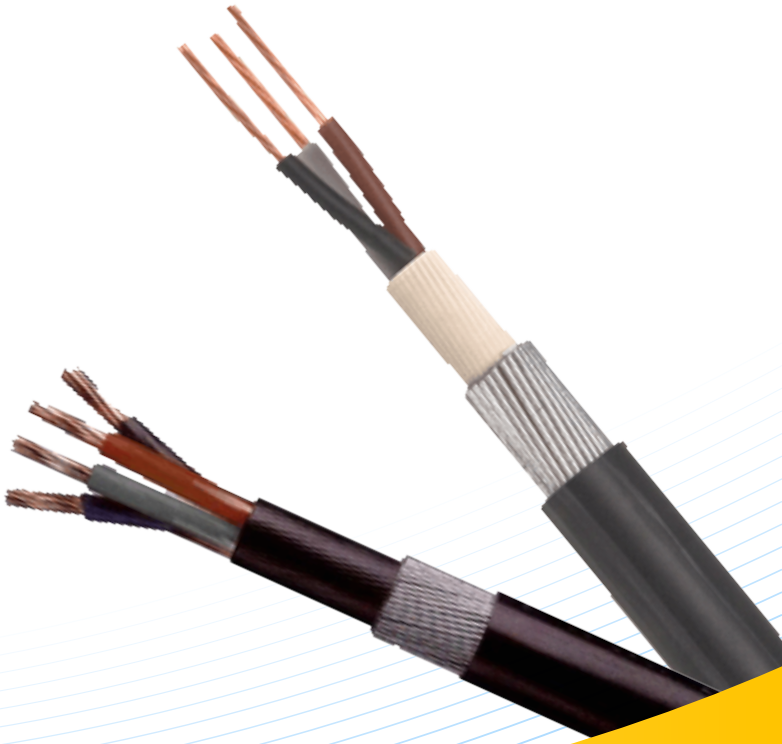
Caledonian

BS 6346
PVC Insulated, Armored Power and Control Cables



www.caledonian-cables.co.uk
www.caledonian-cables.com

Addison

Company Profile

Caledonian. established in 1978.offers one of the most complete lines of fiber and copper cabling system solutions with over hundreds of different cabling system products. . Our superior products provide leading edge within every cable series and for every application.

Among the national and international standards with which our cables could comply are: BS - British Standard; LPCB Fire Performance Standard. ISO Standard etc. Caledonian Cables offers a comprehensive stock of cables and cabling products through its nationwide network of resellers and distributors. Caledonian Cables has continually expanded its global presence in Europe and Asia.

Caledonian & Addison. produces a wide range of cables for communication. power and electronics in its primary plants in UK. Italy and Spain. To stay in front. we continually keep expanding our manufacturing capabilities in more low cost region such as Romania. Taiwan. Malaysia etc. This low-cost manufacturing facilities enable us provide a flexible. scalable global system that delivers superior operational performance and optimal results for our customers.

Our extensive global network of manufacturing facilities gives us significant scale and the flexibility to fulfill our customer requirements. This global presence provides design and consultancy solutions that are combined with core cable manufacturing. logistic services. and vertically integrated with our E commerce technologies. to optimize customer operations by lowering costs and reducing time to market.

Caledonian & Addison has been respected for its high standards of quality. excellent service level. competitive pricing and a unique and innovative spirit. With our latest technologies. we are both inspired and well-positioned to meet the changing needs of our customers. We have the resources to diversify and to enhance our product lines and services. We understand the need for change and with our accurate planning. we are ready for the future and the promise of new marketing opportunities. Our tradition of growth through excellence is assured.

Our Design Centers work closely with customers to constantly improve its standard range of products and technologies and to develop customized. country and industry-specific solutions. Caledonian & Addison has established an extensive network of design. manufacturing. and logistics facilities in the world’s major markets to serve the growing outsourcing needs of both multinational and regional customers.

Our Certificate

ISO 9001
REGISTERED FIRM

Registration Certificate

This document certifies that the administration systems of

Caledonian Cables Limited/Addison Technology Limited
Marchants Industrial Centre, Mill Lane, Laughton, Lewes, Sussex, BN8 6AJ, United Kingdom

have been assessed and approved by QAS International to the following management systems, standards and guidelines:

ISO 9001 : 2008
With the permitted exclusion of clauses 7.3 Design and Development

The approved administration systems apply to the following:

The manufacture and supply of electrical cables and ancillary power equipment to customers internationally.

