.6	170
16	7/1.70	5.10	0.7	**1201B******	10.6	235
25 (cs)	7/2.14	6.20	0.9	**1301B******	12.3	343
35 (cs)	19/1.53	7.30	0.9	**1401B******	13.7	455
50 (cs)	19/1.78	8.20	1.0	**1501B******	15.1	590
70 (cs)	19/2.14	10.00	1.1	**1601B******	16.6	820
95 (cs)	19/2.52	11.80	1.1	**1701B******	19.0	1075
120 (cs)	37/2.03	13.00	1.2	**1801B******	20.5	1350
150 (cs)	37/2.25	14.40	1.4	**1901B******	22.7	1640
185 (cs)	37/2.52	16.20	1.6	**2001B******	25.5	2040
240 (cs)	61/2.25	18.80	1.7	**2101B******	28.5	2650
300 (cs)	61/2.52	21.20	1.8	**2201B******	31.5	3260
400 (cs)	61/2.85	24.30	2.0	**2301B******	35.4	4130
500 (cs)	61/3.20	27.40	2.2	**2401B******	39.0	5200
630	127/2.52	32.76	2.4	**2501B******	43.5	6600
800	127/2.85	37.05	2.6	**2601B******	48.5	8300
1000	127/3.20	41.60	2.8	**2701B******	54.0	10458

****Stands for branch size, please contact us for more information.
For technical specification, please refer to Table 24 (Page 65)

Current rating and voltage drop
Please refer to Table 10 & 11 (Page 58)

(cs) : Circular Compact Stranded Conductor

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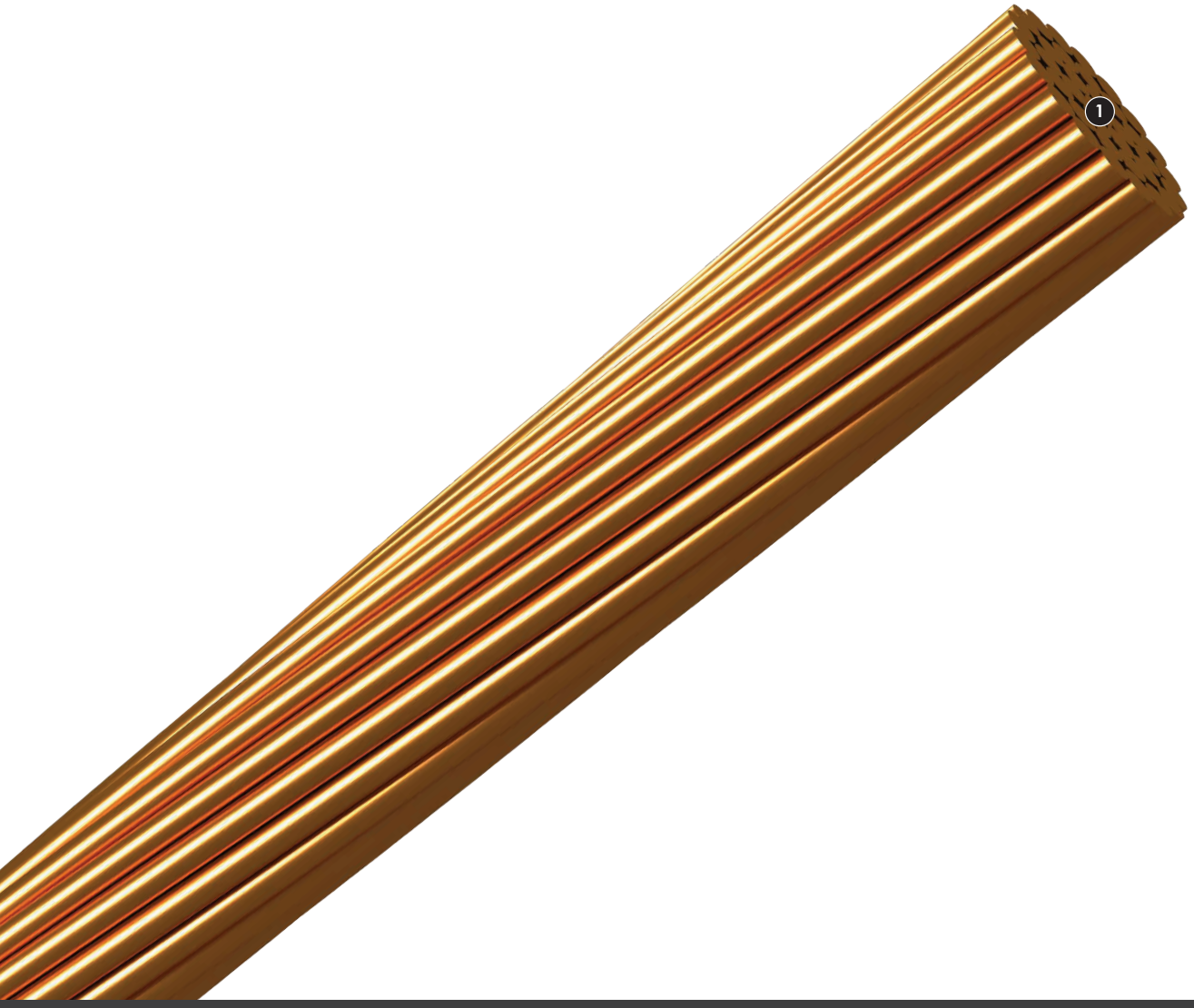

Bare Copper Conductor

1	Conductor	Plain Annealed Copper

Annealed Stranded Bare Copper Conductor (Circular Non-Compacted or Compacted)

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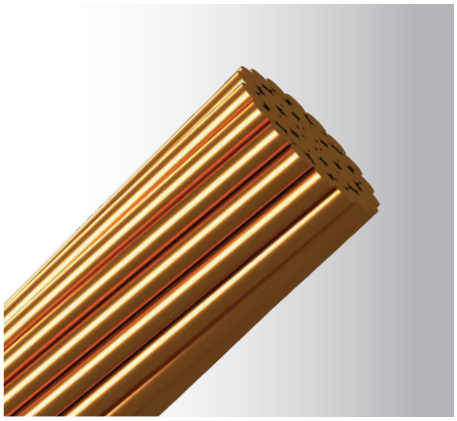

Application :	For power transmission and distribution lines.
Construction :	Plain annealed copper conductor
Specification :	IEC 60228, BS EN 60228

Conductor				Part No.	Maximum Conductor Resistance at 20°C	Approx. Weight
Nominal Area	No./Diam. of Strand	Approx. Diam. (Non-Compacted)	Approx. Diam. (Compacted)			
(mm^2)	(no./mm)	(mm)	(mm)		(Ω/km)	(kg/km)
1	1/1.13	1.13	-	**72010001**	18.1	9
1	7/0.43	1.29	-	**06010002**	18.1	9
1.5	1/1.38	1.38	-	**73010001**	12.1	13
1.5	7/0.53	1.59	-	**07010002**	12.1	14
2.5	1/1.78	1.78	-	**74010001**	7.41	22
2.5	7/0.67	2.01	-	**08010002**	7.41	22
4	7/0.85	2.55	-	**09010002**	4.61	36
6	7/1.04	3.12	-	**10010002**	3.08	54
10	7/1.35	4.05	-	**11010002**	1.83	91
16	7/1.70	5.10	-	**12010002**	1.15	144
25	7/2.14	6.42	6.20	**13010002**	0.727	228
35	19/1.53	7.65	7.30	**14010002**	0.524	317
50	19/1.78	8.90	8.20	**15010002**	0.387	429
70	19/2.14	10.70	10.00	**16010002**	0.268	620
95	19/2.52	12.60	11.80	**17010002**	0.193	859
120	37/2.03	14.21	13.00	**18010002**	0.153	1086
150	37/2.25	15.75	14.40	**19010002**	0.124	1334
185	37/2.52	17.64	16.20	**20010002**	0.0991	1673
240	61/2.25	20.25	18.80	**21010002**	0.0754	2199
300	61/2.52	22.68	21.20	**22010002**	0.0601	2759
400	61/2.85	25.65	24.30	**23010002**	0.0470	3528
500	61/3.20	28.80	27.40	**24010002**	0.0366	4448
630	127/2.52	32.76	-	**25010002**	0.0283	5744
800	127/2.85	37.05	-	**26010002**	0.0221	7346
1000	127/3.20	41.60	-	**27010002**	0.0176	9261

For conductor resistance temperature correction factors, please refer to Table 32 (Page 71)

Technical Information

Schedule of Installation Methods of Cables

(Reference Method Included)

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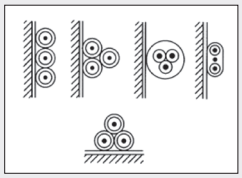
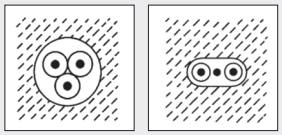
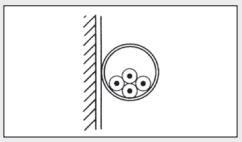
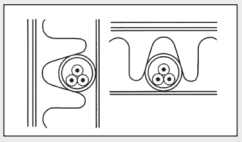
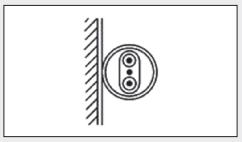
Table 1

No.	Installation Method	Examples	Appropriate Reference Method for Determining Current-Carrying Capacity
1	2	3	4
Open and clipped direct :			
1	Sheathed cables clipped direct to or lying on a non-metallic surface		Method 1
2	Sheathed cables embedded directly in masonry, brickwork, concrete, plaster or the like (other than thermally insulating materials)		Method 1
In conduit :			
3	Single-core non-sheathed cables in metallic or non-metallic conduit on a wall or ceiling		Method 3
4	* Single-core non-sheathed cables in metallic or non-metallic conduit in a thermally insulating wall or above a thermally insulating ceiling, the conduit maintains contact with a thermally conducitve surface on one side		Method 4
5	Multi-core cables having non-metallic sheath, in metallic sheath, in metallic or non-metallic conduit on a wall or ceiling		Method 3

* The wall is assumed to consist of an outer weatherproof skin, thermal insulation and an inner skin of plasterboard or wood-like material, with a coefficient of heat transfer not less than 10 W/m^2K. The conduit is fixed so that it is close to, but not necessarily touching, the inner skin. Heat from the cables is assumed to escape through the inner skin only.

Schedule of Installation Methods of Cables

(Reference Method Included)

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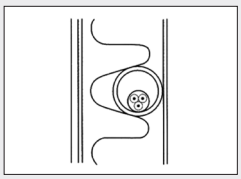
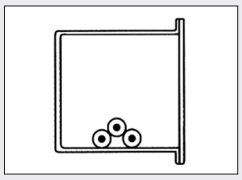
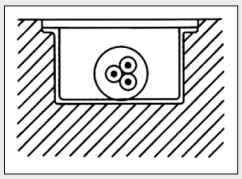
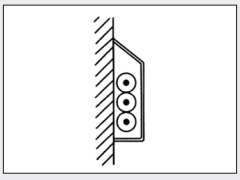
No.	Installation Method	Examples	Appropriate Reference Method for Determining Current-Carrying Capacity
1	2	3	4
In conduit :			
6	Sheathed cables in conduit in a thermally insulating wall etc		Method 4
7	Cables in conduit embedded in masonry, brickwork, concrete, plaster or the like (other than thermally insulating materials)		Method 3
In trunking :			
8	Cables in trunking on a wall or suspended in the air		Method 3
9	Cables in flush floor trunking		Method 3
10	Single-core cables in skirting trunking		Method 3

* The wall is assumed to consist of an outer weatherproof skin, thermal insulation and an inner skin of plasterboard or wood-like material, with a coefficient of heat transfer not less than 10 W/m^{2}K. The conduit is fixed so that it is close to, but not necessarily touching, the inner skin. Heat from the cables is assumed to escape through the inner skin only.

