

MACRO Cable

PRODUCT CATALOGUE

Safety FIRST



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MACRO FR-Fire Retardant Cable & FRLS

To ensure safety Macro has launched FR-Fire Retardant and FRLS Cables to motivate customers to go for high end product in place of conventional PVC Cables. Macro's Fire Retardant Cables are ideal solution for modern building wiring technology. It is also in process of manufacturing FRLS Halogen free cables that will further bring us closer to the cutting edge technological development in the field.



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	Annealed Flexible Copper Conductor Covering with PVC Tape or Cotton Tape (Optional) PVC Sheathed Overall	-	Service Drop Cable QUADRUPL EX (Copper)	600/1000 volts 3x4rm/4re- 3x25rm/25rm	www. macro.com.bd
	Annealed Aluminium Conductor Tape or Cotton Tape (Optional) PVC Sheathed Overall	-	Service Drop Cable DUPLEX (Aluminium)	600/1000 volts 2.5re/2.5re- 25rm/25rm	www. macro.com.bd
	Annealed Aluminium Conductor Covering with PVC Tape or Cotton Tape (Optional) PVC Sheathed Overall	-	Service Drop Cable Quadruplex (Aluminium)	600/1000 volts 3x4rm/4re- 3x25rm/25rm	www. macro.com.bd

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	Plain Annealed Copper Conductor PVC Insulated Single, Two or Three Cores Laid up PVC Inner Covering for Multi-core Cables PVC Sheathed Overall	BDS-900 and BS-6004	BYM-PVC	300/500 volts 1x1.0re-1x35rm 2x1.0re-2x35rm 3x1.0re-3x35rn 4x1.0re-4x35rn	www. macro.com.bd
	Bare solid hard drawn aluminium wire	ASTM B 531, B 396, B 193, B 233, B 609	Ground Wire & Tie Wire	REB Item D-4, D-5	www. macro.com.bd
	Bare solid Annealed Copper Wire	ASTM B 3, B 193	Jumper Wire	REB Item D-6	www. macro.com.bd
	Bare medium hard drawn copper wires	ASTM B 2, B 193	Medium Hard Drawn Copper Wire	REB Item D-7,D-8,D-9,D- 10,DS-9,DS- 10,D-38	www. macro.com.bd
	All Aluminium Alloy Stranded Conductor	AST B 398 & 399	AAAC	REB Item D-29,D-30, D-31,D-32,D-33	www. macro.com.bd
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	Stranded hard drawn aluminium conductors	BDS: 1036, Part1; 1983 IEC: 207 BS 215, Part-1	All Aluminium Stranded Conductor (AAC)	Please refer Table-50	www. macro.com.bd
	Pre-assembled Aluminium cables supported by a bare ACSR messenger wire	ASTM : B 230, B 231, B 232, B 498	PVC Insulated Aerial Cable DUPLEX	Uo/U (Um) 3.6 / 6 (7.2) KV AWG 6 & 3	www. macro.com.bd
	Pre-assembled Aluminium cables supported by a bare ACSR messenger wire	ASTM : B 230, B 231, B 232, B 498	PVC Insulated Aerial Cable Quadruplex	Uo/U (Um) 3.6 / 6 (7.2) KV AWG 3,1/0,4, 4/0,6	www. macro.com.bd
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CORPORATE PROFILE

History

The history of macro can be traced back in early eighties, pioneered in the field of international trade especially in all Government power utilities covering all segments of power sector. The company formerly named M/s. Macro Contacts and formed a private limited company Macro International Ltd. in 1997. Today under the banner of Macro, the group is strongly active in Power Generation, T&D, Communication and Construction Sector.

Macro International Ltd.

While the Group is engaged in diversified business activities, MACRO International Ltd. (MIL) is primarily concerned in overseas trading. Power, Energy, Communication and Information Technology are the prime areas of concentration. The company has tied up with many international companies, who are leaders in their respective fields worldwide. In Power sector, MIL has been actively working with all major Government and Private utilities in Bangladesh



Macro Prokoushal Ltd.

MACRO Prokoushal Ltd. is primarily engaged in Engineering, Construction and Consultancy Services in the field of Power Plant Maintenance, Transmission Line and Sub-station Projects. By virtue of its long association with leading O&M Contractors, Macro Prokoushal has established itself as a premier local contractor in power plant maintenance & service.

Macro Cable Ltd.

Owing to long experience in marketing different types of cables in Bangladesh, Macro Group ventured to set up a cable manufacturing plant. Its sister organization Macro International Ltd. has long track record in marketing quality cables from world reputed companies like ALCATEL(Nexans) of Germany, Taihan Electricals from Korea and Phelps Dodge-a General Cable Co. MIL has been the foremost contractor of all major utilities including BPDB, REB, DESCO, DESA, DPDC and PGCB. Since early eighties the company provided turnkey solutions which include Underground Cable Networks and Submarine Cables. The main product of Macro Cable ranges from Building Wire Cables to Power Cables and Conductors.

MACRO FR-Fire Retardant Cable & FRLS

To ensure safety Macro has launched FR-Fire Retardant and FRLS Cables to motivate customers to go for high end product in place of conventional PVC Cables. Macro's Fire Retardant Cables are ideal solution for modern building wiring technology. It is also in process of manufacturing FRLS Halogen free cables that will further bring us closer to the cutting edge technological development in the field.

SMS Genuinity Concept

100% Counterfeit Protection

Macro has developed 'SMS Genuinity Concept' to protect its customers from the clutch of counterfeit manufacturers. The company has introduced a SMS based Product Originality Assessment System 'SMS Genuinity Concept' which will ensure customer to purchase Genuine Macro Cables.

Macro Electricians' Society MES

Safety from fire hazards depends much on quality of cable and workmanship in wiring. Electricians play a vital role in minimizing fire hazards by adopting proper wiring techniques. Macro have been bringing the electricians all over the country under a forum called "Macro Electricians' Society" MES. Our objective is to train them on modern methods of wiring and to update them on modern cables, their merits and application.

Quality Objective "Safety First"

With this vision we venture to introduce modern concepts of cables like FR Fire Retardant Cables & FRLS, as well as FRLS-Halogen free cables. Use of best quality raw material is essential to ensure our motto "Safety First". We are therefore very much sensitive in selection of raw materials like copper rod and insulating compound. Besides we strictly adhere to Moody Guideline for ISO to streamline our management to cater the quality requirement at all level.

General Product Range

Broad classification of cables and conductors manufactured by Macro Cable.

House Wiring Cables
FR & FRLS Cables
Flexible Cables
LT Power Cables
Control Cable
Service Drop Cables
Telecommunication Cables
Overhead Conductors & Cables

Quality Assurance

It is the policy of MACRO to manufacture and market products which are of the highest quality and reliability. It strictly adheres to Moody guideline for ISO 9001 and all other applicable regulatory requirements including Bangladesh Standard & Testing Institution (BSTI). All cables are manufactured and tested through stage inspection method, in well-equipped laboratory, inconformity with latest versions of Bangladesh Standards (BDS), and other international standard like German VDE standard, British Standard (BS), American Society for Testing and Materials (ASTM), JS and special requirement of customer, if any. In-process and Routine tests are conducted on each production stage. Type tests are conducted on power cables in regular intervals in BUET, Bangladesh University of Engineering and Technology.

Research and Product Development (R&D)

Macro Cable's research and development policy has strictly commercial functions-to further the company's business objectives, to produce better quality products, lowering cost of production, to improve operational processes and to provide expert advice to its customers. The task of product research and development is to come up with the goods and services that meet the needs of tomorrow's customers. We follow in line with the continually changing preferences of the customers.

Environment, Health & Safety

Our slogan says it all:

MACRO-a name with a commitment to a better, greener way of life. Go forward with nature, Go Green with Macro-Join us.

MCL adheres the local and international environment, health & safety policy as far practicable in local environment. Ensuring people's safety and the sustainable environment policy, is part of everything we do and every decision we make. Each & every member of our team is trained and encouraged to follow this golden rule.



ঢাকার ওয়েস্টিন হোটেল-এ ম্যাক্রো কেবল-
এর অগ্নি প্রতিরোধক কেবল বাজারজাতকরণ
কার্যক্রমের উদ্বোধন করছেন বাণিজ্যমন্ত্রী লে.
কর্নেল (অব.) ফারুক খান, এমপি

1. Copper Conductor
2. PVC Insulation



Type: BYA

Technical Details

Standard: BDS-900, BS-6004 & IEC-60227

Operating Voltage: 450/750 volts

Detail Description or Construction

Plain Annealed Copper Conductor

PVC Insulated

Non-sheathed Single Core Cable

Application

Recommended for civil engineering fixed installations i.e. field protected installation in lighting fittings and inside appliances.

Installation

Suitable for install in conduits, raceways, ducts, ladders, walls, direct buried.

It is recommended that the installation instructions indicated by the Local Electric Code, or any equivalent, be followed, so that the safeguarding of persons and the integrity of the product will not be affected by deficiencies in the installation.