Original Approval	6th September 1997
Current Certificate	7th February 2010
Certificate Expiry	7th February 2011
Certificate Number	A6211

On behalf of QAS International
www.qas-international.com

This certificate remains valid while the holder maintains their quality administration systems in accordance with the standards and guidelines stated above, which will be audited annually by QAS International. The holder is entitled to display the above registration mark for the duration of this certificate. This certificate must be returned to QAS International on reasonable request.
Issuing Office: QAS International, The Gig House, Oxford Street, Malmesbury, Wiltshire, SN16 9AX

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BS 6346 PVC Insulated Cables, 600/1000V

Application

These power and control cables are used for electricity supply in low voltage installation system. They are well adapted to underground use in industrial applications where chemical and mechanical protections are needed (refinery areas, chemical plant...).

Construction

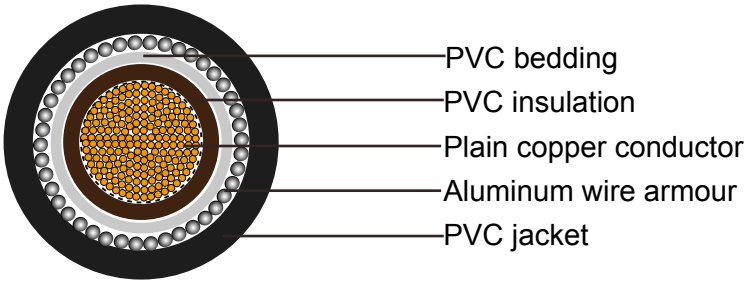
Conductor	Solid Aluminum or Copper conductor, round stranded or shaped, Class 2 to BS 6460, IEC 60228.
Insulation	PVC(Polyvinyl Chloride) type TI1
Colour Code	1 Core : Brown 2 Cores: Brown or Blue 3 Cores: Brown, Black, Grey 4 Cores: Blue, Brown, Black, Grey 5 Cores: Green-yellow, Blue, Brown, Black, Grey Above 5 Cores: White Cores with black numbers
Filler(optional)	PVC or Polypropylene yarn
Binder Tape(optional)	Polyester (Mylar) tape
Inner Sheath/ Bedding	PVC (Polyvinyl Chloride)
Armour	Single Core: AWA (Aluminum Wire Armour) Multi Core: SWA (Steel Wire or Tape Armour)
Outer Sheath	PVC(Polyvinyl Chloride), type TM1

Technical Information

Voltage rating	600/1000V
Temperature rating	-20°C to +60°C
Bending radius	Single core: 10 x overall diameter Multicores: 8 x overall diameter
Flame retardant	IEC60332 part 1, BS4066 part 1