Schedule of Installation Methods of Cables

(Reference Method Included)

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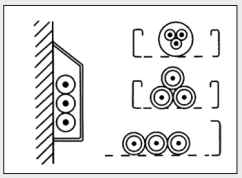
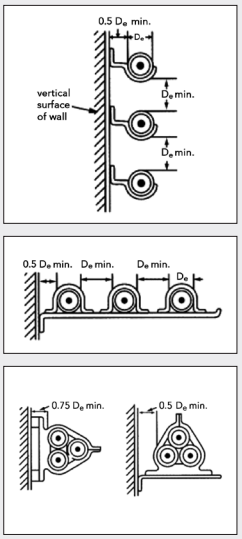
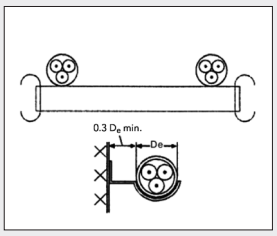
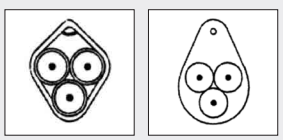
No.	Installation Method	Examples	Appropriate Reference Method for Determining Current-Carrying Capacity
1	2	3	4
On trays :			
11	Sheathed cables, bunched and unenclosed, on a perforated cable tray. A perforated cable tray is considered a tray with holes that occupy at least 30% of the surface area		Method 11
In free air, on cleats, brackets or a ladder :			
12	Sheathed single-core cables in free air (any supporting metalwork under the cables occupying less than 10% of the plan area) Two or three cables vertically one above the other, minimum distance between cable surfaces equal to the overall cable Diam. (D_e); distance from the wall not less than $0.5D_e$ Two or three cables horizontally, with spacings as above Three cables in trefoil, distance between wall and surface of nearest cable $0.5D_e$ or nearest cables $0.75D_e$		Method 12
13	Sheathed multi-core cables on ladder or brackets, with separation greater than $2D_e$. Sheathed multi-core cables in free air distance between wall and cable surface not less than $0.3D_e$. Any supporting metalwork under the cables occupying less than 10% of the plan area		Method 13
14	Cables suspended from or incorporating a catenary wire		Method 12 or 13 as appropriate

* The wall is assumed to consist of an outer weatherproof skin, thermal insulation and an inner skin of plasterboard or wood-like material, with a coefficient of heat transfer not less than 10 W/m^2K. The conduit is fixed so that it is close to, but not necessarily touching, the inner skin. Heat from the cables is assumed to escape through the inner skin only.

Current Rating and Voltage Drop

PVC Insulated Cables
Single-Core, Unarmoured

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Single-Core Cables with PVC Insulation, Unarmoured, with or without Sheath 450/750V or 0.6/1kV

Table 2 : Current-Carrying Capacities (Amp)
[CU/PVC or CU/PVC/PVC Cables]

BS EN 50525-2-31 (BS 6004)
IEC 60502-1 (BS 6346)
SS 358-3

Conductor Operating Temperature : 70°C
Ambient Temperature : 30°C

Conductor Cross-sectional Area	Reference Method 4 (enclosed in conduit in thermally insulating wall etc.)		Reference Method 3 (enclosed in conduit on a wall or in trunking etc.)		Reference Method 1 (clipped direct)		Reference Method 11 (on a perforated cable tray horizontal or vertical)		Reference Method 12 (in free air)		
									Horizontal flat spaced	Vertical flat spaced	Trefoil
	2 cables, 1-phase a.c. or d.c.	3 or 4 cables, 3-phase a.c.	2 cables, 1-phase a.c. or d.c.	3 or 4 cables, 3-phase a.c.	2 cables, 1-phase a.c. or d.c. flat and touching	3 or 4 cables, 3-phase a.c. flat and touching or trefoil	2 cables, 1-phase a.c. or d.c. flat and touching	3 or 4 cables, 3-phase a.c. flat and touching or trefoil	2 cables, 1-phase a.c. or d.c. or 3 cables 3-phase a.c.	2 cables, 1-phase a.c. or d.c. or 3 cables 3-phase a.c.	3 cables trefoil, 3-phase a.c.
1	2	3	4	5	6	7	8	9	10	11	12
mm²	A	A	A	A	A	A	A	A	A	A	A
1	11	10.5	13.5	12	15.5	14	-	-	-	-	-
1.5	14.5	13.5	17.5	15.5	20	18	-	-	-	-	-
2.5	19.5	18	24	21	27	25	-	-	-	-	-
4	26	24	32	28	37	33	-	-	-	-	-
6	34	31	41	36	47	43	-	-	-	-	-
10	46	42	57	50	65	59	-	-	-	-	-
16	61	56	76	68	87	79	-	-	-	-	-
25	80	73	101	89	114	104	126	112	146	130	110
35	99	89	125	110	141	129	156	141	181	162	137
50	119	108	151	134	182	167	191	172	219	197	167
70	151	136	192	171	234	214	246	223	281	254	216
95	182	164	232	207	284	261	300	273	341	311	264
120	210	188	269	239	330	303	349	318	396	362	308
150	240	216	300	262	381	349	404	369	456	419	356
185	273	245	341	296	436	400	463	424	521	480	409
240	320	286	400	346	515	472	549	504	615	569	485
300	367	328	458	394	594	545	635	584	709	659	561
400	-	-	546	467	694	634	732	679	852	795	656
500	-	-	626	533	792	723	835	778	982	920	749
630	-	-	720	611	904	826	953	892	1138	1070	855
800	-	-	-	-	1030	943	1086	1020	1265	1188	971
1000	-	-	-	-	1154	1058	1216	1149	1420	1337	1079

Note : For rating factors of ambient temperature other than 30°C, please refer to Table 25 (Page 66)

Table 3 : Voltage Drop (Per Amp, Per Meter)
[CU/PVC or CU/PVC/PVC Cables]

BS EN 50525-2-31 (BS 6004)
IEC 60502-1 (BS 6346)
SS 358-3

Conductor Operating Temperature : 70°C

Conductor Cross-sectional Area	2 cables, d.c.	2 cables,1-phase a.c.									3 or 4 cables, 3-phase a.c.											
		Reference Methods 3 & 4 (enclosed in conduit etc, in or on a wall)			Reference Methods 1 & 11 (clipped direct or on trays, touching)			Reference Method 12 (spaced)			Reference Methods 3 & 4 (enclosed in conduit etc, in or on a wall)			Reference Methods 1, 11 & 12 (trefoil)			Reference Methods 1 & 11 (flat touching)			Reference Method 12 (flat spaced)		
1	2	3			4			5			6			7			8			9		
mm²	mV/A/m	mV/A/m			mV/A/m			mV/A/m			mV/A/m			mV/A/m			mV/A/m			mV/A/m		
1	44	44			44			44			38			38			38			38		
1.5	29	29			29			29			25			25			25			25		
2.5	18	18			18			18			15			15			15			15		
4	11	11			11			11			9.5			9.5			9.5			9.5		
6	7.3	7.3			7.3			7.3			6.4			6.4			6.4			6.4		
10	4.4	4.4			4.4			4.4			3.8			3.8			3.8			3.8		
16	2.8	2.8			2.8			2.8			2.4			2.4			2.4			2.4		
		r	x	z	r	x	z	r	x	z	r	x	z	r	x	z	r	x	z	r	x	z
25	1.75	1.80	0.33	1.80	1.75	0.20	1.75	1.75	0.29	1.80	1.50	0.29	1.55	1.50	0.175	1.50	1.50	0.25	1.55	1.50	0.32	1.55
35	1.25	1.30	0.31	1.30	1.25	0.195	1.25	1.25	0.28	1.30	1.10	0.27	1.10	1.10	0.170	1.10	1.10	0.24	1.10	1.10	0.32	1.15
50	0.93	0.95	0.30	1.00	0.93	0.190	0.95	0.93	0.28	0.97	0.81	0.26	0.85	0.80	0.165	0.82	0.80	0.24	0.84	0.80	0.32	0.86
70	0.63	0.65	0.29	0.72	0.63	0.185	0.66	0.63	0.27	0.69	0.56	0.25	0.61	0.55	0.160	0.57	0.55	0.24	0.60	0.55	0.31	0.63
95	0.46	0.49	0.28	0.56	0.47	0.180	0.50	0.47	0.27	0.54	0.42	0.24	0.48	0.41	0.155	0.43	0.41	0.23	0.47	0.40	0.31	0.51
120	0.36	0.39	0.27	0.47	0.37	0.175	0.41	0.37	0.26	0.45	0.33	0.23	0.41	0.32	0.150	0.36	0.32	0.23	0.40	0.32	0.30	0.44
150	0.29	0.31	0.27	0.41	0.30	0.175	0.34	0.29	0.26	0.39	0.27	0.23	0.36	0.26	0.150	0.30	0.26	0.23	0.34	0.26	0.30	0.40
185	0.23	0.25	0.27	0.37	0.24	0.170	0.29	0.24	0.26	0.35	0.22	0.23	0.32	0.21	0.145	0.26	0.21	0.22	0.31	0.21	0.30	0.36
240	0.180	0.195	0.26	0.33	0.185	0.165	0.25	0.185	0.25	0.31	0.17	0.23	0.29	0.160	0.145	0.22	0.160	0.22	0.27	0.160	0.29	0.34
300	0.145	0.160	0.26	0.31	0.150	0.165	0.22	0.150	0.25	0.29	0.14	0.23	0.27	0.130	0.140	0.190	0.130	0.22	0.25	0.130	0.29	0.32
400	0.105	0.130	0.26	0.29	0.120	0.160	0.20	0.115	0.25	0.27	0.12	0.22	0.25	0.105	0.140	0.175	0.105	0.21	0.24	0.100	0.29	0.31
500	0.086	0.110	0.26	0.28	0.098	0.155	0.185	0.093	0.24	0.26	0.10	0.22	0.25	0.086	0.135	0.160	0.086	0.21	0.23	0.081	0.29	0.30
630	0.068	0.094	0.25	0.27	0.081	0.155	0.175	0.076	0.24	0.25	0.08	0.22	0.24	0.072	0.135	0.150	0.072	0.21	0.22	0.066	0.28	0.29
800	0.053	-	-	-	0.068	0.150	0.165	0.061	0.24	0.25	-	-	-	0.060	0.130	0.145	0.060	0.21	0.22	0.053	0.28	0.29
1000	0.042	-	-	-	0.059	0.150	0.160	0.050	0.24	0.24	-	-	-	0.052	0.130	0.140	0.052	0.20	0.21	0.044	0.28	0.28

Note : r = resistive component; x = reactive component; z = impedance value

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Single-Core Cables with PVC Insulation, Armoured, PVC Outersheath 0.6/1kV

Table 4 : Current-Carrying Capacities (Amp)
[CU/PVC/PVC/AWA/PVC Cables]

Conductor Operating Temperature : 70°C — IEC 60502-1 (BS 6346)
Ambient Temperature : 30°C
Ground Temperature : 15°C — Depth of Laying : 0.5m — Soil Thermal Resistivity : 1.2 k•m/W

Conductor Cross-sectional Area	Reference Method 1 (clipped direct)		Reference Method 11 (on perforated cable tray)		Reference Method 12 (in free air)					Direct in ground		In single way ducts	
	2 cables, 1-phase a.c. or d.c.	3 or 4 cables, 3-phase a.c.	2 cables, 1-phase a.c. flat & touching	3 or 4 cables, 3-phase a.c. flat & touching	3 or 4 cables, 3-phase a.c.			2 cables, d.c.		2 cables, 1-phase a.c. or d.c. flat touching	3 cables, 3-phase a.c. trefoil touching	2 cables, 1-phase a.c. or d.c. duct touching	3 cables, 3-phase a.c. trefoil touching
					Horizontal flat spaced	Vertical flat spaced	3 cables, trefoils	Horizontal spaced	Vertical spaced				
1	2	3	4	5	6	7	8	9	10	11	12	13	14
mm²	A	A	A	A	A	A	A	A	A	A	A	A	A
50	193	179	205	189	230	212	181	229	216	238	203	216	199
70	245	225	259	238	286	263	231	294	279	292	248	262	241
95	296	269	313	285	338	313	280	357	340	349	297	308	282
120	342	309	360	327	385	357	324	415	396	396	337	341	311
150	393	352	413	373	436	405	373	479	458	443	376	375	342
185	447	399	469	422	490	456	425	548	525	497	423	414	375
240	525	465	550	492	566	528	501	648	622	571	485	463	419
300	594	515	624	547	616	578	567	748	719	640	542	509	459
400	687	575	723	618	674	632	657	885	851	708	600	545	489
500	763	622	805	673	721	676	731	1035	997	780	660	585	523
630	843	669	891	728	771	723	809	1218	1174	856	721	632	563
800	919	710	976	777	824	772	886	1441	1390	895	756	662	587
1000	975	737	1041	808	872	816	946	1685	1627	939	797	703	621