Table 1	Nominal Cross Sectional Area of Conductor	No. and Nominal Diameter of Wires	Maximum D.C. Resistance of Conductor at 20° C	Nominal Thickness of Insulation	Approx Overall Diameter	Approx Weight of Cable	Current Rating	
							Bunched and Enclosed in Conduits Two Cables Single Phase at 35°C	Clipped to a Surface or on a Cable Tray Bunched & Unenclosed 2 Cables Single Phase at 35°C
mm²	no./mm	ohm/km	mm	mm	kg/km	amp	amp	
1x0.5 re	1/0.80	36.00	0.6	2.10	10.00	7	9	
1x0.75re	1/0.98	24.50	0.6	2.35	12.00	9	12	
1x1.0 re	1/1.13	18.10	0.7	2.60	15.00	13	16	
1x1.0rm	3/0.65	18.10	0.7	2.90	17.00	13	16	
1x1.3rm	3/0.74	14.03	0.7	3.10	20.00	15	19	
1x1.5 re	1/1.38	12.10	0.7	2.90	21.00	16	20	
1x1.5 rm	3/0.80	12.10	0.7	3.10	22.00	16	20	
1x1.5 rm	7/0.52	12.10	0.7	3.10	22.00	16	20	
1x2.0rm	3/0.91	9.11	0.8	3.60	30.00	20	25	
1x2.5 re	1/1.78	7.41	0.8	3.50	32.00	22	28	
1x2.5 rm	7/0.67	7.41	0.8	3.70	34.00	22	28	
1x3.0rm	7/0.74	5.99	0.8	3.90	40.00	26	31	
1x4.0 rm	7/0.85	4.61	0.8	4.30	50.00	30	37	
1x4.5rm	7/0.91	3.89	0.8	4.50	56.00	35	41	
1x6.0 rm	7/1.05	3.08	0.8	4.95	71.00	38	47	
1x7.0rm	7/1.12	2.61	1.0	5.50	85.00	42	51	
1x9.5rm	7/1.32	1.86	1.0	6.15	113.50	51	62	
1x10 rm	7/1.35	1.83	1.0	6.20	117.00	52	63	
1x14.5rm	7/1.63	1.23	1.0	7.05	164.00	68	83	
1x16 rm	7/1.71	1.15	1.0	7.35	178.00	70	85	
1x16 rm	19/1.04	1.15	1.0	7.40	180.00	70	85	
1x25 rm	7/2.14	0.727	1.2	9.00	280.00	91	110	
1x25 rm	19/1.30	0.727	1.2	9.20	282.00	91	110	
1x35 rm	Min. 6 wire	0.524	1.2	9.70	364.00	112	136	
1x50 rm	Min. 6 wire	0.387	1.4	11.10	490.00	136	164	
1x70 rm	Min. 12 wire	0.268	1.4	12.80	716.00	173	207	
1x95 rm	Min. 15 wire	0.193	1.6	14.95	941.00	216	253	
1x120 rm	Min. 18 wire	0.153	1.6	16.40	1195.00	244	291	
1x150 rm	Min. 18 wire	0.124	1.8	18.30	1497.00	-	333	
1x185 rm	Min. 30 wire	0.0991	2.0	20.30	1851.00	-	381	
1x240 rm	Min. 34 wire	0.0754	2.2	23.30	2389.00	-	452	
1x300 rm	Min. 34 wire	0.0601	2.4	26.00	2976.00	-	526	
1x400 rm	Min. 53 wire	0.0470	2.6	29.20	3931.00	-	639	
1x500 rm	Min. 53 wire	0.0366	2.8	32.50	4906.00	-	752	
1x630 rm	Min. 53 wire	0.0283	2.8	36.50	6131.00	-	855	

Type: BYA-FR

Technical Details

Standard: BDS-900, BS-6004 & IEC-60227

Operating Voltage: 450/750 volts

Construction

Plain Annealed Copper Conductor

PVC Insulated (FR Grade)

Non-sheathed Single Core Cable

1. Copper Conductor
2. PVC Insulation (FR Grade)



Application

Recommended for civil engineering fixed installations i.e. field protected installation in lighting fittings and inside appliances.

Installation

Suitable for install in conduits, raceways, ducts, ladders, walls, direct buried.

It is recommended that the installation instructions indicated by the Local Electric Code, or any equivalent, be followed, so that the safeguarding of persons and the integrity of the product will not be affected by deficiencies in the installation.

Nominal Cross Sectional Area of Conductor	No. and Nominal Diameter of Wires	Maximum D.C. Resistance of Conductor at 20° C	Nominal Thickness of Insulation	Approx Overall Diameter	Approx Weight of Cable	Current Rating	
						Bunched & Enclosed in Conduits Two Cables Single Phase at 35°C	Clipped to a Surface or on a Cable Tray Bunched & Unenclosed 2 Cables Single Phase at 35°C
mm ²	no./mm	ohm/km	mm	mm	kg/km	amp	amp
1x0.5 re	1/0.80	36.00	0.6	2.10	10.50	7	9
1x0.75re	1/0.98	24.50	0.6	2.35	12.50	9	12
1x1.0 re	1/1.13	18.10	0.7	2.60	15.50	13	16
1x1.0rm	3/0.65	18.10	0.7	2.90	17.50	13	16
1x1.3rm	3/0.74	14.03	0.7	3.10	20.50	15	19
1x1.5 re	1/1.38	12.10	0.7	2.90	21.50	16	20
1x1.5 rm	3/0.80	12.10	0.7	3.10	22.50	16	20
1x1.5 rm	7/0.52	12.10	0.7	3.10	22.50	16	20
1x2.0rm	3/0.91	9.11	0.8	3.60	30.50	20	25
1x2.5 re	1/1.78	7.41	0.8	3.50	32.50	22	28
1x2.5 rm	7/0.67	7.41	0.8	3.70	34.50	22	28
1x3.0rm	7/0.74	5.99	0.8	3.90	40.50	26	31
1x4.0 rm	7/0.85	4.61	0.8	4.30	50.50	30	37
1x4.5rm	7/0.91	3.89	0.8	4.50	56.50	35	41
1x6.0 rm	7/1.05	3.08	0.8	4.95	71.50	38	47
1x7.0rm	7/1.12	2.61	1.0	5.50	85.50	42	51
1x9.5rm	7/1.32	1.86	1.0	6.15	114.50	51	62
1x10 rm	7/1.35	1.83	1.0	6.20	117.50	52	63
1x14.5rm	7/1.63	1.23	1.0	7.05	164.50	68	83
1x16 rm	7/1.71	1.15	1.0	7.35	178.50	70	85
1x16 rm	19/1.04	1.15	1.0	7.40	180.50	70	85
1x25 rm	7/2.14	0.727	1.2	9.00	280.50	91	110
1x25 rm	19/1.30	0.727	1.2	9.20	283.00	91	110
1x35 rm	Min. 6 wire	0.524	1.2	9.70	364.50	112	136
1x50 rm	Min. 6 wire	0.387	1.4	11.10	491.00	136	164
1x70 rm	Min. 12 wire	0.268	1.4	12.80	717.00	173	207
1x95 rm	Min. 15 wire	0.193	1.6	14.95	942.00	216	253
1x120 rm	Min. 18 wire	0.153	1.6	16.40	1196.00	244	291
1x150 rm	Min. 18 wire	0.124	1.8	18.30	1498.50	-	333

Table 2

1. Aluminium Conductor
2. PVC Insulation



Type: BAYA

Technical Details

Standard: BDS-900, BS-6004 & IEC-60227

Operating Voltage: 450/750 volts

Detail Description or Construction

Plain Annealed Aluminium Conductor

PVC Insulated

Non-sheathed Single Core Cable

Application

Recommended for civil engineering fixed installations i.e. field protected installation in lighting fittings and inside appliances.

Installation

Suitable for install in conduits, raceways, ducts, ladders, walls, direct buried.

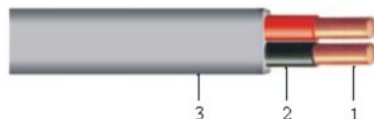
It is recommended that the installation instructions indicated by the Local Electric Code, or any equivalent, be followed, so that the safeguarding of persons and the integrity of the product will not be affected by deficiencies in the installation.

Table 3

Nominal Cross Sectional Area of Conductor	No. and Nominal Diameter of Wires	Maximum D.C. Resistance of Conductor at 20° C	Nominal Thickness of Insulation	Approx Overall Diameter	Approx Weight of Cable	Current Rating	
						Bunched and Enclosed in Conduits Two Cables Single Phase at 35°C	Clipped to a Surface or on a Cable Tray Bunched & Unenclosed 2 Cables Single Phase at 35°C
mm ²	no./mm	ohm/km	mm	mm	kg/km	amp	amp
1x1.3rm	3/0.74	22.95	0.7	3.10	12.00	9	11
1x1.5 re	1/1.38	18.10	0.7	2.90	12.50	10	12
1x1.5 rm	3/0.80	18.10	0.7	3.10	13.00	10	12
1x1.5 rm	7/0.52	18.10	0.7	3.10	13.50	10	12
1x2.0rm	3/0.91	15.18	0.8	3.60	18.00	12	15
1x2.5 re	1/1.78	12.10	0.8	3.50	18.50	14	17
1x2.5 rm	7/0.67	12.10	0.8	3.70	19.00	14	17
1x3.0rm	7/0.74	9.84	0.8	3.90	21.00	16	19
1x4.0 rm	7/0.85	7.41	0.8	4.30	26.00	18	23
1x4.5rm	7/0.91	6.51	0.8	4.50	28.00	21	25
1x6.0 rm	7/1.05	4.61	0.8	4.95	34.00	23	29
1x7.0rm	7/1.12	4.29	1.0	5.50	43.00	26	31
1x9.5rm	7/1.32	3.09	1.0	6.15	52.50	31	39
1x10 rm	7/1.35	3.08	1.0	6.20	53.00	32	40
1x14.5 rm	7/1.63	2.03	1.0	7.05	73.00	42	51
1x16 rm	7/1.71	1.91	1.0	7.35	77.00	43	52
1x16 rm	19/1.04	1.91	1.0	7.40	78.00	43	52
1x25 rm	7/2.14	1.20	1.2	9.00	117.00	56	68
1x25 rm	19/1.30	1.20	1.2	9.20	118.00	56	68
1x35 rm	Min. 6 wire	0.868	1.2	9.70	154.00	69	84
1x50 rm	Min. 6 wire	0.641	1.4	11.10	217.00	84	101
1x70 rm	Min. 12 wire	0.443	1.4	12.80	283.00	106	127
1x95 rm	Min. 15 wire	0.320	1.6	14.95	391.00	133	155
1x120 rm	Min. 18 wire	0.253	1.6	16.40	470.00	150	179
1x150 rm	Min. 18 wire	0.206	1.8	18.30	591.00	-	205
1x185 rm	Min. 30 wire	0.164	2.0	20.30	726.00	-	234
1x240 rm	Min. 34 wire	0.125	2.2	23.30	966.00	-	278
1x300 rm	Min. 34 wire	0.100	2.4	26.00	1170.00	-	323
1x400 rm	Min. 53 wire	0.0778	2.6	29.20	1531.00	-	392
1x500 rm	Min. 53 wire	0.0605	2.8	32.50	1901.00	-	462
1x630 rm	Min. 53 wire	0.0469	2.8	36.50	2352.00	-	525

Type: BYFY

1. Copper Conductor
2. PVC Insulation
3. PVC Sheath



Technical Details

Standard: BDS-900 , BS-6004& IEC-60227
Operating Voltage: 300/500 volts

Construction

Plain Annealed Copper Conductor
PVC Insulated
Two or Three Cores Laid FLAT
PVC Sheathed Overall
Color of Sheath: Grey/White

Application

Recommended for civil engineering fixed installations i.e. field protected installation in lighting fittings and inside appliances.

Installation

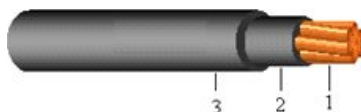
Suitable for install in conduits, raceways, ducts, ladders, walls, direct buried.

It is recommended that the installation instructions indicated by the Local Electric Code, or any equivalent, be followed, so that the safeguarding of persons and the integrity of the product will not be affected by deficiencies in the installation.