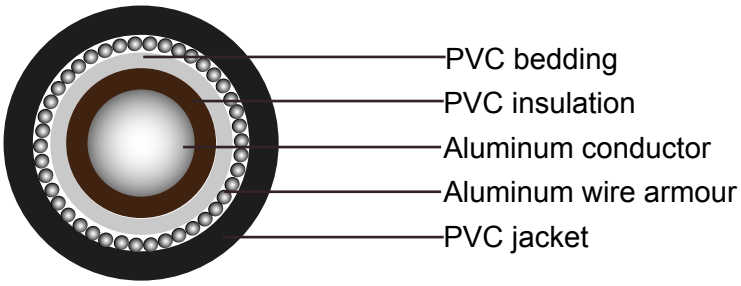
Cable Parameter

Single-core 600/1000V cables with circular stranded copper conductor



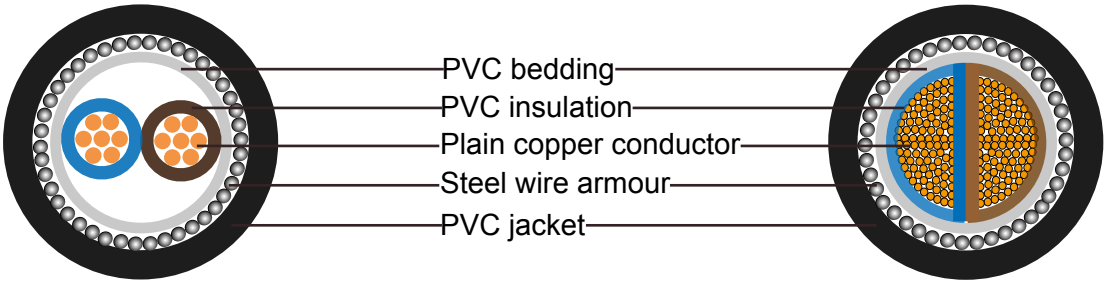
Nominal cross-sectional area	Number/ wire	Nominal insulation thickness	Nominal bedding thickness	Nominal alum wire armor dia.	Nominal sheath thickness	Approx. overall diameter	Approx. cable weight
mm²	No./mm	mm	mm	mm	mm	mm	kg/km
1x50	19/1.78	1.4	0.8	1.25	1.5	19.1	820
1x70	19/2.14	1.4	0.8	1.25	1.6	21.1	1070
1x95	19/2.52	1.6	0.8	1.25	1.6	23.4	1390
1x120	37/2.03	1.6	1.0	1.6	1.7	26.3	1600
1x150	37/2.25	1.8	1.0	1.6	1.7	28.3	1900
1x185	37/2.52	2.0	1.0	1.6	1.8	30.8	2450
1x240	61/2.25	2.2	1.0	1.6	1.9	34.1	3100
1x300	61/2.52	2.4	1.0	1.6	1.9	37.0	3760
1x400	61/2.85	2.6	1.2	2.0	2.1	42.0	4850
1x500	61/3.20	2.8	1.2	2.0	2.1	45.6	5930
1x630	61/3.65	2.8	1.2	2.0	2.2	49.7	7390
1x800	127/2.85	2.8	1.4	2.5	2.4	55.8	9400
1x1000	127/3.20	3.0	1.4	2.5	2.5	61.0	11430

Single-core 600/1000V cables with solid aluminum conductor



Nominal cross-sectional area	Nominal insulation thickness	Nominal bedding thick-ness	Nominal alum wire armor dia.	Armour strip		Nominal sheath thick-ness	Approx. overall diameter		Approx. cable weight
				thick-ness	width		wire armor	strip armor	
mm²	mm	mm	mm	mm	mm	mm	mm	mm	kg/km
1x50	1.4	0.8	1.25	0.6	2.4	1.5	17.8	16.5	530
1x70	1.4	0.8	1.25	0.6	2.4	1.6	19.6	18.3	650
1x95	1.6	0.8	1.25	0.6	2.4	1.6	21.7	20.4	810
1x120	1.6	1	1.6	0.6	2.4	1.7	24.3	22.3	960
1x150	1.8	1	1.6	0.6	2.4	1.7	26.1	24.1	1115
1x185	2	1	1.6	1	3.6	1.8	28.3	27.1	1315
1x240	2.2	1	1.6	1	3.6	1.9	31.2	30	1610
1x300	2.4	1	1.6	1	3.6	1.9	33.7	32.5	1890

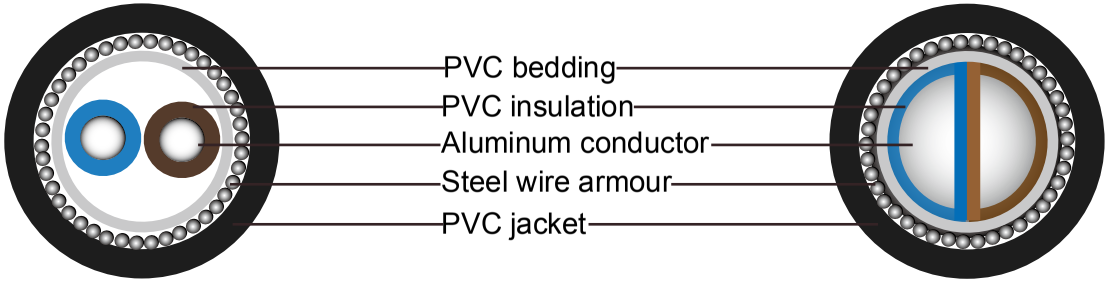
Two-core 600/1000V cables with stranded copper conductors