Note : For rating factors of ambient temperature other than 30°C, please refer to Table 25 (Page 66)
For rating factors for ground temperature other than 15°C, please refer to Table 26 (Page 66)

Table 5 : Voltage Drop (Per Amp Per Meter)
[CU/PVC/PVC/AWA/PVC Cables]

Conductor Operating Temperature : 70°C — IEC 60502-1 (BS 6346)

Conductor Cross-sectional Area	2 cables, d.c.	2 cables, 1-phase a.c.						3 or 4 cables, 3-phase a.c.									Direct in ground		In single way ducts	
		Reference Methods 1 & 11 (touching)			Reference Method 12 (spaced*)			Reference Methods 1, 11 & 12 (in trefoil touching)			Reference Methods 1 & 11 (flat touching)			Reference Method 12 (flat spaced*)			2 cables, 1-phase a.c. flat touching	3 cables, 3-phase a.c. trefoil touching	2 cables, 1-phase a.c. flat touching	3 cables, 3-phase a.c. trefoil touching
1	2	3			4			5			6			7			8	9	10	11
mm²	mV/A/m	mV/A/m			mV/A/m			mV/A/m			mV/A/m			mV/A/m			mV/A/m	mV/A/m	mV/A/m	mV/A/m
		r	x	z	r	x	z	r	x	z	r	x	z	r	x	z				
50	0.93	0.93	0.22	0.95	0.92	0.30	0.97	0.80	0.190	0.82	0.79	0.26	0.84	0.79	0.34	0.86	0.97	0.82	1.00	0.88
70	0.63	0.64	0.21	0.68	0.66	0.29	0.72	0.56	0.180	0.58	0.57	0.25	0.62	0.59	0.32	0.68	0.67	0.58	0.76	0.66
95	0.46	0.48	0.20	0.52	0.51	0.28	0.58	0.42	0.175	0.45	0.44	0.25	0.50	0.47	0.31	0.57	0.50	0.44	0.61	0.53
120	0.36	0.39	0.195	0.43	0.42	0.28	0.50	0.33	0.17	0.37	0.36	0.24	0.43	0.40	0.30	0.50	0.42	0.36	0.54	0.47
150	0.29	0.31	0.19	0.37	0.34	0.27	0.44	0.27	0.165	0.32	0.30	0.24	0.38	0.34	0.30	0.45	0.36	0.31	0.48	0.42
185	0.23	0.26	0.19	0.32	0.29	0.27	0.39	0.22	0.160	0.27	0.25	0.23	0.34	0.29	0.29	0.41	0.31	0.27	0.44	0.38
240	0.180	0.20	0.180	0.27	0.23	0.26	0.35	0.175	0.160	0.23	0.20	0.23	0.30	0.24	0.28	0.37	0.26	0.23	0.40	0.34
300	0.145	0.160	0.180	0.24	0.190	0.26	0.32	0.140	0.155	0.21	0.165	0.22	0.28	0.20	0.28	0.34	0.23	0.20	0.37	0.32
400	0.105	0.140	0.175	0.22	0.180	0.24	0.30	0.120	0.150	0.195	0.160	0.21	0.26	0.21	0.25	0.32	0.22	0.19	0.34	0.30
500	0.086	0.120	0.170	0.21	0.165	0.23	0.29	0.105	0.145	0.180	0.145	0.20	0.25	0.190	0.24	0.30	0.20	0.18	0.32	0.28
630	0.068	0.105	0.165	0.195	0.150	0.22	0.27	0.091	0.145	0.170	0.135	0.195	0.23	0.175	0.22	0.28	0.19	0.16	0.30	0.26
800	0.053	0.095	0.160	0.185	0.145	0.21	0.25	0.082	0.140	0.160	0.125	0.180	0.22	0.170	0.195	0.26	-	-	-	-
1000	0.042	0.091	0.155	0.180	0.140	0.190	0.24	0.079	0.135	0.155	0.125	0.165	0.21	0.165	0.170	0.24	-	-	-	-

Note : r = resistive component; x = reactive component; z = impedance value

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Table 6 : Current-Carrying Capacities (Amp)
[CU/PVC/PVC Cables]

Conductor Operating Temperature : 70°C
Ambient Temperature : 30°C

IEC 60502-1 (BS 6346)

Conductor Cross-sectional Area	Reference Method 4 (enclosed in an insulated wall etc)		Reference Method 3 (enclosed in conduit on a wall or ceiling, or in trunking)		Reference Method 1 (clipped direct)		Reference Method 11 (on perforated cable tray), or Reference Method 13 (in free air)	
	one 2-core cable*, 1-phase a.c. or d.c.	one 3-core* or 4-core cable, 3-phase a.c.	one 2-core cable*, 1-phase a.c. or d.c.	one 3-core* or 4-core cable, 3-phase a.c.	one 2-core cable*, 1-phase a.c. or d.c.	one 3-core* or 4-core cable, 3-phase a.c.	one 2-core cable*, 1-phase a.c. or d.c.	one 3-core* or 4-core cable, 3-phase a.c.
1	2	3	4	5	6	7	8	9
mm²	A	A	A	A	A	A	A	A
1	11	10	13	11.5	15	13.5	17	14.5
1.5	14	13	16.5	15	19.5	17.5	22	18.5
2.5	18.5	17.5	23	20	27	24	30	25
4	25	23	30	27	36	32	40	34
6	32	29	38	34	46	41	51	43
10	43	39	52	46	63	57	70	60
16	57	52	69	62	85	76	94	80
25	75	68	90	80	112	96	119	101
35	92	83	111	99	138	119	148	126
50	110	99	133	118	168	144	180	153
70	139	125	168	149	213	184	232	196
95	167	150	201	179	258	223	282	238
120	192	172	232	206	299	259	328	276
150	219	196	258	225	344	299	379	319
185	248	223	294	255	392	341	434	364
240	291	261	344	297	461	403	514	430
300	334	298	394	339	530	464	593	497
400	-	-	470	402	634	557	715	597

*With or without protective conductor

Note : For rating factors of ambient temperature other than 30°C, please refer to Table 25 (Page 66)

Table 7 : Voltage Drop (Per Amp Per Meter)
[CU/PVC/PVC Cables]

Conductor Operating Temperature : 70°C

IEC 60502-1 (BS 6346)

Conductor Cross-sectional Area	2-core cable, d.c.	2-core cable, 1-phase a.c.			3-core or 4-core cable, 3-phase a.c.		
1	2	3			4		
mm²	mV/A/m	mV/A/m			mV/A/m		
1	44	44			38		
1.5	29	29			25		
2.5	18	18			15		
4	11	11			9.5		
6	7.3	7.3			6.4		
10	4.4	4.4			3.8		
16	2.8	2.8			2.4		
		r	x	z	r	x	z
25	1.75	1.75	0.170	1.75	1.50	0.145	1.50
35	1.25	1.25	0.165	1.25	1.10	0.145	1.10
50	0.93	0.93	0.165	0.94	0.80	0.140	0.81
70	0.63	0.63	0.160	0.65	0.55	0.140	0.57
95	0.46	0.47	0.155	0.50	0.41	0.135	0.43
120	0.36	0.38	0.155	0.41	0.33	0.135	0.35
150	0.29	0.30	0.155	0.34	0.26	0.130	0.29
185	0.23	0.25	0.150	0.29	0.21	0.130	0.25
240	0.180	0.190	0.150	0.24	0.165	0.130	0.21
300	0.145	0.155	0.145	0.21	0.135	0.130	0.185
400	0.105	0.115	0.145	0.185	0.100	0.125	0.160

Note : r = resistive component; x = reactive component; z = impedance value

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Table 8 : Current-Carrying Capacities (Amp)
[CU/PVC/PVC/SWA/PVC Cables]

Conductor Operating Temperature : 70°C — IEC 60502-1 (BS 6346)
Ambient Temperature : 30°C
Ground Temperature : 15°C — Depth of Laying : 0.5m — Soil Thermal Resistivity : 1.2 k•m/W

Conductor Cross-sectional Area	Reference Method 1 (clipped direct)		Reference Method 11 (on a perforated horizontal cable tray) or Reference Method 13 (in free air)		Direct in ground		In single way ducts	
	one 2-core cable, 1-phase a.c. or d.c.	one 3-core or 4-core cable, 3-phase a.c.	one 2-core cable, 1-phase a.c. or d.c.	one 3-core or 4-core cable, 3-phase a.c.	one 2-core cable, 1-phase a.c. or d.c.	one 3-core or 4-core cable, 3-phase a.c.	one 2-core cable, 1-phase a.c. or d.c.	one 3-core or 4-core cable, 3-phase a.c.
1	2	3	4	5	6	7	8	9
mm²	A	A	A	A	A	A	A	A
1.5	21	18	22	19	32	27	26	22
2.5	28	25	31	26	41	35	34	29
4	38	33	41	35	55	47	45	38
6	49	42	53	45	69	59	57	48
10	67	58	72	62	92	78	76	64
16	89	77	97	83	119	101	98	83
25	118	102	128	110	158	132	129	107
35	145	125	157	135	190	159	154	126
50	175	151	190	163	225	188	183	153
70	222	192	241	207	277	233	225	190
95	269	231	291	251	332	279	271	228
120	310	267	336	290	377	317	309	260
150	356	306	386	332	422	355	346	292
185	405	348	439	378	478	401	393	331
240	476	409	516	445	551	462	455	382
300	547	469	592	510	616	517	510	428
400	621	540	683	590	693	580	574	490

Note : For rating factors of ambient temperature other than 30°C, please refer to Table 25 (Page 66)
For rating factors of ground temperature other than 15°C, please refer to Table 26 (Page 66)

Table 9 : Voltage Drop (Per Amp Per Meter)
[CU/PVC/PVC/SWA/PVC Cables]

Conductor Operating Temperature : 70°C — IEC 60502-1 (BS 6346)

Conductor Cross-sectional Area	2-core cable, d.c.	2-core cable, 1-phase a.c.			3-core or 4-core cable, 3-phase a.c.			Direct in ground		In single way ducts	
								2-core cable, 1-phase a.c.	3-core or 4-core cable, 3-phase a.c.	2-core cable, 1-phase a.c.	3-core or 4-core cable, 3-phase a.c.
1	2	3			4			5	6	7	8
mm²	mV/A/m	mV/A/m			mV/A/m			mV/A/m	mV/A/m	mV/A/m	mV/A/m
1.5	29	29			25			29	25	29	25
2.5	18	18			15			18	15	18	15
4	11	11			9.5			11	9.5	11	9.5
6	7.3	7.3			6.4			7.4	6.4	7.4	6.4
10	4.4	4.4			3.8			4.4	3.8	4.4	3.8
16	2.8	2.8			2.4			2.8	2.4	2.8	2.4
		r	x	z	r	x	z				
25	1.75	1.75	0.17	1.75	1.5	0.145	1.5	1.7	1.5	1.7	1.5
35	1.25	1.25	0.165	1.25	1.1	0.145	1.1	1.3	1.1	1.3	1.1
50	0.93	0.93	0.165	0.94	0.8	0.14	0.81	0.94	0.82	0.94	0.82
70	0.63	0.63	0.16	0.65	0.55	0.14	0.57	0.66	0.57	0.66	0.57
95	0.46	0.47	0.155	0.5	0.41	0.135	0.43	0.49	0.42	0.49	0.42
120	0.36	0.38	0.155	0.41	0.33	0.135	0.35	0.4	0.35	0.40	0.35
150	0.29	0.30	0.155	0.34	0.26	0.13	0.29	0.34	0.29	0.34	0.29
185	0.23	0.25	0.15	0.29	0.21	0.13	0.25	0.29	0.25	0.29	0.25
240	0.18	0.19	0.15	0.24	0.165	0.13	0.21	0.24	0.21	0.24	0.21
300	0.145	0.155	0.145	0.21	0.135	0.13	0.185	0.21	0.18	0.21	0.18
400	0.105	0.115	0.145	0.185	0.1	0.125	0.16	0.19	0.17	0.19	0.17