Nominal Cross Sectional Area of Conductor	No. and Nominal Diameter of Wires	Maximum D.C. Resistance of Conductor at 20° C	Nominal Thickness of Insulation	Nominal Thickness of Sheath	Approx Overall Dimension	Approx Weight of Cable	Current Rating	
							Enclosed in Conduits Single Phase at 35°C	Clipped to a Surface or on a Cable Tray One Cable Single Phase at 35°C
mm ²	no./mm	ohm/km	mm	mm	mmxmm	kg/km	amp	amp
2x1.0 re	1/1.13	18.10	0.6	0.9	6.8x4.4	55.00	13	15
2x1.3 rm	3/0.74	14.03	0.7	0.9	7.9x4.8	69.00	15	17
2x1.5 re	1/1.38	12.10	0.7	0.9	7.7x4.8	73.00	16	18
2x1.5 rm	7/0.52	12.10	0.7	0.9	7.9x4.9	77.00	16	18
2x2.0 rm	3/0.91	9.11	0.8	1.0	9.4x5.8	99.00	20	23
2x2.5 re	1/1.78	7.41	0.8	1.0	9.3x5.8	100.00	22	26
2x2.5 rm	7/0.67	7.41	0.8	1.0	9.5x5.8	104.00	22	26
2x3.0 rm	7/0.74	5.99	0.8	1.0	10.0x6.0	124.50	23	28
2x4.0 rm	7/0.85	4.61	0.8	1.0	10.8x6.5	152.50	30	33
2x4.5 rm	7/0.91	3.89	0.8	1.1	11.4x6.9	171.00	32	38
2x6.0 rm	7/1.05	3.08	0.8	1.1	12.1x7.3	205.00	37	43
2x7.0 rm	7/1.12	2.61	0.8	1.1	12.6x7.5	221.00	38	46
2x9.5 rm	7/1.32	1.86	1.0	1.2	14.8x8.7	316.50	48	57
2x10 rm	7/1.35	1.83	1.0	1.2	14.9x8.8	325.50	50	60
2x14.5 rm	7/1.63	1.23	1.0	1.2	16.7x9.6	427.00	64	76
2x16 rm	7/1.71	1.15	1.0	1.3	17.3x10.0	470.00	66	80
3x1.0 re	1/1.13	18.10	0.6	0.9	9.2x4.4	80.50	11	12
3x1.5 re	1/1.38	12.10	0.7	0.9	10.6x4.8	101.00	15	16
3x1.5 rm	7/0.52	12.10	0.7	0.9	10.8x4.9	112.50	15	16
3x2.5 re	1/1.78	7.41	0.8	1.0	12.6x5.7	150.00	20	22
3x2.5 rm	7/0.67	7.41	0.8	1.0	13.0x5.8	166.50	20	22
3x4.0 rm	7/0.85	4.61	0.8	1.1	15.2x6.7	231.00	28	33
3x6.0 rm	7/1.05	3.08	0.8	1.1	17.0x7.5	300.00	35	40
3x10 rm	7/1.35	1.83	1.0	1.2	21.0x8.9	490.50	48	54
3x16 rm	7/1.71	1.15	1.0	1.3	24.5x10.2	705.00	60	70

Table 4

1. Plain Annealed Copper Conductor
2. PVC Insulated
3. PVC Sheathed



Type: NYY

Technical Details

Standard: IEC -60502-1&VDE-0271/3.69

Operating Voltage: 600/1000 volts

Construction

Plain Annealed Copper Conductor

PVC Insulated

PVC Sheathed Single Core

Application

Fixed installation, maximum conductor temperature 70°C, circuit voltage does not exceed 750 volt.

Installation

Suitable for indoors, outdoors, underground and in water for continuous permissible service voltage of 720/1200 volts. It is recommended that the installation instructions indicated by the Local Electric Code, or any equivalent, be followed, so that the safeguarding of persons and the integrity of the product will not be affected by deficiencies in the installation.

Table 5	Nominal Cross Sectional Area of Conductor	No. and Nominal Diameter of Wires	Maximum D.C. Resistance of Conductor at 20° C	Nominal Thickness of Insulation	Nominal Thickness of Sheath	Approx Overall Diameter	Approx Weight of Cable	Current Rating	
								In Conduit Single Phase at 35° C	Clipped to a Surface or on a Cable Tray Single Phase at 35° C
	no. x mm ²	no./mm	ohm/km	mm	mm	mm	kg/km	amp	amp
1x1.5 re	1/1.38	12.10	0.8	1.8	6.80	65.50	27	22	
1x1.5 rm	7/0.52	12.10	0.8	1.8	6.90	68.00	27	22	
1x2.5 re	1/1.78	7.41	0.9	1.8	7.40	80.00	36	30	
1x2.5 rm	7/0.67	7.41	0.9	1.8	7.60	86.50	36	30	
1x4 rm	7/0.85	4.61	1.0	1.8	8.40	113.50	47	39	
1x6 rm	7/1.05	3.08	1.0	1.8	8.80	140.50	59	50	
1x10 rm	7/1.35	1.83	1.0	1.8	9.90	190.50	78	69	
1x16 rm	7/1.71	1.15	1.0	1.8	10.80	262.00	100	94	
1x16 rm	19/1.04	1.15	1.0	1.8	11.10	268.00	100	94	
1x25 rm	7/2.14	0.727	1.2	1.8	12.60	375.50	130	125	
1x25 rm	19/1.30	0.727	1.2	1.8	12.90	385.00	130	125	
1x35 rm	Min. 6 wire	0.524	1.2	1.8	13.40	472.50	155	160	
1x50 rm	Min. 6 wire	0.387	1.4	1.8	14.80	610.50	185	195	
1x70 rm	Min. 12 wire	0.268	1.4	1.8	16.50	846.00	225	245	
1x95 rm	Min. 15 wire	0.193	1.6	1.8	18.70	1096.00	270	300	
1x120 rm	Min. 18 wire	0.153	1.6	1.8	20.10	1339.50	310	350	
1x150 rm	Min. 18 wire	0.124	1.8	1.8	22.00	1641.00	350	405	
1x185 rm	Min. 30 wire	0.0991	2.0	2.0	24.50	2026.00	390	460	
1x240 rm	Min. 34 wire	0.0754	2.2	2.0	27.20	2640.00	450	555	
1x300 rm	Min. 34 wire	0.0601	2.4	2.0	29.90	3250.00	515	640	
1x400 rm	Min. 53 wire	0.0470	2.6	2.2	33.60	4221.00	585	770	
1x500 rm	Min. 53 wire	0.0366	3.0	2.2	37.30	5284.00	680	900	
1x630 rm	Min. 53 wire	0.0283	3.0	2.2	41.20	6515.00	800	1030	
1x800 rm	Min. 53 wire	0.0221	3.0	2.4	45.50	8164.00	945	1160	
1x1000 rm	Min. 53 wire	0.0176	3.0	2.6	50.10	10287.00	1095	1310	

Type: NYY

Technical Details

Standard: IEC -60502-1&VDE-0271/3.69

Operating Voltage: 600/1000 volts

Construction

Plain Annealed Copper Conductor
PVC Insulated, cross laid up
PVC common covering
PVC Sheathed overall
Multi Core

1. Plain Annealed Copper Conductor
2. PVC Insulation
3. PVC common covering
4. PVC Sheathed overall



Application

Fixed installation, maximum conductor temperature 70°C, circuit voltage does not exceed 750 volt.

Installation

Suitable for indoors, outdoors, underground and in water for continuous permissible service voltage of 720/1200 volts. It is recommended that the installation instructions indicated by the Local Electric Code, or any equivalent, be followed, so that the safeguarding of persons and the integrity of the product will not be affected by deficiencies in the installation.

Nominal Cross Sectional Area of Conductor	No. and Nominal Diameter of Wires	Maximum D.C. Resistance of Conductor at 20° C	Nominal Thickness of Insulation	Nominal Thickness of Sheath	Approx Overall Diameter	Approx Weight of Cable	Current Rating	
							Under Ground at 30oC	In Air at 35oC
no. x mm ²	no./mm	ohm/km	mm	mm	mm	kg/km	amp	amp
2x1.5 re	1/1.38	12.1	0.8	1.8	12.00	185.00	25	19
2x1.5 rm	7/0.52	12.1	0.8	1.8	12.10	195.50	25	19
2x2.5 re	1/1.78	7.41	0.9	1.8	13.10	240.50	34	27
2x2.5 rm	7/0.67	7.41	0.9	1.8	13.50	245.50	34	27
2x4.0 rm	7/0.85	4.61	1.0	1.8	15.10	320.00	44	35
2x6.0 rm	7/1.05	3.08	1.0	1.8	16.40	400.50	55	45
2x10 rm	7/1.35	1.83	1.0	1.8	18.10	551.00	74	62
2x16 rm	7/1.71	1.15	1.0	1.8	20.20	721.00	97	84
2x25 rm	7/2.14	0.727	1.2	1.8	24.60	1051.00	125	110
2x35 rm	19/1.53	0.524	1.2	2.0	27.50	1350.50	150	140
3x1.5 re	1/1.38	12.1	0.8	1.8	12.20	200.00	22	16
3x1.5 rm	7/0.52	12.1	0.8	1.8	12.50	210.50	22	16
3x2.5 re	1/1.78	7.41	0.9	1.8	13.60	266.50	30	23
3x2.5 rm	7/0.67	7.41	0.9	1.8	14.10	275.50	30	23
3x4.0 rm	7/0.85	4.61	1.0	1.8	15.90	377.00	38	32
3x6.0 rm	7/1.05	3.08	1.0	1.8	17.10	465.00	48	41
3x10 rm	7/1.35	1.83	1.0	1.8	19.00	650.50	64	56
3x16 rm	7/1.71	1.15	1.0	1.8	21.90	901.00	83	75
3x25 rm	7/2.14	0.727	1.2	2.0	25.80	1360.50	110	98
3x35 sm	Min.6 wire	0.524	1.2	1.8	23.50	1441.00	130	120
3x50 sm	Min.6 wire	0.387	1.4	2.0	27.10	2001.00	155	150
3x70 sm	Min.12 wire	0.268	1.4	2.0	30.10	2601.00	190	190
3x95 sm	Min.15 wire	0.193	1.6	2.0	34.60	3550.00	225	230
3x120 sm	Min.18 wire	0.153	1.6	2.2	37.20	4301.00	260	270
3x150 sm	Min.18 wire	0.124	1.8	2.2	41.00	5300.00	295	305
3x185 sm	Min.30 wire	0.0991	2.0	2.2	44.60	6461.00	330	350
3x240 sm	Min.34 wire	0.0754	2.2	2.6	50.50	8380.00	385	410
3x300 sm	Min.34 wire	0.0601	2.4	2.6	55.20	10351.00	425	470

Table 6

1. Plain Annealed Copper Conductor
2. PVC Insulation
3. PVC common covering
4. PVC Sheathed overall



Type: NYY

Technical Details

Standard: IEC -60502-1&VDE-0271/3.69

Operating Voltage: 600/1000 volts

Construction

Plain Annealed Copper Conductor
PVC Insulated, cross laid up
PVC common covering
PVC Sheathed overall
Multi Core

Installation

Suitable for indoors, outdoors, underground and in water for continuous permissible service voltage of 720/1200 volts. It is recommended that the installation instructions indicated by the Local Electric Code, or any equivalent, be followed, so that the safeguarding of persons and the integrity of the product will not be affected by deficiencies in the installation.