Nominal cross-sectional area	Number/ wire	Nominal insulation thickness	Nominal bedding thick-ness	Nominal wire armor dia.	Nominal sheath thick-ness	Approx. overall diameter		Approx. cable weight
						extruded bedding	taped bedding	
mm²	No./mm	mm	mm	mm	mm	mm	mm	kg/mm
2x1.5	7/0.53	0.6	0.8	0.9	1.4	12.3	-	270
2x2.5	7/0.67	0.7	0.8	0.9	1.4	13.6	-	350
2x4	7/0.85	0.8	0.8	0.9	1.4	15.1	-	470
2x6	7/1.04	0.8	0.8	0.9	1.5	16.5	-	580
2x10	7/1.35	1.0	0.8	1.25	1.6	20.1	-	840
2x16	7/1.70	1.0	0.8	1.25	1.6	21.9	21.9	990
2x25	7/2.14	1.2	1.0	1.6	1.7	26.7	26.3	1480
2x25*	7/2.14	1.2	1.0	1.6	1.7	23.0	22.6	1480
2x35	19/1.53	1.2	1.0	1.6	1.8	29.2	28.8	1770
2x35*	19/1.53	1.2	1.0	1.6	1.8	24.8	24.4	1770
2x50*	19/1.78	1.4	1.0	1.6	1.9	27.8	27.4	1900
2x70*	19/2.14	1.4	1.0	1.6	1.9	30.4	30.0	2430
2x95*	19/2.52	1.6	1.2	2.0	2.1	35.5	34.7	2970
2x120*	37/2.03	1.6	1.2	2.0	2.2	38.0	37.2	3970
2x150*	37/2.25	1.8	1.2	2.0	2.3	41.3	40.5	4700
2x185*	37/2.52	2.0	1.4	2.5	2.4	46.4	45.2	5990
2x240*	61/2.25	2.2	1.4	2.5	2.5	51.2	50.0	7420
2x300*	61/2.52	2.4	1.6	2.5	2.7	56.4	54.8	8950
2x400*	61/2.85	2.6	1.6	2.5	2.9	61.9	60.3	11030

*Shaped stranded conductor (class 2)

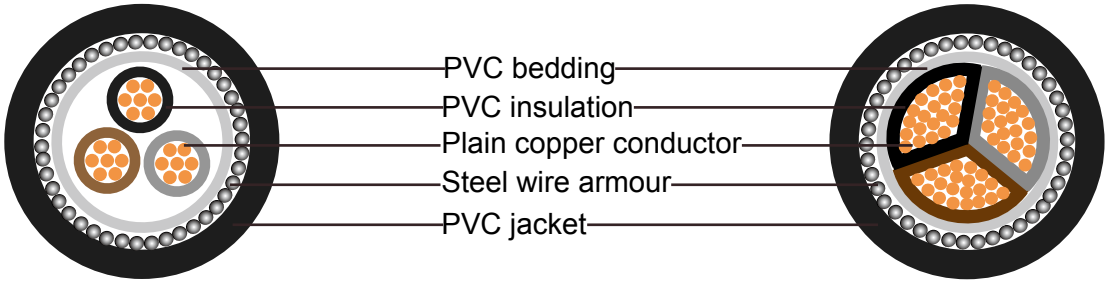
Two-core 600/1000V cables with solid aluminum conductors



Nominal cross-sectional area	Nominal insulation thickness	Nominal bedding thickness	Nominal wire armor dia.	Armour strip		Nominal sheath thickness	Approx. overall diameter			Approx. cable weight
				thickness	width		wire armor		strip armor	
							extruded bedding	taped bedding		
mm²	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg/km
2x16	1	0.8	1.25	0.6	2.4	1.6	20.6	20.6	19.3	795
2x25	1.2	1	1.6	0.6	2.4	1.7	25	24.6	22.6	1170
2x25*	1.2	1	1.6	0.6	2.4	1.7	21.3	20.9	18.9	1170
2x35	1.2	1	1.6	0.6	2.4	1.8	27.2	26.8	24.8	1340
2x35*	1.2	1	1.6	0.6	2.4	1.8	22.9	22.5	20.5	1340
2x50*	1.4	1	1.6	0.6	2.4	1.9	25.5	25.1	23.1	1450
2x70*	1.4	1	1.6	1	3.6	1.9	27.7	27.3	26.1	1560
2x95*	1.6	1.2	2.0	1	3.6	2.1	32.4	31.6	29.6	2200