Note : r = resistive component; x = reactive component; z = impedance value

Current Rating and Voltage Drop

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Table 10 : Current-Carrying Capacities (Amp)

[CU/LSZH, CU/XLPE/PVC, CU/XLPE/LSZH, CU/MT/LSZH or CU/MT/XLPE/LSZH Cables]

Conductor Operating Temperature : 90°C
Ambient Temperature : 30°C

BS EN 50525-3-41 (BS 7211)
BS 8592
IEC 60502-1

Conductor Cross-sectional Area	Reference Method 4 (enclosed in conduit in thermally insulating wall etc)		Reference Method 3 (enclosed in conduit on a wall or in trunking etc)		Reference Method 1 (clipped direct)		Reference Method 11 (on a perforated cable tray, horizontal or vertical)		Reference Method 12 (in free air)		
									Horizontal flat spaced	Vertical flat spaced	Trefoil
	2 cables, 1-phase a.c. or d.c.	3 or 4 cables, 3-phase a.c.	2 cables, 1-phase a.c. or d.c	3 or 4 cables, 3-phase a.c.	2 cables, 1-phase a.c. or d.c. flat and touching	3 or 4 cables, 3-phase a.c. flat and touching or trefoil	2 cables, 1-phase a.c. or d.c. flat and touching	3 or 4 cables, 3-phase a.c. flat and touching or trefoil	2 cables, 1-phase a.c. or d.c. or 3 cables 3-phase a.c.	2 cables, 1-phase a.c. or d.c. or 3 cables 3-phase a.c.	3 cables trefoil, 3-phase a.c.
1	2	3	4	5	6	7	8	9	10	11	12
mm²	A	A	A	A	A	A	A	A	A	A	A
1.5	18	17	22	19	25	23	-	-	-	-	-
2.5	24	23	30	26	34	31	-	-	-	-	-
4	33	30	40	35	46	41	-	-	-	-	-
6	43	39	51	45	59	54	-	-	-	-	-
10	58	53	71	63	81	74	-	-	-	-	-
16	76	70	95	85	109	99	-	-	-	-	-
25	100	91	126	111	143	130	158	140	183	163	138
35	124	111	156	138	176	161	195	176	226	203	171
50	149	135	189	168	228	209	239	215	274	246	209
70	189	170	240	214	293	268	308	279	351	318	270
95	228	205	290	259	355	326	375	341	426	389	330
120	263	235	336	299	413	379	436	398	495	453	385
150	300	270	375	328	476	436	505	461	570	524	445
185	341	306	426	370	545	500	579	530	651	600	511
240	400	358	500	433	644	590	686	630	769	711	606
300	459	410	573	493	743	681	794	730	886	824	701
400	-	-	683	584	868	793	915	849	1065	994	820
500	-	-	783	666	990	904	1044	973	1228	1150	936
630	-	-	900	764	1130	1033	1191	1115	1423	1338	1069
800	-	-	-	-	1288	1179	1358	1275	1581	1485	1214
1000	-	-	-	-	1443	1323	1520	1436	1775	1671	1349

Note : For rating factors of ambient temperature other than 30°C, please refer to Table 25 (Page 66)

Table 11 : Voltage Drop (Per Amp Per Meter)

[CU/LSZH, CU/XLPE/PVC, CU/XLPE/LSZH, CU/MT/LSZH or CU/MT/XLPE/LSZH Cables]

Conductor Operating Temperature : 90°C

BS EN 50525-3-41 (BS 7211)
BS 8592
IEC 60502-1

Conductor Cross-sectional Area	2 cables, d.c.	2 cables, 1-phase a.c.						3 or 4 cables, 3-phase a.c.								
		Reference Methods 3 and 4 (enclosed in conduit etc, in or on a wall)			Reference Methods 1 and 11 (clipped direct or on trays touching)			Reference Methods 3 and 4 (enclosed in conduit etc, in or on a wall)			Reference Methods 1, 11 and 12 (trefoil)			Reference Methods 1 and 11 (flat and touching)		
1	2	3			4			5			6			7		
mm²	mV/A/m	mV/A/m			mV/A/m			mV/A/m			mV/A/m			mV/A/m		
1.5	31	31			27			27			27			27		
2.5	19	19			16			16			16			16		
4	12	12			10			10			10			10		
6	7.9	7.9			6.8			6.8			6.8			6.8		
10	4.7	4.7			4.7			4.0			4			4		
16	2.9	2.9			2.9			2.5			2.5			2.5		
		r	x	z	r	x	z	r	x	z	r	x	z	r	x	z
25	1.85	1.85	0.31	1.90	1.85	0.190	1.85	1.60	0.27	1.65	1.60	0.165	1.60	1.60	0.190	1.60
35	1.35	1.35	0.29	1.35	1.35	0.180	1.35	1.15	0.25	1.15	1.15	0.155	1.15	1.15	0.180	1.15
50	0.99	1.00	0.29	1.05	0.99	0.180	1.00	0.87	0.25	0.90	0.86	0.155	0.87	0.86	0.180	0.87
70	0.68	0.70	0.28	0.75	0.68	0.175	0.71	0.60	0.24	0.65	0.59	0.150	0.61	0.59	0.175	0.62
95	0.49	0.51	0.27	0.58	0.49	0.170	0.52	0.44	0.23	0.50	0.43	0.145	0.45	0.43	0.170	0.46
120	0.39	0.41	0.26	0.48	0.39	0.165	0.43	0.35	0.23	0.42	0.34	0.140	0.37	0.34	0.165	0.38
150	0.32	0.33	0.26	0.43	0.32	0.165	0.36	0.29	0.23	0.37	0.28	0.140	0.31	0.28	0.165	0.32
185	0.25	0.27	0.26	0.37	0.26	0.165	0.30	0.23	0.23	0.32	0.22	0.140	0.26	0.22	0.165	0.28
240	0.190	0.21	0.26	0.33	0.20	0.160	0.25	0.185	0.22	0.29	0.170	0.140	0.22	0.170	0.165	0.24
300	0.155	0.175	0.25	0.31	0.160	0.160	0.22	0.150	0.22	0.27	0.140	0.140	0.195	0.135	0.160	0.21
400	0.12	0.140	0.25	0.29	0.130	0.155	0.20	0.125	0.22	0.25	0.110	0.135	0.175	0.110	0.160	0.195
500	0.093	0.120	0.25	0.28	0.105	0.155	0.185	0.100	0.22	0.24	0.090	0.135	0.160	0.088	0.160	0.180
630	0.072	0.100	0.25	0.27	0.086	0.155	0.175	0.088	0.21	0.23	0.074	0.135	0.150	0.071	0.160	0.170
800	0.056	-	-	-	0.072	0.150	0.170	-	-	-	0.062	0.130	0.145	0.059	0.155	0.165
1000	0.045	-	-	-	0.063	0.150	0.165	-	-	-	0.055	0.130	0.140	0.050	0.155	0.165

Note : r = resistive component; x = reactive component; z = impedance value

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Table 12 : Current-Carrying Capacities (Amp)

[CU/XLPE/PVC/AWA/PVC, CU/XLPE/LSZH/AWA/LSZH, CU/MT/XLPE/LSZH/AWA/LSZH Cables]

Conductor Operating Temperature : 90°C — BS 6724
Ambient Temperature : 30°C — IEC 60502-1
Ground Temperature : 15°C — Depth of Laying : 0.5m — Soil Thermal Resistivity : 1.2 k•m/W

Conductor Cross-sectional Area	Reference Method 1 (clipped direct)		Reference Method 11 (on a perforated cable tray)		Reference Method 12 (in free air)	In single-way ducts		Laid direct in ground	
	2 cables, 1-phase a.c. or d.c. flat and touching	3 or 4 cables, 3-phase a.c. flat and touching	2 cables, 1-phase a.c. or d.c. flat and touching	3 or 4 cables, 3-phase a.c. flat and touching	3 cables, 3-phase a.c. trefoil touching	2 cables, 1-phase a.c. or d.c. ducts touching	3 cables, 3-phase a.c. trefoil touching	2 cables, 1-phase a.c. or d.c. touching	3 cables, 3-phase a.c. trefoil touching
1	2	3	4	5	6	7	8	9	10
mm^2	A	A	A	A	A	A	A	A	A
50	237	220	253	232	222	255	235	275	235
70	303	277	322	293	285	310	280	340	290
95	367	333	389	352	346	365	330	405	345
120	425	383	449	405	402	410	370	460	389
150	488	437	516	462	463	445	405	510	435
185	557	496	587	524	529	485	440	580	490
240	656	579	689	612	625	550	500	670	560
300	755	662	792	700	720	610	550	750	630
400	853	717	899	767	815	640	580	830	700
500	962	791	1016	851	918	690	620	910	770
630	1082	861	1146	935	1027	750	670	1000	840
800	1170	904	1246	987	1119	828	735	1117	931
1000	1261	961	1345	1055	1214	919	811	1254	1038

Note : For rating factors of ambient temperature other than 30°C, please refer to Table 25 (Page 66)
For rating factors of ground temperature other than 15°C, please refer to Table 26 (Page 66)

Table 13 : Voltage Drop (Per Amp Per Meter)

[CU/XLPE/PVC/AWA/PVC, CU/XLPE/LSZH/AWA/LSZH, CU/MT/XLPE/LSZH/AWA/LSZH Cables]

Conductor Operating Temperature : 90°C — BS 6724 IEC 60502-1

Conductor Cross-sectional Area	2 cables, d.c.	2 cables, 1-phase a.c.			3 or 4 cables, 3-phase a.c.						2 cables, 1-phase a.c.		3 or 4 cables, 3-phase a.c. touching	
		Reference Method 1 & 11 (touching)			Reference Method 1, 11 & 12 (trefoil touching)			Reference Method 1 & 11 (flat touching)			In ducts	In ground	In ducts	In ground
1	2	3			4			5			6	7	8	9
mm^2	mV/A/m	mV/A/m			mV/A/m			mV/A/m			mV/A/m	mV/A/m	mV/A/m	mV/A/m
		r	x	z	r	x	z	r	x	z				
50	0.98	0.99	0.21	1.00	0.86	0.180	0.87	0.84	0.25	0.88	1.10	0.99	0.93	0.86
70	0.67	0.68	0.200	0.71	0.59	0.170	0.62	0.60	0.25	0.65	0.80	0.70	0.70	0.61
95	0.49	0.51	0.195	0.55	0.44	0.170	0.47	0.46	0.24	0.52	0.65	0.53	0.56	0.46
120	0.39	0.41	0.190	0.45	0.35	0.165	0.39	0.38	0.24	0.44	0.55	0.43	0.48	0.37
150	0.31	0.33	0.185	0.38	0.29	0.160	0.33	0.31	0.23	0.39	0.50	0.37	0.43	0.32
185	0.25	0.27	0.185	0.33	0.23	0.160	0.28	0.26	0.23	0.34	0.45	0.31	0.39	0.27
240	0.195	0.21	0.180	0.28	0.180	0.155	0.24	0.21	0.22	0.30	0.40	0.26	0.35	0.23
300	0.155	0.170	0.175	0.25	0.145	0.150	0.21	0.170	0.22	0.28	0.37	0.24	0.32	0.21
400	0.115	0.145	0.170	0.22	0.125	0.150	0.195	0.160	0.21	0.27	0.35	0.21	0.30	0.19
500	0.093	0.125	0.170	0.21	0.105	0.145	0.180	0.145	0.20	0.25	0.33	0.20	0.28	0.18
630	0.073	0.105	0.165	0.195	0.092	0.145	0.170	0.135	0.195	0.24	0.30	0.19	0.26	0.17
800	0.056	0.090	0.160	0.190	0.086	0.140	0.165	0.130	0.180	0.23	0.28	0.18	0.24	0.16
1000	0.045	0.092	0.155	0.180	0.080	0.135	0.155	0.125	0.170	0.21	0.26	0.17	0.22	0.15