Table 7	Nominal Cross Sectional Area of Conductor	No. and Nominal Diameter of Wires	Maximum D.C. Resistance of Conductor at 20° C	Nominal Thickness of Insulation	Nominal Thickness of Sheath	Approx Overall Diameter	Approx Weight of Cable	Current Rating	
								Under Ground at 30oC	In Air at 35oC
	no. x mm ²	no./mm	ohm/km	mm	mm	mm	kg/km	amp	amp
	3x25rm/1x16rm	7/2.14 7/1.71	0.727 1.15	1.2 1.0	2.0	27.40	1576.00	110	98
	3x35sm/1x16rm	Min 6 wire 7/1.71	0.524 1.15	1.2 1.0	2.0	27.20	1741.00	130	120
	3x50 sm/1x25 rm	Min 6 wire 7/2.14	0.387 0.727	1.4 1.2	2.0	29.60	2360.00	155	150
	3x70 sm/1x35 rm	Min 12 wire Min. 6 wire	0.268 0.524	1.4 1.2	2.0	34.90	3331.50	190	190
	3x95 sm/1x50 rm	Min 15 wire Min. 6 wire	0.193 0.387	1.6 1.4	2.2	38.90	4501.00	225	230
	3x120 sm/1x70 rm	Min 18 wire Min. 12 wire	0.153 0.268	1.6 1.4	2.2	41.50	5400.00	260	270
	3x150 sm/1x70 rm	Min 18 wire Min. 12 wire	0.124 0.268	1.8 1.4	2.6	46.10	6201.00	295	305
	3x185 sm/1x95 rm	Min 30 wire Min. 15 wire	0.0991 0.193	2.0 1.6	2.6	51.00	7800.50	330	350
	3x240 sm/1x120 rm	Min 34 wire Min. 18 wire	0.0754 0.153	2.2 1.6	3.0	57.10	9851.00	385	410
	3x300 sm/1x150 rm	Min 34 wire Min. 18 wire	0.0601 0.124	2.4 1.8	3.0	63.50	12501.00	425	470
	4x1.5re	1/1.38	12.10	0.8	1.8	13.00	255.00	22	16
	4x1.5rm	7/0.52	12.10	0.8	1.8	13.30	261.00	22	16
	4x2.5re	1/1.78	7.41	0.9	1.8	14.60	330.50	30	23
	4x2.5rm	7/0.67	7.41	0.9	1.8	14.90	360.50	30	23
	4x4rm	7/0.85	4.61	1.0	1.8	17.10	461.00	38	32
	4x6rm	7/1.05	3.08	1.0	1.8	18.50	600.00	48	41
	4x10rm	7/1.35	1.83	1.0	1.8	20.60	820.00	64	56
	4x16rm	7/1.71	1.15	1.0	1.8	24.10	1151.00	83	75
	4x25 rm	7/2.14	0.727	1.2	2.0	28.50	1731.00	110	98
	4x35sm	Min. 6 wire	0.524	1.2	2.0	27.20	1951.00	130	120
	4x50 sm	Min. 6 wire	0.387	1.4	2.0	29.90	2620.00	155	150
	4x70 sm	Min. 12 wire	0.268	1.4	2.0	35.20	3461.00	190	190
	4x95 sm	Min. 15 wire	0.193	1.6	2.2	39.40	4800.00	225	230
	4x120 sm	Min. 18 wire	0.153	1.6	2.2	42.10	5701.00	260	270
	4x150 sm	Min. 18 wire	0.124	1.8	2.6	46.60	7081.00	295	305
	4x185 sm	Min. 30 wire	0.0991	2.0	2.6	51.40	8640.00	330	350
	4x240 sm	Min. 34 wire	0.0754	2.2	3.0	58.00	11301.00	385	410
	4x300sm	Min. 34 wire	0.0601	2.4	3.0	64.30	13762.00	425	470

Type: NAYY

Technical Details

Standard: IEC -60502-1&VDE-0271/3.69

Operating Voltage: 600/1000 volts

Construction

Plain Aluminium Conductor
PVC Insulated
PVC Sheathed
Single Core

1. Plain Aluminium Conductor
2. PVC Insulated
3. PVC Sheathed



Application

Fixed installation, maximum conductor temperature 70°C, circuit voltage does not exceed 750 volt.

Installation

Suitable for indoors, outdoors, underground and in water for continuous permissible service voltage of 720/1200 volts. It is recommended that the installation instructions indicated by the Local Electric Code, or any equivalent, be followed, so that the safeguarding of persons and the integrity of the product will not be affected by deficiencies in the installation.

Nominal Cross Sectional Area of Conductor	No. and Nominal Diameter of Wires	Maximum D.C. Resistance of Conductor at 20° C	Nominal Thickness of Insulation	Nominal Thickness of Sheath	Approx Overall Diameter	Approx Weight of Cable	Current Rating	
							Under Ground at 30oC	In Air at 35oC
no. x mm ²	no./mm	ohm/km	mm	mm	mm	kg/km	amp	amp
1 x 1.5 re	1/1.38	18.10	0.8	1.8	6.80	56.00	21	18
1 x 2.5 re	1/1.78	12.10	0.9	1.8	7.40	69.00	28	25
1 x 4 rm	7/0.85	7.41	1.0	1.8	8.40	88.50	36	32
1 x 6 rm	7/1.05	4.61	1.0	1.8	8.80	102.00	44	41
1 x 10 rm	7/1.35	3.08	1.0	1.8	9.90	127.00	59	56
1 x 16 rm	7/1.71	1.91	1.0	1.8	10.80	158.00	75	72
1 x 25 rm	7/2.14	1.20	1.2	1.8	12.60	216.50	97	99
1 x 35 rm	Min. 6 wire	0.868	1.2	1.8	13.40	262.00	120	120
1 x 50 rm	Min. 6 wire	0.641	1.4	1.8	14.80	342.00	145	150
1 x 70 rm	Min. 12 wire	0.443	1.4	1.8	16.50	426.00	170	185
1 x 95 rm	Min. 15 wire	0.320	1.6	1.8	18.70	542.50	205	215
1 x 120 rm	Min. 18 wire	0.253	1.6	1.8	20.10	639.00	250	260
1 x 150 rm	Min. 18 wire	0.206	1.8	1.8	22.00	790.00	285	294
1 x 185 rm	Min. 30 wire	0.164	2.0	2.0	24.50	954.00	325	333
1 x 240 rm	Min. 34 wire	0.125	2.2	2.0	27.20	1194.50	368	382
1 x 300 rm	Min. 34 wire	0.100	2.4	2.0	29.90	1452.00	407	431
1 x 400 rm	Min. 53 wire	0.0778	2.6	2.2	33.60	1882.00	455	496
1 x 500 rm	Min. 53 wire	0.0605	3.0	2.2	37.30	2320.00	483	534
1 x 630 rm	Min. 53 wire	0.0469	3.0	2.2	41.20	2775.00	538	610

Table 8

1. Plain Aluminium Conductor
2. PVC Insulation
3. PVC common covering
4. PVC Sheathed overall



Type: NAYY

Technical Details

Standard: IEC -60502-1&VDE-0271/3.69

Operating Voltage: 600/1000 volts

Construction

Plain Aluminium Conductor
PVC Insulated, cross laid up
PVC common covering
PVC Sheathed overall
Multi Core

Application

Fixed installation, maximum conductor temperature 70°C, circuit voltage does not exceed 750 volt.

Installation

Suitable for indoors, outdoors, underground and in water for continuous permissible service voltage of 720/1200 volts. It is recommended that the installation instructions indicated by the Local Electric Code, or any equivalent, be followed, so that the safeguarding of persons and the integrity of the product will not be affected by deficiencies in the installation.

Table 9	Nominal Cross Sectional Area of Conductor	No. and Nominal Diameter of Wires	Maximum D.C. Resistance of Conductor at 20° C	Nominal Thickness of Insulation	Nominal Thickness of Sheath	Approx Overall Diameter	Approx Weight of Cable	Current Rating	
								Under Ground at 30°C	In Air at 35° C
								no. x mm ²	no./mm
	2x1.5 re	1/1.38	18.10	0.8	1.8	12.00	160.00	18	16
	2x2.5 re	1/1.78	12.10	0.9	1.8	13.10	200.50	25	21
	2x4.0 rm	7/0.85	7.41	1.0	1.8	15.10	260.50	33	29
	2x6.0 rm	7/1.05	4.61	1.0	1.8	16.40	301.50	42	38
	2x10 rm	7/1.35	3.08	1.0	1.8	18.10	380.00	58	51
	2x16 rm	7/1.71	1.91	1.0	1.8	20.20	476.00	74	64
	2x25 rm	7/2.14	1.20	1.2	1.8	24.60	682.00	97	85
	2x35 rm	19/1.53	0.868	1.2	2.0	27.50	886.50	119	108
	3x1.5 re	1/1.38	18.1	0.8	1.8	12.20	175.00	16	13
	3x2.5 re	1/1.78	12.10	0.9	1.8	13.60	215.50	22	19
	3 x 4.0 rm	7/0.85	7.41	1.0	1.8	15.90	286.00	29	25
	3 x 6.0 rm	7/1.05	4.61	1.0	1.8	17.10	336.00	37	33
	3 x 10 rm	7/1.35	3.08	1.0	1.8	19.00	420.00	49	44
	3 x 16 rm	7/1.71	1.91	1.0	1.8	21.90	576.00	64	56
	3 x 25 rm	7/2.14	1.20	1.2	2.0	25.80	826.00	82	76
	3 x 35 sm	Min 6 wire	0.868	1.2	1.8	23.50	732.00	99	94
	3 x 50sm	Min 6 wire	0.641	1.4	2.0	27.10	1000.00	119	114
	3 x 70sm	Min 12 wire	0.443	1.4	2.0	30.10	1251.00	146	142
	3 x 95sm	Min 15 wire	0.320	1.6	2.0	34.60	1640.00	178	169
	3 x 120sm	Min 15 wire	0.253	1.6	2.2	37.20	1956.00	201	196
	3 x 150sm	Min 15 wire	0.206	1.8	2.2	41.00	2400.00	229	223
	3 x 185sm	Min 30 wire	0.164	2.0	2.2	44.60	2921.00	256	262
	3 x 240sm	Min 30 wire	0.125	2.2	2.6	50.50	3761.00	300	305
	3 x 300sm	Min 30 wire	0.100	2.4	2.6	55.20	4500.00	332	343

Type: NAYY

1. Plain Aluminium Conductor
2. PVC Insulation
3. PVC common covering
4. PVC Sheathed overall



Technical Details

Standard: IEC -60502-1&VDE-0271/3.69

Operating Voltage: 600/1000 volts

Construction

Plain Aluminium Conductor
PVC Insulated, cross laid up
PVC common covering
PVC Sheathed overall
Multi Core

Installation

Suitable for indoors, outdoors, underground and in water for continuous permissible service voltage of 720/1200 volts. It is recommended that the installation instructions indicated by the Local Electric Code, or any equivalent, be followed, so that the safeguarding of persons and the integrity of the product will not be affected by deficiencies in the installation.