*Solid shaped conductor (class 1)

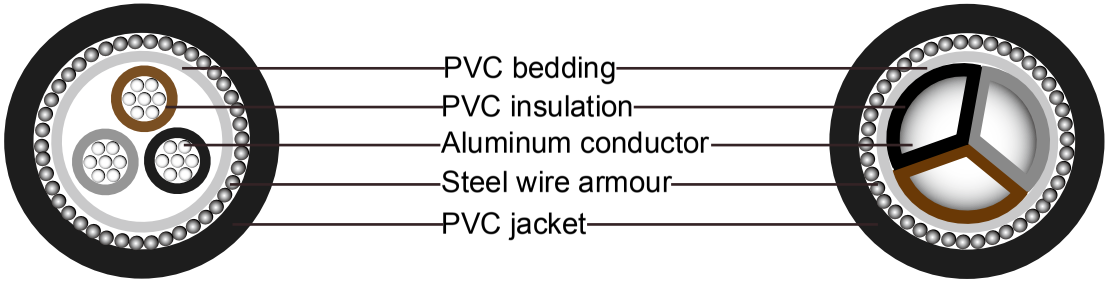
Three-core 600/1000V cables with stranded copper conductors



Nominal cross-sectional area	Number/ wire	Nominal insulation thickness	Nominal bedding thick-ness	Nominal wire armor dia.	Nominal sheath thick-ness	Approx. overall diameter		Approx. cable weight
						extruded bedding	taped bedding	
mm²	No./mm	mm	mm	mm	mm	mm	mm	kg/mm
3x1.5	7/0.53	0.6	0.8	0.9	1.4	12.8	-	307
3x2.5	7/0.67	0.7	0.8	0.9	1.4	14.1	-	387
3x4	7/0.85	0.8	0.8	0.9	1.4	15.8	-	493
3x6	7/1.04	0.8	0.8	1.25	1.5	18.0	-	701
3x10	7/1.35	1.0	0.8	1.25	1.6	21.2	-	967
3x16	7/1.70	1.0	0.8	1.25	1.6	23.1	23.1	1219
3x25	7/2.14	1.2	1.0	1.6	1.7	28.2	27.8	1612
3x25*	7/2.14	1.2	1.0	1.6	1.7	25.0	24.6	1612
3x35	19/1.53	1.2	1.0	1.6	1.8	30.8	30.4	1992
3x35*	19/1.53	1.2	1.0	1.6	1.8	27.1	26.7	1992
3x50*	19/1.78	1.4	1.0	1.6	1.9	30.5	30.1	2534
3x70*	19/2.14	1.4	1.2	2.0	2.0	35.0	34.2	3518
3x95*	19/2.52	1.6	1.2	2.0	2.1	39.3	38.5	4510
3x120*	37/2.03	1.6	1.2	2.0	2.2	42.2	41.4	5375
3x150*	37/2.25	1.8	1.4	2.5	2.4	47.5	46.3	6810
3x185*	37/2.52	2.0	1.4	2.5	2.5	51.9	50.7	8190
3x240*	61/2.25	2.2	1.6	2.5	2.6	57.8	56.2	10280
3x300*	61/2.52	2.4	1.6	2.5	2.8	63.2	61.6	12430
3x400*	61/2.85	2.6	1.6	2.5	3.0	69.6	68.0	15400

*Shaped stranded conductor (class 2)

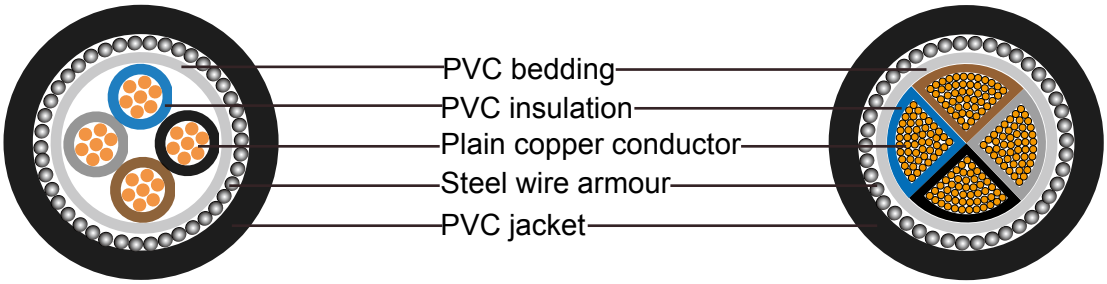
Three-core 600/1000V cables with solid aluminum conductors