Note : r = resistive component; x = reactive component; z = impedance value

Current Rating and Voltage Drop

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Table 14 : Current-Carrying Capacities (Amp)
[CU/XLPE/PVC, CU/XLPE/LSZH or CU/MT/XLPE/LSZH Cables]

Conductor Operating Temperature : 90°C
Ambient Temperature : 30°C

IEC 60502-1

Conductor Cross-sectional Area	Reference Method 4 (enclosed in an conduit insulated wall etc)	Reference Method 3 (enclosed in conduit on a wall or ceiling, or in trunking)		Reference Method 1 (clipped direct)		Reference Method 11 (on a perforated cable tray), or Reference Method 13 (in free air)	
	one 3-core or 4-core cable, 3-phase a.c.	one 2-core cable, 1-phase a.c. or d.c.	one 3-core or 4-core cable, 3-phase a.c.	one 2-core cable, 1-phase a.c. or d.c.	one 3-core or 4-core cable, 3-phase a.c.	one 2-core cable, 1-phase a.c. or d.c.	one 3-core or 4-core cable, 3-phase a.c.
1	2	3	4	5	6	7	8
mm^2	A	A	A	A	A	A	A
1.5	16.5	22	19.5	24	22	26	23
2.5	22	30	26	33	30	36	32
4	30	40	35	45	40	49	42
6	38	51	44	58	52	63	54
10	51	69	60	80	71	86	75
16	68	91	80	107	96	115	100
25	89	119	105	138	119	149	127
35	109	146	128	171	147	185	158
50	130	175	154	209	179	225	192
70	164	221	194	269	229	289	246
95	197	265	233	328	278	352	298
120	227	305	268	382	322	410	346
150	259	334	300	441	371	473	399
185	295	384	340	506	424	542	456
240	346	459	398	599	500	641	538
300	396	532	455	693	576	741	621
400	472	625	536	803	667	865	741

Note : For rating factors of ambient temperature other than 30°C, please refer to Table 25 (Page 66)

Table 15 : Voltage Drop (Per Amp Per Meter)
[CU/XLPE/PVC, CU/XLPE/LSZH or CU/MT/XLPE/LSZH Cables]

Conductor Operating Temperature : 90°C

IEC 60502-1

Conductor Cross-sectional Area	2-core cable, d.c.	2-core cable, 1-phase a.c.			3-core or 4-core cables, 3-phase a.c.		
1	2	3			4		
mm^2	mV/A/m	mV/A/m			mV/A/m		
1.5	31	31			27		
2.5	19	19			16		
4	12	12			10		
6	7.9	7.9			6.8		
10	4.7	4.7			4.0		
16	2.9	2.9			2.5		
		r	x	z	r	x	z
25	1.85	1.85	0.160	1.90	1.60	0.140	1.65
35	1.35	1.35	0.155	1.35	1.15	0.135	1.15
50	0.98	0.99	0.155	1.00	0.86	0.135	0.87
70	0.67	0.67	0.150	0.69	0.59	0.130	0.60
95	0.49	0.50	0.150	0.52	0.43	0.130	0.45
120	0.39	0.40	0.145	0.42	0.34	0.130	0.37
150	0.31	0.32	0.145	0.35	0.28	0.125	0.30
185	0.25	0.26	0.145	0.29	0.22	0.125	0.26
240	0.195	0.200	0.140	0.24	0.175	0.125	0.21
300	0.155	0.160	0.140	0.21	0.140	0.120	0.185
400	0.120	0.130	0.140	0.190	0.115	0.120	0.165

Note : r = resistive component; x = reactive component; z = impedance value

Current Rating and Voltage Drop

XLPE (or LSZH) Insulated Cables
Multi-Core, Armoured

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Multi-Core Cables with XLPE (or LSZH) Insulation, Armoured, PVC or LSZH Outersheath 0.6/1kV

Table 16 : Current-Carrying Capacities (Amp)

[CU/XLPE/PVC/SWA/PVC, CU/XLPE/LSZH/SWA/LSZH, CU/MT/XLPE/LSZH/SWA/LSZH Cables]

Conductor Operating Temperature : 90°C — BS 6724
Ambient Temperature : 30°C — IEC 60502-1
Ground Temperature : 15°C — Depth of Laying : 0.5m — Soil Thermal Resistivity : 1.2 k•m/W

Conductor Cross-sectional Area	Reference Method 1 (clipped direct)		Reference Method 11 (on a perforated horizontal cable tray) or Reference Method 13 (in free air)		In single-way ducts		Laid direct in ground	
	one 2-core cable, 1-phase a.c. or d.c.	one 3-core or 4-core cable, 3-phase a.c.	one 2-core cable, 1-phase a.c. or d.c.	one 3-core or 4-core cable, 3-phase a.c.	one 2-core cable, 1-phase a.c. or d.c.	one 3-core or 4-core cable, 3-phase a.c.	one 2-core cable, 1-phase a.c. or d.c.	one 3-core or 4-core cable, 3-phase a.c.
1	2	3	4	5	6	7	8	9
mm^2	A	A	A	A	A	A	A	A
1.5	27	23	29	25	-	23	-	28
2.5	36	31	39	33	-	30	-	36
4	49	42	52	44	-	40	-	48
6	62	53	66	56	-	50	-	60
10	85	73	90	78	-	65	-	80
16	110	94	115	99	115	94	140	115
25	146	124	152	131	145	125	180	150
35	180	154	188	162	175	150	215	180
50	219	187	228	197	210	175	255	215
70	279	238	291	251	260	215	315	265
95	338	289	354	304	310	260	380	315
120	392	335	410	353	355	300	430	360
150	451	386	472	406	400	335	480	405
185	515	441	539	463	455	380	540	460
240	607	520	636	546	520	440	630	530
300	698	599	732	628	590	495	700	590
400	787	673	847	728	660	560	790	670

Note : For rating factors of ambient temperature other than 30°C, please refer to Table 25 (Page 66)
For rating factors of ground temperature other than 15°C, please refer to Table 26 (Page 66)

Table 17 : Voltage Drop (Per Amp Per Meter)

[CU/XLPE/PVC/SWA/PVC, CU/XLPE/LSZH/SWA/LSZH, CU/MT/XLPE/LSZH/SWA/LSZH Cables]

Conductor Operating Temperature : 90°C — BS 6724 IEC 60502-1

Conductor Cross-sectional Area	2-core cable, d.c.	2-core cables, 1-phase a.c.			3-core or 4-core cables, 3-phase a.c.			2-core cables, 1-phase a.c.	3-core or 4-core cables, 3-phase a.c.
								In ducts or in ground	In ducts or in ground
1	2	3			4			5	6
mm^2	mV/A/m	mV/A/m			mV/A/m			mV/A/m	mV/A/m
1.5	31.0	31.0			27.0			31.0	25.0
2.5	19.0	19.0			16.0			19.0	15.0
4	12.0	12.0			10.0			12.0	9.7
6	7.9	7.9			6.8			7.9	6.5
10	4.7	4.7			4.0			4.7	3.9
16	2.9	2.9			2.5			2.9	2.6
		r	x	z	r	x	z		
25	1.850	1.850	0.160	1.900	1.600	0.140	1.650	1.900	1.600
35	1.350	1.350	0.155	1.350	1.150	0.135	1.150	1.350	1.200
50	0.980	0.990	0.155	1.000	0.860	0.135	0.870	1.000	0.870
70	0.670	0.670	0.150	0.690	0.590	0.130	0.600	0.690	0.610
95	0.490	0.500	0.150	0.520	0.430	0.130	0.450	0.520	0.450
120	0.390	0.400	0.145	0.420	0.340	0.130	0.370	0.420	0.360
150	0.310	0.320	0.145	0.350	0.280	0.125	0.300	0.350	0.300
185	0.250	0.260	0.145	0.290	0.220	0.125	0.260	0.290	0.250
240	0.195	0.200	0.140	0.240	0.175	0.125	0.210	0.240	0.210
300	0.155	0.160	0.140	0.210	0.140	0.120	0.185	0.210	0.190
400	0.120	0.130	0.140	0.190	0.115	0.120	0.165	0.190	0.180

Note : r = resistive component; x = reactive component; z = impedance value

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Flexible Cables with PVC Insulation, or PVC Insulation & PVC Outersheath 250/440V

Table 18 : Technical Data Flexible Cord, Imperial Sizes
[CU/PVC or CU/PVC/PVC Cables]

Conductor Operating Temperature : 70°C
Ambient Temperature : 30°C

BS 2004

Conductor		Current-Carrying Capacity	Voltage Drop per 100 feet		Maximum Weight supportable by twin flexible cord
Cross-sectional Area	No./Diam. of Strand	d.c. or 1- or 3-phase a.c.	d.c. or 1-phase a.c.	3-phase a.c.	
1	2	3	4	5	6
mm^2	No./inch	A	V	V	lb
0.4	14/0.0076	3	8.9	7.7	3
0.7	23/0.0076	6	11	9.4	5
1.2	40/0.0076	13	14	12	10
2.0	70/0.0076	18	12	10	10
3.2	110/0.0076	24	9.6	8.3	10
4.7	162/0.0076	31	8.4	7.3	10

Note : For rating factor of ambient temperature other than 30°C, please refer to Table 25 (Page 66)

Flexible Cables with PVC Insulation, PVC Outersheath 300/500V

Table 19 : Technical Data Flexible Cord, Metrics Sizes
[CU/PVC/PVC Cables]

BS EN 50525-2-11
BS 6500

Conductor Operating Temperature : 60°C

Conductor		Current-Carrying Capacity		Voltage Drop		Maximum Mass supportable by twin flexible cord
Cross-sectional Area	No./Diam. of Strand	d.c. or 1-phase a.c.	3-phase a.c.	d.c. or 1-phase a.c.	3-phase a.c.	
1	2	3		4	5	6
mm^2	No./mm	A		mV/A/m	mV/A/m	kg
0.5	16/0.20	3	3	93	80	2
0.75	24/0.20	6	6	62	54	3
1	32/0.20	10	10	46	40	5
1.5	30/0.25	16	16	32	27	5
2.5	50/0.25	25	20	19	16	5
4	56/0.30	32	25	12	10	5

Note : For rating factor of ambient temperature other than 30°C, please refer to Table 25 (Page 66)

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Single-Core EPR Insulated, Chlorinated Polyethylene Outersheath Neoprene Cable 450/750V or 0.6/1kV

Table 20 : Current-Carrying Capacities (Amp)
[CU/EPR/CPE Cables]