Nominal Cross Sectional Area of Conductor	No. and Nominal Diameter of Wires	Maximum D.C. Resistance of Conductor at 20° C	Nominal Thickness of Insulation	Nominal Thickness of Sheath	Approx Overall Diameter	Approx Weight of Cable	Current Rating	
							Under Ground at 30° C	In Air at 35° C
no. x mm ²	no./mm	ohm/km	mm	mm	mm	kg/km	amp	amp
3x25rm/ 1x16rm	7/2.14 7/1.71	1.20 1.91	1.2 1.0	2.0	27.40	861.00	82	76
3x35sm/ 1x16rm	Min 6 wire 7/1.71	0.868 1.91	1.2 1.0	2.0	27.20	1050.00	99	94
3x50sm/ 1x25rm	Min 6 wire 7/2.14	0.641 1.20	1.4 1.2	2.0	29.60	1221.00	119	114
3x70sm/ 1x35rm	Min 12 wire 19/1.53	0.443 0.868	1.4 1.2	2.0	34.90	1590.00	146	142
3x95sm/ 1x50rm	Min 15 wire 19/1.83	0.320 0.641	1.6 1.4	2.2	38.90	2051.00	178	169
3x120sm/ 1x70rm	Min 15 wire 19/2.17	0.253 0.443	1.6 1.4	2.2	41.50	2440.50	201	196
3x150sm/ 1x70rm	Min 15 wire 19/2.17	0.206 0.443	1.8 1.4	2.6	46.10	2965.50	229	223
3x185sm/ 1x95rm	Min 30 wire 19/2.52	0.164 0.320	2.0 1.6	2.6	51.00	3621.00	256	262
3x240sm/ 1x120rm	Min 30 wire 37/2.03	0.125 0.253	2.2 1.6	3.0	57.10	4601.00	300	305
3x300 sm/ 1x150 rm	Min 30 wire 37/2.27	0.100 0.206	2.4 1.8	3.0	63.50	5560.00	332	343
4x1.5 re	1/1.38	18.1	0.8	1.8	13.10	201.00	16	13
4x2.5re	1/1.78	12.1	0.9	1.8	14.60	251.00	22	19
4x4rm	7/0.85	7.41	1.0	1.8	17.10	336.00	29	25
4x6rm	7/1.05	4.61	1.0	1.8	18.50	401.00	37	33
4x10rm	7/1.35	3.08	1.0	1.8	20.60	519.00	49	44
4x16rm	7/1.71	1.91	1.0	1.8	24.10	712.50	64	56
4x25 rm	7/2.14	1.20	1.2	2.0	28.50	1011.00	82	76
4x35sm	Min. 6 wire	0.868	1.2	2.0	27.20	973.00	99	94
4x50sm	Min. 6 wire	0.641	1.4	2.0	29.90	1281.00	119	114
4x70sm	Min. 12 wire	0.443	1.4	2.0	35.20	1691.50	146	142
4x95sm	Min. 15 wire	0.320	1.6	2.2	39.40	2151.00	178	169
4x120sm	Min. 15 wire	0.253	1.6	2.2	42.10	2530.00	202	196
4x150sm	Min. 15 wire	0.206	1.8	2.6	46.60	3180.00	229	224
4x185sm	Min. 30 wire	0.164	2.0	2.6	51.40	3811.00	256	262
4x240sm	Min. 30 wire	0.125	2.2	3.0	58.00	4935.50	300	305
4x300sm	Min. 30 wire	0.100	2.4	3.0	64.30	5968.00	332	343

Table 10

1. Copper Conductor
2. PVC Insulation



PVC Ins. Flexible Cable

Technical Details

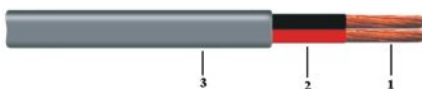
Standard: BS-6004 & BDS-899
Operating Voltage: 300/500 volts

Construction

Plain Annealed Flexible Copper Conductor
PVC Insulated
Single Core/Twin Core
Twisted with suitable lay

Table 11	Nominal Cross Sectional Area of Conductor	No. and Nominal Diameter of Wires	Max.DC Resistance of Conductor at 20 °C	Nominal Thickness of Insulation	Approx Overall Diameter of Each Core	Approx Weight of Cable	Current Rating	
							In Conduit at 35° C Ambient Temp	In Air at 35° C Ambient Temp.
	No. x mm ²	No./inch	mm	mm	mm	kg/km	amp	amp
	1x0.4	14 / 0.19	46.98	0.6	2.20	9.00	2	3
	1x0.5	16 / 0.20	39.00	0.6	2.30	10.00	3	4
	1x0.65	23 / 0.19	28.60	0.6	2.40	11.00	5	6
	1x0.75	24 / 0.20	26.00	0.6	2.55	13.50	7	8
	1x1.0	32 / 0.20	19.50	0.6	2.70	16.00	9	11
	1x1.2	40 / 0.19	16.44	0.6	2.85	17.00	11	13
	1x1.5	30 / 0.25	13.30	0.7	3.25	23.00	14	16
	1x2.0	70 / 0.19	9.40	0.7	3.50	28.00	16	18
	1x2.5	50 / 0.25	7.98	0.8	3.85	35.50	19	21
	1x3.0	110 / 0.19	5.98	0.8	4.15	43.00	21	23
	1x4.0	56 / 0.30	4.95	0.8	4.50	51.00	23	25
	2x0.4	14 / 0.19	46.98	0.6	2.20	18.00	2	3
	2x0.65	23 / 0.19	28.60	0.6	2.40	22.50	5	6
	2x1.2	40 / 0.19	16.44	0.6	2.85	34.00	11	13
	2x2.0	70 / 0.19	9.40	0.7	3.50	56.00	16	18

1. Copper Conductor
2. PVC Insulation
3. PVC Sheath



PVC Ins. Flexible Flat Cable

Technical Details

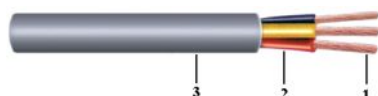
Standard : BS-6004 & BDS-899
Operating Voltage: 300/500 volts

Construction

Plain Annealed Flexible Copper Conductor
PVC Insulated
Cores laid side by side
Twin core flat cable
PVC Sheathed

Table 12	Nominal Cross Sectional Area of Conductor	No. and Nominal Diameter of Wires	Maximum D.C. Resistance of Conductor at 20° C	Nominal Thickness of Insulation	Nominal Thickness of Sheath	Approx Overall Diameter	Approx Weight of Cable	Current Rating	
								In Conduit at 35°C Ambient Temp	In Air at 35°C Ambient Temp.
	no. x mm ²	no./mm	ohm/km	mm	mm	mm	kg/km	amp	amp
	2 x 0.40	14 / 0.19	46.98	0.6	0.8	6.10 x 3.90	35.00	3	4
	2 x 0.65	23 / 0.19	28.60	0.6	0.8	6.4 x 4.21	44.00	6	8

1. Copper Conductor
2. PVC Insulation
3. PVC Sheath



Flexible Cords (Circular)

Technical Details

Standard: BS-6500&BDS-899
Operating Voltage: 300/500 volts

Construction

Plain Annealed Flexible Copper Conductor
PVC Insulated
Cores twisted with suitable lay
PVC Sheathed

Nominal Cross Sectional Area of Conductor	No. and Nominal Diameter of Wires	Maximum D.C. Resistance of Conductor at 20° C	Nominal Thickness of Insulation	Nominal Thickness of Sheath	Approx Overall Diameter	Approx Weight of Cable	Current Rating	
							In Conduit Single Phase at 35°C Ambient Temp	Clipped to a Surface or on a Cable Tray Single Phase at 35°C Ambient Temp.
no. x mm ²	no./mm	ohm/km	mm	mm	mm	kg/km	amp	amp
2x0.4	14/0.19	46.98	0.6	0.8	5.90	49.00	3	4
2x0.5	16/0.20	39.00	0.6	0.8	6.15	53.50	3	4
2x0.65	23/0.19	28.60	0.6	0.8	6.40	59.00	5	6
2x0.75	24/0.20	26.00	0.6	0.8	6.60	63.50	6	7
2x1.0	32/0.20	19.50	0.6	0.8	6.95	73.00	10	11
2x1.2	40/0.19	16.44	0.7	0.8	7.45	82.00	13	15
2x1.5	30/0.25	13.30	0.7	0.8	7.70	95.00	15	16
2x2.0	70/0.19	9.40	0.8	0.9	9.00	126.00	18	20
2x2.5	50/0.25	7.98	0.8	1.0	9.55	145.50	20	21
2x3.0	110/0.19	5.98	0.8	1.0	10.20	167.00	24	25
2x4.0	56/0.30	4.95	0.8	1.1	10.90	198.50	25	26
3x0.4	14/0.19	46.98	0.6	0.8	6.20	55.00	2	3
3x0.5	16/0.20	39.00	0.6	0.8	6.40	62.00	3	4
3x0.65	23/0.19	28.60	0.6	0.8	6.70	69.00	5	6
3x0.75	24/0.20	26.00	0.6	0.8	7.00	75.00	6	7
3x1.0	32/0.20	19.50	0.6	0.8	7.20	86.50	10	11
3x1.2	40/0.19	16.44	0.7	0.9	8.10	103.00	11	14
3x1.5	30/0.25	13.30	0.7	0.9	8.60	120.00	15	16
3x2.0	70/0.19	9.40	0.8	1.0	9.80	154.00	16	20
3x2.5	50/0.25	7.98	0.8	1.1	10.60	182.00	20	21
3x3.0	110/0.19	5.98	0.8	1.1	11.00	210.00	21	24
3x4.0	56/0.30	4.95	0.8	1.2	11.90	252.00	25	26
4x0.4	14/0.19	46.98	0.6	0.8	6.80	68.00	2	3
4x0.5	16/0.20	39.00	0.6	0.8	7.10	75.00	3	4
4x0.65	23/0.19	28.60	0.6	0.8	7.30	84.00	5	6
4x0.75	24/0.20	26.00	0.6	0.8	7.55	91.00	6	7
4x1.0	32/0.20	19.50	0.6	0.9	8.10	110.00	10	11
4x1.2	40/0.19	16.44	0.7	1.0	9.00	130.00	11	14
4x1.5	30/0.25	13.30	0.7	1.0	9.55	152.00	15	16
4x2.0	70/0.19	9.40	0.8	1.1	10.85	196.00	16	20
4x2.5	50/0.25	7.98	0.8	1.1	11.30	223.50	20	21
4x3.0	110/0.19	5.98	0.8	1.2	12.10	262.00	21	24
4x4.0	56/0.30	4.95	0.8	1.2	13.10	310.00	25	26

Table 13

Type: NYY-1

1. Copper Conductor
2. PVC Insulation
3. PVC Common Covering
4. PVC Sheath



Technical Details

Standard: VDE-0271/3.69 & IEC-60502-1

Operating Voltage: 600/1000 volts

Construction

Plain Annealed Copper Conductor
PVC Insulated
Cores Laid Up
PVC Common Covering
PVC Sheathed Overall
Color of Sheath: Black

Description

Plain annealed Copper conductor, PVC insulated multi cores laid up and PVC sheathed.

Application

For use as control cable. It can be laid indoors, underground and in water for continuous service voltage of 720/1200 volts.

Table 14	Nominal Cross Sectional Area of Conductor	No. and Nominal Diameter of Wires	Maximum D.C. Resistance of Conductor at 20° C	Nominal Thickness of Insulation	Nominal Thickness of Sheath	Approx Overall Diameter	Approx Weight of Cable	Current Rating	
								Under Ground at 30° C	In Air at 35° C
	no. x mm ²	no./mm	ohm/km	mm	mm	mm	kg/km	amp	amp
5x1.5 re	1/1.38	12.1	0.8	1.8	13.00	210.50	18	13	
7x1.5 re	1/1.38	12.1	0.8	1.8	13.60	258.50	16	12	
10x1.5 re	1/1.38	12.1	0.8	1.8	17.10	365.00	13	10	
12x1.5 re	1/1.38	12.1	0.8	1.8	17.60	421.00	12	9	
16x1.5 re	1/1.38	12.1	0.8	1.8	19.30	540.00	11	8	
19x1.5 re	1/1.38	12.1	0.8	1.8	20.10	611.00	10	7	
21x1.5 re	1/1.38	12.1	0.8	1.8	21.10	661.00	9	7	
24x1.5 re	1/1.38	12.1	0.8	1.8	22.90	741.00	9	7	
30x1.5 re	1/1.38	12.1	0.8	2.0	24.60	900.00	8	6	
5x2.5 re	1/1.78	7.41	0.9	1.8	14.50	301.00	24	19	
7x2.5 re	1/1.78	7.41	0.9	1.8	15.50	375.50	21	17	
10x2.5 re	1/1.78	7.41	0.9	1.8	19.20	521.00	18	14	
12x2.5 re	1/1.78	7.41	0.9	1.8	19.80	590.50	16	13	
16x2.5 re	1/1.78	7.41	0.9	1.8	21.90	751.00	14	11	
19x2.5 re	1/1.78	7.41	0.9	1.8	22.90	881.00	13	10	
21x2.5 re	1/1.78	7.41	0.9	2.0	24.60	961.00	13	10	
24x2.5 re	1/1.78	7.41	0.9	2.0	27.10	1100.00	12	9	
30x2.5 re	1/1.78	7.41	0.9	2.0	28.50	1311.00	10	8	
5x4 rm	7/0.85	4.61	1.0	1.8	17.30	431.00	31	25	
7x4 rm	7/0.85	4.61	1.0	1.8	18.60	540.00	27	22	
10x4 rm	7/0.85	4.61	1.0	1.8	23.20	751.00	23	19	
12x4 rm	7/0.85	4.61	1.0	2.0	24.40	882.00	21	17	

Type: NYYP

1. Copper Conductor
2. PVC Insulation
3. PVC Common Covering
4. PVC Sheath



Technical Details

Standard: VDE – 0271/3.69 & IEC-60502-1
Operating Voltage: 600/1000 volts

Detail Description or Construction

Plain Annealed Flexible Copper Conductor
PVC Insulated
Single / multi-cores laid up with Filling Compound if
necessary PVC Sheathed Overall
Color of Sheath: Black

Installation

Suitable for use in temporary installation for power connection, decorative illumination, temporary site illumination.

Nominal Cross Sectional Area of Conductor	No. and Nominal Diameter of Wires	Maximum D.C. Resistance of Conductor at 20°C	Nominal Thickness of Insulation	Nominal Thickness of Sheath	Approx Overall Diameter	Approx Weight of Cable	Current Rating at 35°C Ambient Temp.	Table 15
no. x mm ²	no./mm	ohm/km	mm	mm	mm	kg/km	amp	
1 x 1.0rm	32 / 0.20	19.50	0.8	1.8	6.90	61.50	15	
1 x 1.5rm	30 / 0.25	13.30	0.8	1.8	7.20	70.00	24	
1 x 2.5rm	50 / 0.25	7.98	0.9	1.8	7.80	90.50	32	
1 x 4 rm	56 / 0.30	4.95	1.0	1.8	8.60	112.50	41	
1 x 6 rm	84 / 0.30	3.30	1.0	1.8	9.35	141.00	52	
1 x 10 rm	80 / 0.40	1.91	1.0	1.8	10.40	191.50	72	
1 x 16 rm	126 / 0.40	1.21	1.0	1.8	11.70	265.00	98	
1 x 25 rm	196 / 0.40	0.780	1.2	1.8	13.60	379.50	131	
1 x 35 rm	276 / 0.40	0.554	1.2	1.8	15.10	490.50	167	
1 x 50 rm	396 / 0.40	0.386	1.4	1.8	17.20	675.00	204	
1 x 70 rm	360 / 0.50	0.272	1.4	1.8	19.20	890.00	256	
1 x 95 rm	475 / 0.50	0.206	1.6	1.8	21.70	1170.00	314	
1 x 120 rm	608 / 0.50	0.161	1.6	1.8	23.50	1431.00	366	
1 x 150 rm	760 / 0.50	0.129	1.8	1.8	25.80	1761.00	423	
1 x 185rm	950 / 0.50	0.106	2.0	2.0	28.50	2195.00	478	
2 x 1.0rm	32 / 0.20	19.50	0.8	1.8	11.60	176.00	12	
2 x 1.5rm	30 / 0.25	13.30	0.8	1.8	12.25	198.00	20	
2 x 2.5rm	50 / 0.25	7.98	0.9	1.8	13.50	245.50	28	
2 x 4 rm	56 / 0.30	4.95	1.0	1.8	15.00	313.00	37	
2 x 6 rm	84 / 0.30	3.30	1.0	1.8	17.10	401.00	47	
2 x 10 rm	80 / 0.40	1.91	1.0	1.8	18.70	529.00	64	
2 x 16 rm	126 / 0.40	1.21	1.0	1.8	22.15	750.00	86	
2 x 25 rm	196 / 0.40	0.780	1.2	2.0	26.30	1135.00	112	
2 x 35 rm	276 / 0.40	0.554	1.2	2.0	29.20	1451.00	142	

1. Copper Conductor
2. PVC Insulation
3. PVC Common Covering
4. PVC Sheath



Type: NYFF

Technical Details

Standard: VDE-0271/3.69 & IEC-60502-1

Operating Voltage: 600/1000 volts

Construction

Plain Annealed Flexible Copper Conductor

PVC Insulated

Single / multi-cores laid up with Filling Compound if

necessary PVC Sheathed Overall

Color of Sheath: Black

Installation

Installation: Suitable for use in temporary installation for power connection, decorative illumination, temporary site illumination.

Table 16

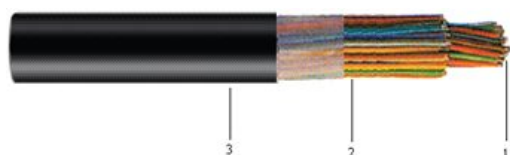
Nominal Cross Sectional Area of Conductor	No. and Nominal Diameter of Wires	Maximum D.C. Resistance of Conductor at 20°C	Nominal Thickness of Insulation	Nominal Thickness of Sheath	Approx Overall Diameter	Approx Weight of Cable	Current Rating at 35°C Ambient Temp.
no. x mm ²	no./mm	ohm/km	mm	mm	mm	kg/km	amp
3 x 1.0rm	32 / 0.20	19.50	0.8	1.8	12.20	196.00	12
3 x 1.5rm	30 / 0.25	13.30	0.8	1.8	12.70	218.50	17
3 x 2.5rm	50 / 0.25	7.98	0.9	1.8	14.40	292.50	24
3 x 4 rm	56 / 0.30	4.95	1.0	1.8	16.10	380.00	33
3 x 6 rm	84 / 0.30	3.30	1.0	1.8	17.75	485.00	43
3 x 10 rm	80 / 0.40	1.91	1.0	1.8	19.80	655.50	58
3 x 16 rm	126 / 0.40	1.21	1.0	1.8	23.80	980.00	78
3 x 25 rm	196 / 0.40	0.780	1.2	2.0	28.25	1431.00	102
3 x 35 rm	276 / 0.40	0.554	1.2	2.0	31.10	1842.00	125
4 x 1.0rm	32 / 0.20	19.50	0.8	1.8	13.00	226.00	12
4 x 1.5rm	30 / 0.25	13.30	0.8	1.8	13.70	261.00	17
4 x 2.5rm	50 / 0.25	7.98	0.9	1.8	15.20	346.50	24
4 x 4 rm	56 / 0.30	4.95	1.0	1.8	17.70	460.50	33
4 x 6 rm	84 / 0.30	3.30	1.0	1.8	18.90	575.00	43
4 x 10 rm	80 / 0.40	1.91	1.0	1.8	22.00	835.00	58
4 x 16 rm	126 / 0.40	1.21	1.0	2.0	26.25	1211.00	78
4 x 25 rm	196 / 0.40	0.780	1.2	2.0	30.70	1740.50	102
4 x 35 rm	276 / 0.40	0.554	1.2	2.0	34.20	2282.00	125

Type: Telecommunication Cables

1. Copper conductor
2. PE insulation
3. PVC sheathed

Technical Details

ITD S/WS-113B/113C/114B
Permissible Voltage: 200V



Installation

Copper conductor 0.6mm diameter. PE insulated and PVC sheathed. Suitable for use in telecommunication and signal circuits. Also suitable for expose or concealed conduit installation permissible voltage 200 V.