Conductor Operating Temperature : 90°C
Ambient Temperature : 30°C

BS EN 50525-2-21

Conductor Cross-sectional Area	Reference Method 3 (enclosed in conduit etc. in or on a wall)		Reference Method 1 (clipped direct)		Reference Method 11 (on a perforated cable tray) Horizontal or Vertical		Reference Method 12 (in free air)	
	2 cables, 1-phase a.c. or d.c.	3 or 4 cables, 3-phase a.c.	2 cables, 1-phase a.c. or d.c. flat and touching	3 or 4 cables, 3-phase a.c. flat and touching or trefoil	2 cables, 1-phase a.c. or d.c. flat and touching	3 or 4 cables, 3-phase a.c. flat and touching or trefoil	2 cables, 1-phase a.c. or d.c. or 3 or 4 cables, 3-phase a.c. flat spaced horizontal or vertical	3 cables trefoil, 3-phase a.c.
1	2	3	4	5	6	7	8	9
mm²	A	A	A	A	A	A	A	A
1	17	15	19	17.5	-	-	-	-
1.5	22	19.5	25	23	-	-	-	-
2.5	30	27	34	31	-	-	-	-
4	40	36	45	42	-	-	-	-
6	52	46	59	54	-	-	-	-
10	72	63	81	75	-	-	-	-
16	96	85	108	100	-	-	-	-
25	127	112	143	133	153	140	154	134
35	157	138	177	164	189	174	192	167
50	190	167	215	199	229	211	235	204
70	242	213	274	254	293	269	303	262
95	293	258	332	308	356	327	370	320
120	339	298	384	357	412	379	431	373
150	372	334	442	411	475	437	499	432
185	428	379	519	469	542	499	573	495
240	510	443	607	553	639	589	679	587
300	593	506	695	636	735	679	786	680
400	719	602	827	755	860	798	929	799
500	835	689	946	865	989	918	1081	919
630	975	791	1088	996	1143	1062	1263	1060

Note : For rating factors of ambient temperature other than 30°C, please refer to Table 25 (Page 66)

Table 21 : Voltage Drop (Per Amp Per Meter)
[CU/EPR/CPE Cables]

Conductor Operating Temperature : 90°C

BS EN 50525-2-21

Conductor Cross-sectional Area	2 cables, d.c.	2 cables, 1-phase a.c.									3 or 4 cables, 3-phase a.c.											
		Reference Method 3 (enclosed in conduit etc. in or on a wall)			Reference Methods 1 & 11 (clipped direct or on trays, touching)			Reference Method 12 (spaced*)			Reference Method 3 (enclosed in conduit etc. in or on a wall)			Reference Method 1, 11 & 12 (in trefoil touching)			Reference Methods 1 & 11 (flat and touching)			Reference Method 12 (flat spaced*)		
1	2	3			4			5			6			7			8			9		
mm²	mV/A/m	mV/A/m			mV/A/m			mV/A/m			mV/A/m			mV/A/m			mV/A/m			mV/A/m		
1	46	46			46			-			40			40			40			-		
1.5	31	31			31			-			26			26			26			-		
2.5	18	18			18			-			16			16			16			-		
4	12	12			12			-			10			10			10			-		
6	7.7	7.7			7.7			-			6.7			6.7			6.7			-		
10	4.6	4.6			4.6			-			4.0			4.0			4.0			-		
16	2.9	2.9			2.9			-			2.5			2.5			2.5			-		
		r	x	z	r	x	z	r	x	z	r	x	z	r	x	z	r	x	z	r	x	z
25	1.80	1.85	0.32	1.90	1.85	0.20	1.85	1.85	0.29	1.85	1.60	0.28	1.65	1.60	0.175	1.60	1.60	0.25	1.60	1.60	0.32	1.65
35	1.30	1.35	0.31	1.40	1.30	0.195	1.35	1.30	0.28	1.35	1.15	0.27	1.20	1.15	0.170	1.15	1.15	0.24	1.15	1.15	0.32	1.20
50	0.95	1.00	0.30	1.05	0.97	0.190	0.99	0.97	0.28	1.00	0.87	0.26	0.91	0.84	0.165	0.86	0.84	0.24	0.88	0.84	0.32	0.90
70	0.65	0.68	0.29	0.74	0.66	0.185	0.69	0.66	0.27	0.72	0.60	0.25	0.65	0.57	0.160	0.60	0.57	0.24	0.62	0.57	0.31	0.65
95	0.48	0.51	0.28	0.58	0.49	0.180	0.52	0.49	0.27	0.56	0.44	0.25	0.51	0.43	0.155	0.45	0.43	0.23	0.48	0.42	0.31	0.52
120	0.38	0.40	0.27	0.49	0.39	0.175	0.43	0.39	0.26	0.47	0.35	0.24	0.43	0.34	0.155	0.37	0.34	0.23	0.41	0.34	0.30	0.45
150	0.30	0.33	0.27	0.42	0.31	0.175	0.36	0.31	0.26	0.40	0.29	0.24	0.37	0.27	0.150	0.31	0.27	0.23	0.35	0.27	0.30	0.40
185	0.25	0.27	0.27	0.38	0.25	0.170	0.30	0.25	0.26	0.36	0.23	0.23	0.33	0.22	0.150	0.26	0.22	0.22	0.31	0.22	0.30	0.37
240	0.190	0.21	0.26	0.33	0.195	0.165	0.26	0.195	0.25	0.32	0.180	0.23	0.29	0.170	0.145	0.22	0.170	0.22	0.28	0.170	0.30	0.34
300	0.150	0.170	0.26	0.31	0.155	0.165	0.23	0.155	0.25	0.29	0.150	0.23	0.27	0.135	0.140	0.195	0.135	0.22	0.26	0.135	0.29	0.32
400	0.115	0.140	0.26	0.30	0.125	0.160	0.20	0.120	0.25	0.28	0.130	0.22	0.26	0.110	0.140	0.175	0.110	0.21	0.24	0.105	0.29	0.31
500	0.091	0.115	0.26	0.28	0.100	0.155	0.185	0.097	0.24	0.26	0.105	0.22	0.24	0.089	0.135	0.165	0.089	0.21	0.23	0.085	0.29	0.30
630	0.072	0.100	0.25	0.27	0.082	0.155	0.175	0.077	0.24	0.25	0.085	0.22	0.24	0.073	0.135	0.155	0.073	0.21	0.22	0.067	0.28	0.29

Note : r = resistive component; x = reactive component; z = impedance value

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Table 22 : Current-Carrying Capacities (Amp)
[CU/EPR/CPE Cables]

Conductor Operating Temperature : 90°C
Ambient Temperature : 30°C

BS EN 50525-2-21

Conductor Cross-sectional Area	Reference Method 3 (enclosed)		Reference Method 1 (clipped direct)		Reference Method 11 (on a perforated cable tray) or Reference Method 13 (in free air)	
	one 2-core cable, 1-phase a.c. or d.c.	one 3-core or 4-core cable, 3-phase a.c.	one 2-core cable, 1-phase a.c. or d.c.	one 3-core or 4-core cable, 3-phase a.c.	one 2-core cable, 1-phase a.c. or d.c.	one 3-core or 4-core cable, 3-phase a.c.
1	2	3	4	5	6	7
mm^2	A	A	A	A	A	A
1	16.5	14.5	18	16	19.5	17.5
1.5	21	18.5	23	20	25	22
2.5	29	25	32	28	34	30
4	38	33	43	37	46	40
6	48	43	55	48	59	52
10	66	58	76	66	81	71
16	87	77	103	88	109	94
25	114	100	136	117	144	123
35	139	122	168	144	177	151
50	167	147	201	174	213	186
70	211	185	256	222	272	237
95	254	222	310	269	329	287
120	292	256	359	312	381	333
150	320	287	413	359	438	383
185	368	326	470	409	499	437
240	439	381	553	482	587	515
300	509	436	636	555	675	593

Note : For rating factors of ambient temperature other than 30°C, please refer to Table 25 (Page 66)

Table 23 : Voltage Drop (Per Amp Per Meter)
[CU/EPR/CPE Cables]

Conductor Operating Temperature : 90°C

BS EN 50525-2-21

Conductor Cross-sectional Area	2-core cable, d.c.	2-core cable, 1-phase a.c.			3-core, 4-core or 5-core cables, 3-phase a.c.		
1	2	3			4		
mm^2	mV/A/m	mV/A/m			mV/A/m		
1	46	46			40		
1.5	31	31			26		
2.5	19	19			16		
4	12	12			10		
6	7.7	7.7			6.7		
10	4.6	4.6			4.0		
16	2.9	2.9			2.5		
		r	x	z	r	x	z
25	1.80	1.85	0.175	1.85	1.60	0.150	1.60
35	1.30	1.30	0.170	1.35	1.15	0.150	1.15
50	0.95	0.97	0.170	0.99	0.84	0.145	0.86
70	0.65	0.66	0.165	0.68	0.58	0.140	0.59
95	0.48	0.49	0.160	0.52	0.43	0.140	0.45
120	0.38	0.39	0.160	0.42	0.34	0.135	0.36
150	0.30	0.31	0.155	0.35	0.27	0.135	0.20
185	0.25	0.25	0.155	0.20	0.22	0.130	0.26
240	0.190	0.195	0.150	0.25	0.170	0.130	0.22
300	0.150	0.155	0.150	0.22	0.135	0.130	0.185

Note : r = resistive component; x = reactive component; z = impedance value

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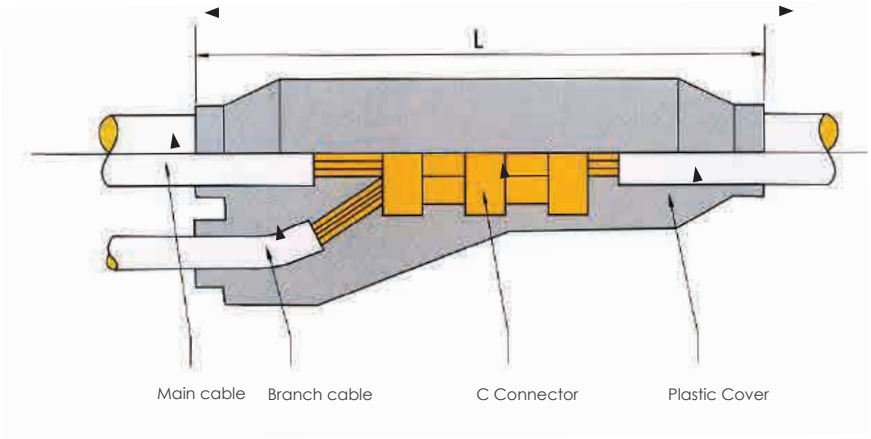
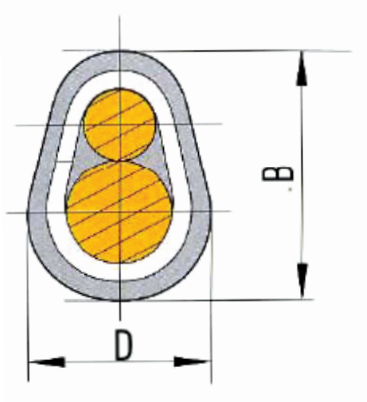
Table 24 : KEYFAB™ Prefabricated Branch Cables Size Reference

Main Cable	(mm^2)	25	35	50	70	70	95	120	95	120	150	185	240	185	240	300	400	400	500	630	800	1000
Branch Cable	(mm^2)	6 to 25	6 to 35	6 to 50	6 to 25	35 to 70	6 to 50	6 to 25	70 to 95	35 to 120	6 to 120	6 to 95	6 to 35	120	50 to 120	60 to 150	6 to 50	70 to 150	6 to 185	6 to 185	6 to 185	6 to 185
Reference Size	L (mm)	104		130		154			190					213				250			290	
	D (mm)	28		35		42			52					66				78			88	
	B (mm)	46		58		70			86					100				113			134	





KEYFAB™ Prefabricated Branch Cables Inspection and Testing

- Each connection made between the main and prefabricated branch cable employs a copper "C" type connector and is encapsulated in thermoplastic;
- The insulation Resistance value of the system is measured over 200MΩ at the factory;
- Cable with connectors can withstand dielectric voltage of 3.5kV for 5 minutes under one meter water pressure;
- The DC conductor resistance ratio between the connected cable system and the cables with same length is less than 1.2;
- Able to withstand 250 Heat Cycle Test;
- Cable system meets flame retardant requirement to IEC 60332.