No. of Core	Nominal Cross Sectional Area mm ²	No. and Size of Wire no./mm	Thickness of Insulation mm	Thickness of Sheath mm	Approx Overall Dia. mm	Approx Weight kg/km
1 Pair (2 cores)	0.282	1 / 0.6	0.2	0.8	4.3	23.0
2 Pair (4 cores)	0.282	1 / 0.6	0.2	0.8	4.7	33.0
3 Pair (6 cores)	0.282	1 / 0.6	0.2	1.0	5.7	45.0
4 Pair (8 cores)	0.282	1 / 0.6	0.2	1.2	6.8	63.0
5 Pair (10 cores)	0.282	1 / 0.6	0.2	1.2	7.3	75.0
6 Pair (12 cores)	0.282	1 / 0.6	0.2	1.4	8.2	89.0
7 Pair (14 cores)	0.282	1 / 0.6	0.2	1.4	8.5	101.0
8 Pair (16 cores)	0.282	1 / 0.6	0.2	1.4	9.5	105.0
10 Pair (20 cores)	0.282	1 / 0.6	0.2	1.4	10.4	140.0
15 Pair (30 cores)	0.282	1 / 0.6	0.2	1.4	12.0	192.0
20 Pair (40 cores)	0.282	1 / 0.6	0.2	1.6	14.2	250.0
25 Pair (50 cores)	0.282	1 / 0.6	0.2	1.6	15.7	301.0
30 Pair (60 cores)	0.282	1 / 0.6	0.2	1.6	16.9	353.0
40 Pair (80 cores)	0.282	1 / 0.6	0.2	1.6	18.4	438.0
50 Pair (100 cores)	0.282	1 / 0.6	0.2	1.6	20.1	526.0
100 Pair (200 cores)	0.282	1 / 0.6	0.2	1.6	26.7	936.0

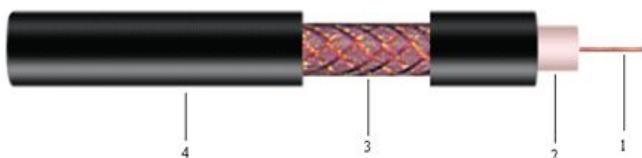
Table 17

Type: Co-Axial Cables

1. Copper conductor
2. polyethylene insulated
3. Screen braided
4. PVC sheathed

Technical Details

Type: PE Insulated & PVC Sheathed Co-Axial Cables
IS 11967: 1989



Installation

Plain annealed Copper conductor, polyethylene insulated with screen braided and PVC sheathed for use as aerial downloads in local and fringe reception areas at both Very High Frequency and Ultra High Frequency.

Table 18

Code No.	Nominal cross sectional area of conductor	Number and nominal diameter of wire	Diameter of wire with dielectric insulation	Thickness of sheath	Overall diameter	Impedence	Approx. weight
	mm ²	No./mm	mm	mm	mm	Ohm	Kg/km
3/C	0.20	1/0.50	3.0	0.9	5.70	75	36
4/C	0.42	1/0.73	3.8	1.0	6.65	75	52
5/C	0.64	1/0.90	4.2	1.2	7.50	75	64
RG-6 /U	0.82	1/1.02	4.3	1.2	7.60	75	70
6/C	1.23	1/1.25	5.4	1.2	8.60	75	84
RG-11/U	2.09	1/1.63	6.8	1.2	10.20	75	115

Jumper Wires

Technical Details

Type: PVC Insulated Twisted Jumper Wire
ITD S/WJ-1D1C 1994(Multicore)
Dia: 0.132 mm



Table 19

No. of Core	Nominal Cross Sectional Area	No. and Size of Wire	Thickness of Insulation	Approx Overall Diameter	Approx Weight
No.	mm ²	no./mm	mm	mm	Kg/km
2 core (1 Pair)	0.123	9 / 0.132	0.2	2.3	6
4 core (2 Pair)	0.123	9 / 0.132	0.2	2.8	12
6 core (3 Pair)	0.123	9 / 0.132	0.2	3.5	18
8 core (4 Pair)	0.123	9 / 0.132	0.2	3.65	24
10 core (5 Pair)	0.123	9 / 0.132	0.2	4	30

Type: Drop Wire

Technical Details

IS 11967: 1989
VDE - 0815 (Type: J-YY)
ITD S/WS-118D



1. Conductor: Copper
2. Insulation: PVC/PE

PVC Insulated

No. of Core	No. and Size of Core	Thickness of Insulation	Approx Overall Diameter	Approx Weight	Table 20
No.	No./mm	mm	mm	kg/km	
2 core (1 Pair)	1 / 0.60	0.787	4.11 x 2.32	19.00	
2 core (1 Pair)	1 / 0.90	1.050	6.30 x 3.20	31.50	

PE Insulated

No. of Core	No. and Size of Core	Thickness of Insulation	Approx Overall Diameter	Approx Weight	Table 21
No.	No./mm	mm	mm	kg/km	
2 core (1 Pair)	1 / 0.60	0.787	4.11 x 2.32	12.00	
2 core (1 Pair)	1 / 0.90	1.050	6.30 x 3.20	25.00	



1. Conductor: Copper
2. Insulation: PVC/PE
3. Sheath: PVC

Telephone Cord

Technical Details

Type: PVC Insulated,
PVC Sheathed Telephone Cords
ITD Spec. No. S/WS-114D 1995 (Multicore)

No. of Core	Nominal Cross Sectional Area	No. and Size of Wire	Thickness of Insulation	Thickness of Sheath	Approx Overall Diameter	Approx Weight	Table 22
No.	mm ²	no./mm	mm	mm	mm	Kg/km	
2 core (1 Pair)	0.123	9 / 0.132	0.381	0.915	4.45	27	
4 core (2 Pair)	0.123	9 / 0.132	0.381	0.915	4.45	27	
6 core (3 Pair)	0.123	9 / 0.132	0.381	0.915	4.75	32	

Short Circuit Ratings – Conductors

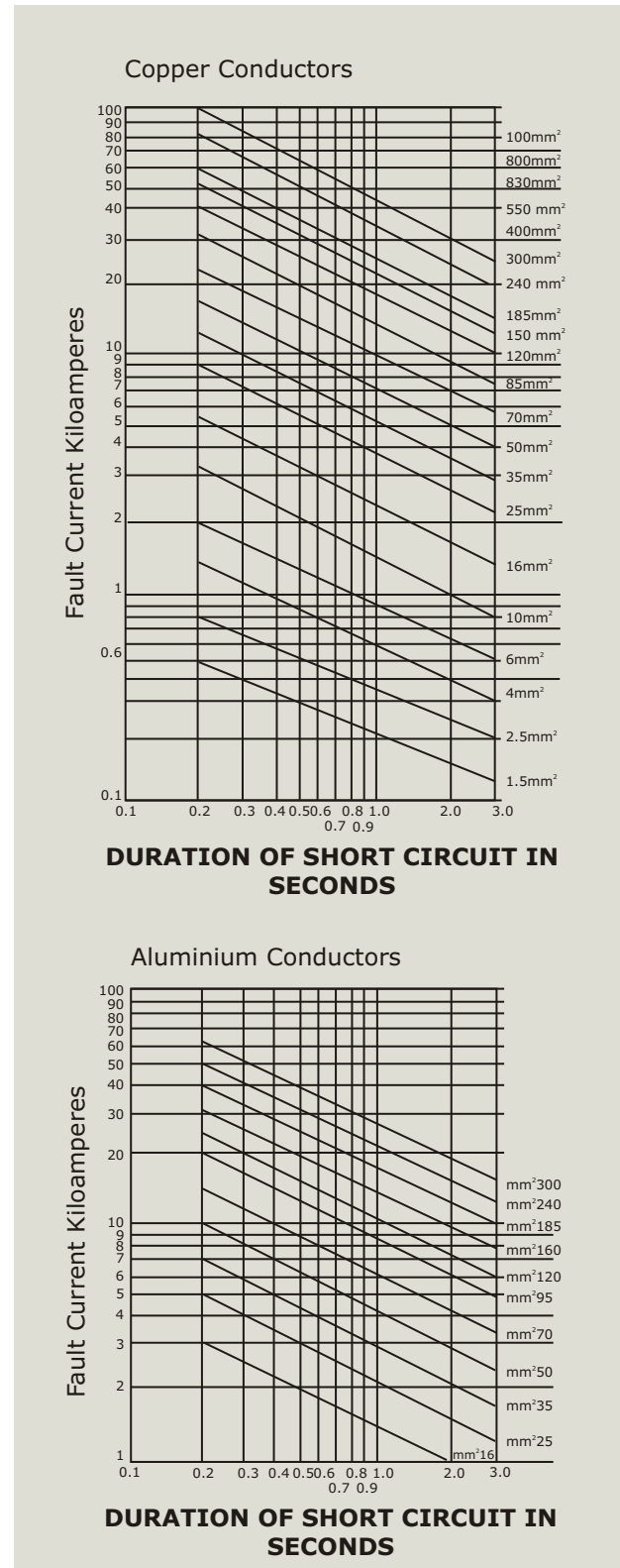
Conductor Size mm ²	Short Circuit ratings for 1 second in KA	
	Copper Conductor	Aluminium Conductor
1.5	0.21	0.14
2.5	0.36	0.24
4	0.57	0.38
6	0.86	0.56
10	1.43	0.94
16	2.29	1.50
25	3.58	2.35
35	5.00	3.29
50	7.15	4.70
70	10.01	6.58
95	13.59	8.93
120	17.16	11.28
150	21.45	14.10
185	26.46	17.39
240	34.32	22.56
300	42.90	28.20
400	57.20	37.60
630	90.09	59.22
800	114.40	75.20
1000	143.00	94.00

Note: For any other duration 't' seconds divide the given value by \sqrt{t}

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

Note:

With XLPE cables the use of soldered type connectors (instead of the compression type) is not recommended since their use in the system would limit the final conductor temperature to 160 °C (and consequently reduce the fault current rating by approximately 30 per cent).



Properties of Copper and Aluminum

Characteristics	Unit	Copper		Aluminum	
		Hard-drawn	Annealed	Hard-drawn	Annealed
Melting Point	°C	1083		658	
Specific gravity	-	8.892		2.703	
Tensile strength	Kgf/mm ²	34-47	20-28	15-20	7-14
Electrical Resistivity at 20°C	Microhm-cm	1.777	1.724	2.873	2.820
Conductivity at 20°C	% IACS	97	100	60	61
Temperature Co-efficient of Resistance at 20°C	-	0.00381	0.00393	0.00400	0.00420
Co-efficient of linear expansion	*10 ⁻⁶ /°C	17		23	
Thermal Conductivity	W/°C.cm	3.86		2.39	
	cal /°C.cm.	0.92		0.53	
Specific Heat	J/°C. Cr	3.4		2.4	
	cal/°C.g	0.092		0.21	

Comparison of Copper and Aluminum Conductors

Particulars	Aluminum Annealed EC grade (Take annealed Copper as 100%)	Copper (Annealed) (Take annealed Aluminum as 100%)
For equal Cross sectional area and length		
Weight	30	329
Resistance	164	61
Breaking load (Approx.)	41	244
For equal weight and length		
Area	329	30
Diameter	180	55
Resistance	50	200
Breaking load (Approx.)	137	73
For equal resistance		
Area	164	61
Diameter	128	78
Weight	50	200
Breaking load (Approx.)	68	147
For equal current and temperature rise		
Weight	42	237
Diameter	119	84

TECHNICAL INFORMATION

Tensile and Elongation

Tensile tests are conducted to determine the tensile strength/break strength and elongation of a conductor. These properties depend on the alloy and temper as well as the size of the conductor being tested.

Effect of Conductor Size

Tensile strength is a material property that is independent of geometry and dimensions. A material's tensile strength is dependent upon the temper of the sample being tested.

Break strength is defined as the maximum load the sample can sustain before rupture. It is dependent upon the material, its temper and the cross-sectional area of the specimen. Larger conductors of the same material and temper will have higher break strength. Break strength is a definitive measured property which does not require any calculation.

Elongation can be affected by conductor size and specimen gage length. Normally, elongation for a material is dependent upon its temper, however, finer diameter conductor strands with the same temper will have lower elongation. Decreasing the specimen length will increase the apparent elongation.

Measuring Techniques

Stranding can affect the tensile and elongation results of a conductor material. NEMA, military and other standards recognize that for size 22 AWG (0.4 mm²) and smaller, the tensile test is performed on the whole conductor. For conductors larger than 20 AWG (0.6mm²), strands are removed and tensile test is performed on individual strands.

Strain rate can affect tensile and elongation results. Excessive tensile rates or shock loading can raise tensile strength and decrease elongation results. ASTM recommends a straining rate no greater than 10 inches/ minute (250 mm/ minute) for copper and copper alloys (ASTM B 624) and no greater than 3 inches/ minute (75 mm/minute) for hard temper alloys (ASTM B 105).

Conductor Elongation

Tensile and elongation are measures of a material's temper are usually specified in conductor requirements for most materials other than pure copper. Copper, considered the standard conductor material, has been well characterized throughout its many years of use. Its tensile characteristics are well documented and understood. Present specifications (ASTM, NEMA, etc) require only the use of elongation as the measure of copper's temper in its final conductor form. Procurement specifications for materials other than copper should contain requirements for tensile strength or break strength and/ or elongation.

Lay Direction and length

Stranded conductors are manufactured by twisting strands of un-insulated wire. The direction of the twists of the strands is designated as the "lay direction". The degree of twisting per unit length is the "lay length".

Lay Direction

The lay direction is determined by the direction machine is turning during the stranding operation. The conventional method of determining the lay direction is to observe the upper surface of the stranded conductor with one end pointing toward yourself and the wire leading away from you:

If the individual strands on the layer leading away from the observer are pointing toward the left then that particular layer has a "left hand lay". The strands have the same slant as the middle of the letter "S", hence the other convention denoted as an "S" lay direction.



Left Hand Lay or "S" direction

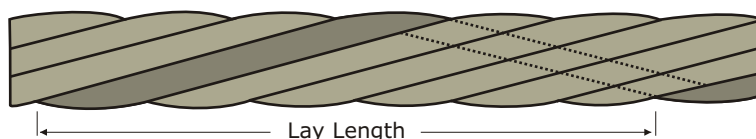
If the individual strands on the layer leading away from the observer are pointing toward the right then that particular layer has a "right hand lay". The strands have the same slant as the middle of the letter "Z", hence the other convention denoted as an "Z" lay direction.



Right Hand Lay or "Z" direction

Lay Length

lay length is defined as the distance required to complete one revolution of the strand around the diameter of the conductor.



When a conductor has more than one layer, it usually refers to the lay length of the outer layer. In the case of Unilay, Equilay and bunch, the lay length of all layers is equal. In True Concentric and Unidirectional, the lay length of the inner layers are less, this also holds true for rope constructions.

The information provided on this page is for reference purposes only.

Electrical Wire and Cable Glossary

- Anneal:** To subject a material to a heat treatment to remove the effects of cold work, lowering its tensile strength, rendering it softer with greater elongation.
- Armored Cable:** A cable provided with a wrapping of metal, usually steel wires, flat tapes, or interlocked tapes, primarily for the purpose of mechanical protection.
- AWG:** American Wire Gage. A standard used to specify the physical size of a solid or stranded conductor primarily used in the United States. Originally called the Brown and Sharpe Gage.
- Break Strength:** The maximum load that a specimen attains when tested in tension to fracture.
- Cable Core:** A cable core is the portion of an insulated cable lying under the protective covering or coverings.
- Concentric Construction:** A central wire surrounded by one or more layers of helically laid wires in a geometric pattern. Concentric constructions have 7, 19, 37, 61, etc. strands.
- Conductivity:** A term used in describing the capability of a material to carry an electrical charge. Usually expressed as a percentage of copper conductivity -- copper being one hundred (100%) percent. Conductivity is expressed for a standard configuration of conductor.
- Conductor:** A wire or combination of wires not insulated from one another, suitable for carrying an electric current.
- Conductor Core:** The center strand or member about which one or more layers of wires or members are laid helically to form a concentric-lay or rope-lay conductor. Core -Any portion of a cable over which some other cable component, such as a shield, jacket, sheath or armor, is applied.
- Creepage:** Electrical leakage on a solid dielectric surface.
- Cross Sectional Area of a Conductor:** The sum of cross sectional areas of all the individual wires composing the conductor. It is generally expressed in circular mils.
- Current-carrying Capacity:** The maximum current an insulated conductor or cable can continuously carry without exceeding its temperature rating. It is also called ampacity.
- Density:** The weight per unit volume of a substance.
- Dielectric Constant:** That property (K) of an insulating material which is the ratio of the parallel capacitance (C) of a given configuration of electrodes with the material as the dielectric, to the capacitance of the same electrode configuration with a vacuum as the dielectric.
- Dielectric Strength:** The voltage which an insulating material can withstand before breakdown occurs, usually expressed as a voltage gradient (such as volts per mil).
- Direction of Lay:** The lateral direction, designated as left-hand or right-hand, in which the wires of a member or units of a conductor run over the top of the member or conductor as they recede from an observer looking along the axis of the member or conductor.
- Elongation:** A measure of a material's ability to stretch or elongate prior to fracture. It is expressed as a percentage (increase in length) over a specified gage length (typically 10 inches for wire).
- Equilay Concentric:** A central wire surrounded by one or more layers of helically laid wires in a geometric pattern, with alternately reversed lay direction and the same lay length.
- Embossing:** A means of marker identification by means of thermal indentation leaving raised lettering on the sheath material of cable.
- Flame Resistance:** The ability of a burning material to extinguish its own flame, once its flame-initiating heat source is removed.



Fire/Flame Retardant: Ability of a material to prevent the spread of combustion by a low rate of travel so the Fire/flame will not be conveyed.

Flexibility: The capability of being bent when an external force is applied, its pliability or limberness. Low flexibility translates to being more rigid or stiff.

Hard Drawn: A term referring to the temper of conductors that are drawn without annealing to the finish temper.

Heat Shock: A test to determine stability of a material by sudden exposure to a high temperature for a short period of time.

Impedance: The analog of resistance in an AC (alternating current) circuit. Impedance depends upon the resistance, inductance, capacitance and frequency of the circuit. The unit of impedance is the ohm.

Lay: The distance along a cable occupied by one complete helix of a strand or conductor. The direction of lay (left or right hand) is the direction of the helix looking away from an observer. Also to arrange the wires or members of a conductor either by twisting them or by forming them into one or more layers helically applied.

Lay Direction: The helical direction of the strands or members in any layer of a stranded construction. The two lay directions are usually denoted as "S" (left hand lay) or "Z" (right hand lay).

Length of Lay: The axial length of one turn of the helix of a wire or member.

Lay Factor: The ratio of the lay length to the external diameter of the corresponding layer of wires or members in the stranded conductor.

Lay Length (length of Lay): The axial length for one revolution of a strand or member in any layer of a stranded or rope stranded construction.

Messenger Wire: A metallic supporting member either solid or stranded which may also perform the function of a conductor.

Mil: Unit of measure equal to 1/1000 of an inch.

Moisture Absorption: The amount of water that an insulation or jacket, which is initially dry, will absorb under specified conditions. It is expressed as the percentage ration of the absorbed water's weight to the weight of the jacket or insulation alone.

Nominal: Name or identifying value of a measurable property by which a conductor or component or property of a conductor is identified, and to which tolerances are applied.

Ohm: A unit of electrical resistance defined as the resistance necessary to produce 1 ampere of current to flow in a circuit with an applied potential of 1 volt.

Resistance: A measure of a component's opposition to the flow of electric current, specified in ohms.

Resistivity: The characteristic of a material to impede the flow of electrons (electrical current). It is the material's electrical resistance for a unit volume. This value is specific to a material and not its geometry.

Specific Gravity: The density (mass per unit volume) of any material divided by that of water at a standard temperature.

Stranding Factor: The increase in weight and electrical resistance of a conductor due to the lay length of the strands or members.

Temperature Coefficient of Resistance: The change in a material's electrical resistance (resistivity) due to a change of one degree in temperature. It is expressed in units per °C (or units per °F).

Temperature Rating: The maximum temperature at which a given insulation or jacket may be safely maintained during continuous use, without incurring any thermally-induced deterioration.

Tensile Strength: The maximum longitudinal tensile stress that may be applied to a material without fracturing or rupturing, calculated to a reference unit (lbs/in², kg/mm², etc.) by dividing the breaking load by the cross-sectional area.

Tensile Stress: Force per unit cross-sectional area applied to a material.

True Concentric: A central wire surrounded by one or more layers of helically laid wires in a geometric pattern, with alternately reversed lay direction and increasing lay length.

Unilay (Unidirectional Equilay Concentric): A central wire surrounded by one or more layers of helically laid wires in a geometric pattern, with the same lay direction and the same lay length.

Volt: Unit of electromotive force. It is the difference of potential required to make a current of one ampere flow through resistance of one ohm.

Voltage Drop: The voltage developed between the terminals of a circuit component by the flow of current through the resistance or impedance of that part.

Voltage Rating: The maximum voltage at which a given cable or insulated conductor may be safely maintained during continuous use in a normal manner. It is also called working voltage.

Wire Gage: Any of several standard systems for designating wire sizes. As an example, see American Wire Gage.

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