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Table 25 : Correction Factor for Ambient Air Temperature Other Than 30°C to be Applied to the Current-Carrying Capacities for Cables in Free Air

Ambient Temperature	Insulation				
	PVC	XLPE	HT-PVC	Rubber	Rubber
(°C)	(70°C)	(90°C)	(90°C)	(85°C)	(60°C)
10	1.22	1.15	-	-	-
15	1.17	1.12	-	-	-
20	1.12	1.08	-	-	-
25	1.06	1.04	1.03	1.02	-
30	1.00	1.00	1.00	1.00	1.00
35	0.94	0.96	0.97	0.95	0.91
40	0.87	0.91	0.94	0.90	0.82
45	0.79	0.87	0.91	0.85	0.71
50	0.71	0.82	0.87	0.80	0.58
55	0.61	0.76	0.84	0.74	0.41
60	0.50	0.71	0.80	0.67	-
65	0.35	0.65	0.76	0.60	-
70	-	0.58	0.71	0.52	-
75	-	0.50	0.61	0.43	-
80	-	0.41	0.50	0.30	-
85	-	0.29	0.35	-	-

Table 26 : Correction Factor for Ambient Ground Temperature Other Than 15°C to be Applied to the Current-Carrying Capacities for Cables in Ducts or in Ground

Ground Temperature	Insulation	
	PVC	XLPE
(°C)	(70°C)	(90°C)
10	1.04	1.03
15	1.00	1.00
20	0.95	0.97
25	0.90	0.93
30	0.85	0.89
35	0.80	0.86
40	0.74	0.82
45	0.67	0.77
50	0.60	0.73
55	-	0.68
60	-	0.63
65	-	0.58

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Table 27 : Correction Factors for Ambient Temperature & Group Installation

Correction for groups of more than one circuit of single-core cables, or more than one multi-core cable

Reference Methods of Installation		Correction Factor (Cg)													
		Number of Circuits or Multi-Core Cables													
		2	3	4	5	6	7	8	9	10	12	14	16	18	20
Enclosed (Method 3 or 4) or bunched and clipped to a non-metallic surface (Method 1)		0.80	0.70	0.65	0.60	0.57	0.54	0.52	0.50	0.48	0.45	0.43	0.41	0.39	0.38
Single layer clipped to a non-metallic surface (Method 1)	Touching	0.85	0.79	0.75	0.73	0.72	0.72	0.71	0.70	-	-	-	-	-	-
	Spaced*	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Single layer multi-core on a perforated metal cable tray (Method 11)	Touching	0.86	0.81	0.77	0.75	0.74	0.73	0.73	0.72	0.71	0.70	-	-	-	-
	Spaced*	0.91	0.89	0.88	0.87	0.87	-	-	-	-	-	-	-	-	-
Single layer single-core on a perforated metal cable tray, touching (Method 11)	Horizontal	0.90	0.85	-	-	-	-	-	-	-	-	-	-	-	-
	Vertical	0.85	-	-	-	-	-	-	-	-	-	-	-	-	-
Single layer multi-core touching on ladder supports		0.86	0.82	0.80	0.79	0.78	0.78	0.78	0.77	-	-	-	-	-	-

* Space means a clearance between adjacent surfaces of at least one cable Diam. (D_e). Where the horizontal clearance between adjacent cables exceeds 2 D_e, no correction factor need be applied

Note : 1 The factors in the table are applicable to a group of cables all of the same sizes. The value of the current derived from application of the appropriate factors is the maximum continous current to be carried by any of the cables in the group.

2 If, due to known operating conditions, a cable is expected to carry not more than 30% of its grouped rating, it may be ignored for the purpose of obtaining the rating factor for the rest of the group.

For example, a group of N loaded cables would normally require a group reduction factor of Cg applied to the tabulated Lt. However, if M cables in the group carry loads which are not greater than 0.3Cg Lt amperes, the other cables can be sized by using the group rating factor corresponding to (N-M) cables.

Table 28 : Correction Factor for Cables with More Than 4 Loaded Cores

No. of Loaded Cores	5	6	7	10	12	14	19
Correction Factor	0.72	0.67	0.63	0.56	0.53	0.51	0.45
No. of Loaded Cores	24	27	30	37	44	46	48
Correction Factor	0.42	0.40	0.39	0.36	0.34	0.33	0.33

Note: 1. The current-carrying capacity for a cable in the size range 1.5 to 4mm², having more than 4 loaded cores, is obtained by multiplying the current-carrying capacity of a 2-core, having the same installation type, by the factor selected from this table. The current-carrying for the 2-core cable is that for the installation condition to be used for the multi-core cable.

2. If due to known operating conditions, a core is expected to carry not more than 30% of its current-carrying capacity in the multi-core cable, it may be ignored for the purpose of obtaining the correction factor for the number of loaded cores.

3. If due to known operating conditions, a core is expected to carry not more than 30% of its rating, after applying the correction factor for the total number of current-carrying cores, it may be ignored for the purpose of obtaining the correction factor for the number of loaded cores.

For example, the current-carrying capacity of a cable having N loaded cores would normally be obtained by multiplying the current-carrying capacity of a 2-core, having the same insulation type, by the factor selected from this table for N cores. That is $I_{z1c} = I_{t2c} \times C_{gN}$ where:

I_{z1c} is the current-carrying capacity for the multi-core cable after applying the correction factor for the total number of current-carrying cores.

I_{t2c} is the tablulated current-carrying capacity of a 2-core cable, having the same insulation type as the multi-core cable.

C_{gN} is the correction factor from Table 28 for the total number of current-carrying cores.

However, if M cores in the cable carry loads which are not greater than $0.3 \times I_{t2c} \times C_{gN}$, the current-carrying capacity can be obtained by using the correction factor corresponding to (N-M) cores.

The 'not greater than $0.3 \times I_{t2c} \times C_{gN}$' calculation should be applied before the adjacent multi-core cable grouping factor, if applicable, from Table 27 from BS 7671. The 30% rule should not be further applied to any adjacent cable grouping factor calculations.

I_{z1c} should be greater than or equal to I_n or I_b as appropriate, divided by the relevant correction factor(s) C, that is $I_{z1c} \geq I_n$ or I_b / C

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Table 29 : Correction Factors for Cables Installed in Enclosed Trenches

Conductor Cross-sectional Area (mm²)	Correction Factor									
	Installation Method 18				Installation Method 19			Installation Method 20		
	2 single-core cables, or 1 three- or four-core cables	3 single-core cables, or 2 two-core cables	4 single-core cables, or 2 three- or four-core cables	6 single-core cables, 4 two-core cables, or 3 three- or four-core cables	6 single-core cables, 4 two-core cables, or 3 three- or four-core cables	8 single-core cables, or 4 three- or four-core cables	12 single-core cables, 8 two-core cables, or 6 three- or four-core cables	12 single-core cables, 8 two-core cables, or 6 three- or four-core cables	18 single-core cables, 12 two-core cables, or 9 three- or four-core cables	24 single-core cables, 16 two-core cables, or 12 three- or four-core cables
1	2	3	4	5	6	7	8	9	10	11
4	0.93	0.90	0.87	0.82	0.86	0.83	0.76	0.81	0.74	0.69
6	0.92	0.89	0.86	0.81	0.86	0.82	0.75	0.80	0.73	0.68
10	0.91	0.88	0.85	0.80	0.85	0.80	0.74	0.78	0.72	0.66
16	0.91	0.87	0.84	0.78	0.83	0.78	0.71	0.76	0.70	0.64
25	0.90	0.86	0.82	0.76	0.81	0.76	0.69	0.74	0.67	0.62
35	0.89	0.85	0.81	0.75	0.80	0.74	0.68	0.72	0.66	0.60
50	0.88	0.84	0.79	0.74	0.78	0.73	0.66	0.71	0.64	0.59
70	0.87	0.82	0.78	0.72	0.77	0.72	0.64	0.70	0.62	0.57
95	0.86	0.81	0.76	0.70	0.75	0.70	0.63	0.68	0.60	0.55
120	0.85	0.80	0.75	0.69	0.73	0.68	0.61	0.66	0.58	0.53
150	0.84	0.78	0.74	0.67	0.72	0.67	0.59	0.64	0.57	0.51
185	0.83	0.77	0.73	0.65	0.70	0.65	0.58	0.63	0.55	0.49
240	0.82	0.76	0.71	0.63	0.69	0.63	0.56	0.61	0.53	0.48
300	0.81	0.74	0.69	0.62	0.68	0.62	0.54	0.59	0.52	0.46
400	0.80	0.73	0.67	0.59	0.66	0.60	0.52	0.57	0.50	0.44
500	0.78	0.72	0.66	0.58	0.64	0.58	0.51	0.56	0.48	0.43
630	0.77	0.71	0.65	0.56	0.63	0.57	0.49	0.54	0.47	0.41

Note: For rating factor of ambient temperature other than 30°C, please refer to Table 25 (Page 66)

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Table 30 : Correction Factors for Groups of One or More Circuits of Single-Core Cables to be Applied to Reference Current-Carrying Capacity for One Circuit of Single-Core Cables in Free Air - Reference Method 11 and Method 12

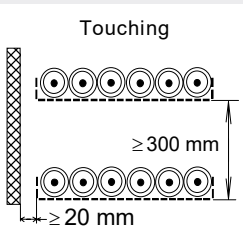
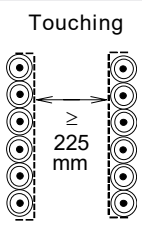
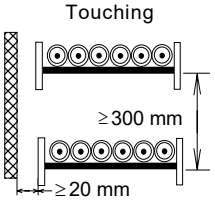
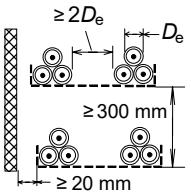
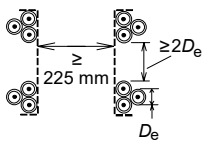
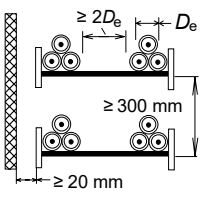
Method of installation			No. of trays or ladders	No. of 3-phase circuits per tray or ladder			Use as a multipler to a current-carrying capacity for
				1	2	3	
Perforated cable tray systems (Note 3)	31		1	0,98	0,91	0,87	3 single-core cables in horizontal formation
			2	0,96	0,87	0,81	
			3	0,95	0,85	0,78	
Vertical perforated cable tray systems (Note 4)	31		1	0,96	0,86	-	3 single-core cables in vertical formation
			2	0,95	0,84	-	
Cable ladder systems, cleats, etc. (Note 3)	32		1	1,00	0,97	0,96	3 single-core cables in horizontal formation
	33		2	0,98	0,93	0,89	
	34		3	0,97	0,90	0,86	
Perforated cable tray systems (Note 3)	31		1	1,00	0,98	0,98	3 single-core cables in trefoil formation
			2	0,97	0,93	0,93	
			3	0,96	0,92	0,92	
Vertical perforated cable tray systems (Note 4)	31		1	1,00	0,91	0,89	
			2	0,97	0,90	0,86	
Cable ladder systems, cleats, etc. (Note 3)	32		1	1,00	1,00	1,00	
	33		2	0,97	0,95	0,93	
	34		3	0,96	0,94	0,90	

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Table 30 (Continued) **:**

Note 1	Values given are average for the cable type and range of conductor sizes considered in Table 2 and Table 10. The spread of values is generally less than 5%.
Note 2	Factors are given for single layers of cables (or trefoil groups) as shown in the table and do not apply when cables are installed in more than one layer touching each other. Values for such installation may be significantly lower than and should be determined by an appropriate method.
Note 3	Values are given for horizontal spacing between cable trays of 300 mm and at least 20 mm between cable trays and wall. For closing spacing the factors should be reduced.
Note 4	Values are given for horizontal spacing between cable trays of 225 mm with cable trays mounted back to back. For closer spacing the factors should be reduced.
Note 5	For circuits having more than one cable in parallel per phase, each 3-phase set of conductors should be considered as a circuit for the purpose of this cable.
Note 6	If a circuit consists of *m* parallel conductors per phase, then for determining the reduction factor this circuit should be considered as *m* circuits.

* Referenced from IEC 60364-5-52, Table B.52.21

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Table 31 : Maximum Conductor Resistance D.C. at 20°C

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BS EN 60288

Nominal	Maximum Conductor Resistance D.C. at 20 °C					
Cross-sectional Area	Class 1		Class 2		Class 5	
	Plain	Tinned	Plain	Tinned	Plain	Tinned
(mm²)	(Ω/km)	(Ω/km)	(Ω/km)	(Ω/km)	(Ω/km)	(Ω/km)
0.5	36.0	36.7	36.0	36.7	39.0	40.1
0.75	24.5	24.8	24.5	24.8	26.0	26.7
1	18.1	18.2	18.1	18.2	19.5	20.0
1.5	12.1	12.2	12.1	12.2	13.3	13.7
2.5	7.41	7.56	7.41	7.56	7.98	8.21
4	4.61	4.70	4.61	4.70	4.95	5.09
6	3.08	3.11	3.08	3.11	3.30	3.39
10	-	-	1.83	1.84	1.91	1.95
16	-	-	1.15	1.16	1.21	1.24
25	-	-	0.727	0.734	0.780	0.795
35	-	-	0.524	0.529	0.554	0.565
50	-	-	0.387	0.391	0.386	0.393
70	-	-	0.268	0.270	0.272	0.277
95	-	-	0.193	0.195	0.206	0.210
120	-	-	0.153	0.154	0.161	0.164
150	-	-	0.124	0.126	0.129	0.132
185	-	-	0.0991	0.100	0.106	0.108
240	-	-	0.0754	0.0762	0.0801	0.0817
300	-	-	0.0601	0.0607	0.0641	0.0654
400	-	-	0.0470	0.0475	0.0486	0.0495
500	-	-	0.0366	0.0369	0.0384	0.0391
630	-	-	0.0283	0.0286	0.0287	0.0292
800	-	-	0.0211	0.0224	-	-
1000	-	-	0.0176	0.0177	-	-

Table 32 : Conductor Resistance Temperature Other Than 20°C

Temperature (°C)	Factor	Temperature (°C)	Factor
10	0.961	25	1.020
11	0.965	30	1.039
12	0.969	35	1.059
13	0.972	40	1.079
14	0.976	45	1.098
15	0.980	50	1.118
16	0.984	55	1.138
17	0.988	60	1.157
18	0.922	65	1.177
19	0.996	70	1.196
20	1.000	75	1.216
21	1.004	80	1.236
22	1.008	85	1.255
23	1.012	90	1.275

Note : The value of correction factors are based on a resistance-temperature co-efficient of 0.00393 per °C at 20 °C

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Table 33 : Short-Circuit Ratings for One Second for XLPE or LSZH, PVC Insulated Cables with Copper Conductor

No.	Cross-sectional Area	Short-Circuit Rating (kA)	
	(mm^2)	XLPE or LSZH Insulated Cables	PVC Insulated Cables
1	1.5	0.21	0.17
2	2.5	0.36	0.29
3	4	0.57	0.46
4	6	0.86	0.69
5	10	1.43	1.15
6	16	2.29	1.84
7	25	3.58	2.88
8	35	5.01	4.03
9	50	7.15	5.75
10	70	10.01	8.05
11	95	13.56	10.93
12	120	17.16	13.80
13	150	21.45	17.25
14	185	26.46	21.28
15	240	34.32	27.28
16	300	42.90	34.50
17	400	57.20	46.00
18	500	71.50	57.50
19	630	90.09	72.45
20	800	114.40	92.00
21	1000	143.00	115.00

The above rating is calculated by using the following formula :

XLPE or LSZH Insulated Cables	PVC Insulated Cables
$I = \frac{0.143\,S}{\sqrt{T}} KA$	$I = \frac{0.115\,S}{\sqrt{T}} KA$

Where I = short-circuit rating (kA)
S = conductor area (sq mm)
T = duration of short-circuit (1 second)

Basic conditions for circuit calculation :
The conductor temperature prior to short-circuit is assumed to be 90°C (XLPE or LSZH) or 70°C (PVC) and short-circuit temperature is 250°C (XLPE or LSZH) or 160°C / 140°C* (PVC). Above ratings are based on fault duration (symmetrical short-circuit) of 1 second.
* Above 300mm^2
For other periods, divide the above tabulated values by the square root of the time in seconds.

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Selection of Cables Based on Voltage Drops and Current-Carrying Capacity

Voltage drop is normally only of importance for cables of voltage rating not exceeding 0.6/1kV. If the voltage drop is to be in compliance with SS 638 (formerly known as CP5) wiring regulations, then the voltage drop for any particular cable run must be such that the total voltage drop in the circuit of which the cable forms a part does not exceed 4% of the nominal voltage (i.e. 9.2V for a 1-phase 230V supply and 16.6V for a 3-phase 415V supply).

Since the actual power factor of the load is usually not known, the most practical approach to calculate the voltage drop is to assume the worst conditions (i.e. power factor equal to one and the conductor is at maximum operating temperature). The voltage drop values given in the tables are based on these assumptions and tabulated for a current of 1 amp for a 1 metre run (i.e. for a distance of 1 metre along the route taken by the cables), and represent the result of the voltage drops in all the circuit conductors. For balance 3-phase a.c. circuits, the values relate to the line voltage. For any given run, the values need to be multiplied by the length of the run (metres) and by the current (amps) that the cables carry.

Voltage drop can be calculated using the following formulas :

1. V_{max} = 4% x supply voltage

2. $V_d = \dfrac{V_{max} \times 1000}{I \times L}$

3. $V_{ds} \leq V_d$

4. $V_t = \dfrac{V_{ds} \times I \times L}{1000}$

Where
I = Current (A)
L = Length of cable installed (m)
V_{max} = Max. permissible volt drop in the circuit (V)
V_d = Max. volt drop in the circuit (mV/A/m)
V_{ds} = Volt drop of the selected cable (mV/A/m)
V_t = Total volt drop in the circuit (V)

Example :

Consider a route of 200 metres of cable to be laid direct in ground and carries a 100 amp load, the supply voltage is 415V, 3-phase a.c. and the cable structure is copper conductor, XLPE insulated armoured.

1. V_{max} = Max. permissible voltage drop in the circuit = 4% x 415V = 16.6V
2. V_d = Max. voltage drop in the circuit = 16.6 x 1000 / (100 x 200) = 0.83 mV/A/m
3. Select a cable from Table 19, such that the V^{ds} is equal to, or less than Vd the 0.83mV/A/m calculated. It will be seen that this value (V^{ds}) is 0.61mV/A/m giving a cable size of 70mm^2.
4. V_t = Total voltage drop in the circuit = 0.61 x 100 x 200 / 1000 = 12.2V

Selection of Cable Exposed to Fire Condition Based on Conductor Resistance

Conductor resistance of cable increases suddenly when the cable is subjected to fire conditions and conductor resistance at 750°C becomes 3.87 times that of the one at 20°C.
(For other temperatures, refer to Table 32)

Correspondingly, the voltage drop is also increased by 3.87 times.

To select the size of cable exposed to fire conditions, calculate R_0 using the formula shown below and select the size of cable based on the value shown in page 49 which should not exceed R_0 calculated by the formula.

$$R_0 \leq \frac{V_{max}}{KI} \times \frac{1}{L\left[1 + (F-1)\frac{L_1}{L}\right]} \times 10^3 \quad (\Omega / km)$$

Where
R_0 = Conductor resistance at 20°C (Ω / km)
V_{max} = Max. permissible voltage drop in the circuit (V)
K = Factor according to the wiring

1-phase 2-Core, $K = 2$

3-phase 3-core, $K = \sqrt{3}$

I = Current (A)
L = Lengh of cable installed (m)
L_1 = Lengh of cable subjected to flame (m)
F = Correction factor (Table 32)

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Table 34 : Minimum Bending Radius

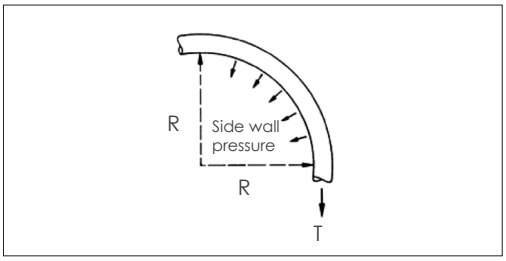
To install the cables safely without damaging the electrical and physical properties of the cables, the tabulated minimum bending radius must be observed.

Type of Product	Construction	Overall Diam. (mm)		Minimum Bending Radius (mm)	
		Single-Core	Multi-Core	Single-Core	Multi-Core
PVC Insulated Power / Control Cables Unarmoured / Armoured	Unarmoured for fixed wiring	D ≤ 25	D ≤ 25	3D	4D
		D > 25	D > 25	6D	6D
	Circular conductor	Any		6D	
	Shaped conductor			10D	
XLPE (or LSZH) Insulated Power / Control Cables Unarmoured / Armoured	Circular conductor	Any		8D	
	Shaped conductor	Any		10D	
Fire Resistant Cables Unarmoured / Armoured	Circular conductor	Any		10D	
		Any			

Note : D means the Overall Diam. of cable (mm)

Side Wall Pressure to Cable

Permissible maximum side wall pressure to the cable at bending point during installation is 500 kgf/m



$$\text{Side Wall Pressure to Cable} = \frac{\text{Pulling Tension (kgf)}}{\text{Bending Radius (m)}}$$

$$= \frac{T}{R}$$

Table 35 : Permissible Maximum Pulling Tension

Pulling Tool	Material of Conductor	Maximum Pulling Tension (kgf)
Pulling Eye	Copper	7 x No. of cores x Nominal Area of Conductor
	Aluminium	4 x No. of cores x Nominal Area of Conductor
Cable Grip	Copper & Aluminium	Same as above, but maximum tension should be less than 2 tons

Drum Handling

Handle the drums with care.

It is always recommended and a must with heavy drums -

- To lift drums with a fork-lift truck or a crane when removing them from the vehicle.
- Always lower the drums into an upright position on their flanges.

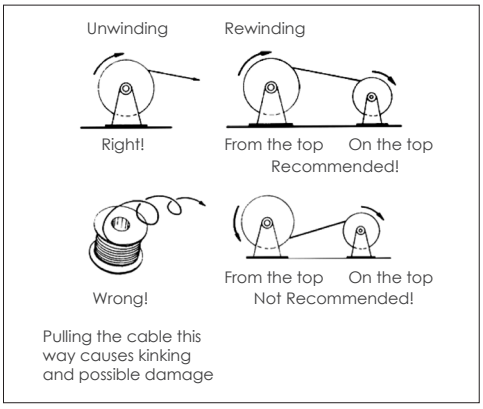


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Table 36 : Wire Gauge Conversion

Size	Cross-sectional Area	Nearest Available	Size	Cross-sectional Area	Nearest Available
(AWG/kcmil)	(mm^2)	(mm^2)	(AWG/kcmil)	(mm^2)	(mm^2)
26	0.128	0.14	250	127	120
24	0.205	0.22	300	152	150
23	0.259	0.25	350	177	185
22	0.324	0.34	400	203	185
20	0.519	0.5	450	228	240
18	0.823	1	500	253	240
16	1.31	1.5	550	279	300
14	2.08	2.5	600	304	300
12	3.31	4	650	329	300
10	5.26	6	700	355	400
8	8.37	10	750	380	400
6	13.3	16	800	405	400
4	21.1	25	900	456	400
2	33.6	35	1000	507	500
1	42.4	50	1250	633	630
1/0	53.5	70	1300	659	630
2/0	67.4	70	1500	760	800
3/0	85.0	95	1750	887	800 or 1000
4/0	107	120	2000	1013	1000

Note : AWG - American Wire Gauge
kcmil is an abbreviation for thousands of circular mills, an old measurement of wire gauge

1 kcmil = 0.5067 mm^2

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KEYSTONE CABLE (S) PTE LTD
57 Senoko Drive, Singapore 758236

Tel (65) 6367 0107
Fax (65) 6365 2963
Email sales@keystone-cable.com
Website www.keystone-cable.com

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