Nominal cross-sectional area	Nominal insulation thickness	Nominal bedding thickness	Nominal wire armor dia.	Armour strip		Nominal sheath thickness	Approx. overall diameter			Approx. cable weight
				thickness	width		wire armor		strip armor	
							extruded bedding	taped bedding		
mm²	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg/km
3x16	1	0.8	1.25	0.6	2.4	1.6	21.7	21.7	20.4	925
3x25	1.2	1	1.6	0.6	2.4	1.7	23.9	23.5	21.5	1150
3x25*	1.2	1	1.6	0.6	2.4	1.7	25.8	25.4	23.4	1150
3x35	1.2	1	1.6	0.6	2.4	1.8	26.4	26.0	24.1	1345
3x35*	1.2	1	1.6	0.6	2.4	1.8	28.7	28.3	27.3	1345
3x50*	1.4	1	1.6	1	3.6	1.9	28.9	28.5	26.4	1610
3x70*	1.4	1.2	2	1	3.6	2	33	32.2	30.2	2220
3x95*	1.6	1.2	2	1.4	4.8	2.1	37.1	36.3	35.1	2745
3x120*	1.6	1.2	2	1.4	4.8	2.2	39.7	38.9	37.7	3145
3x150*	1.8	1.4	2.5	1.4	4.8	2.4	44.7	43.5	41.3	4020
3x185*	2	1.4	2.5	1.4	4.8	2.5	48.7	47.5	45.3	4730
3x240*	2.2	1.6	2.5	1.8	6.4	2.6	54.2	52.6	51.2	5820
3x300*	2.4	1.6	2.5	1.8	6.4	2.8	59.2	57.6	56.2	6850

*Solid shaped conductor (class 1)

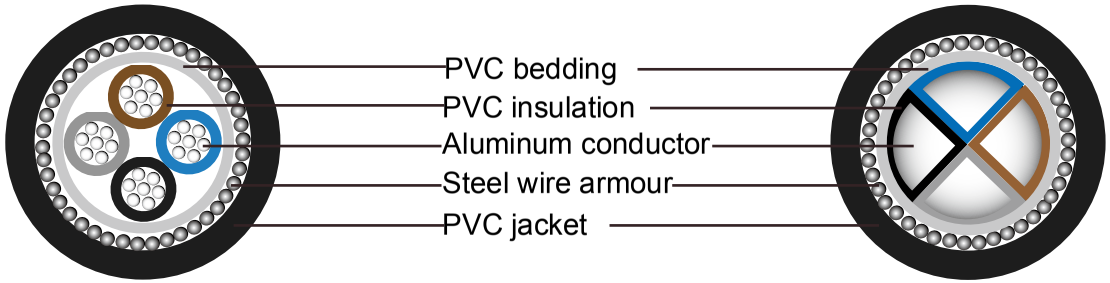
Four-core 600/1000V cables with stranded copper conductors



Nominal cross-sectional area	Number/ wire	Nominal insulation thickness	Nominal bedding thick-ness	Nominal wire armor dia.	Nominal sheath thick-ness	Approx. overall diameter		Approx. cable weight
						extruded bedding	taped bedding	
mm²	No./mm	mm	mm	mm	mm	mm	mm	kg/mm
4x1.5	7/0.53	0.6	0.8	0.9	1.4	13.5	-	330
4x2.5	7/0.67	0.7	0.8	0.9	1.4	15.0	-	430
4x4	7/0.85	0.8	0.8	1.25	1.5	17.8	-	640
4x6	7/1.04	0.8	0.8	1.25	1.5	19.2	-	770
4x10	7/1.35	1.0	0.8	1.25	1.6	22.8	-	1070
4x16	7/1.70	1.0	1.0	1.6	1.7	26.3	25.9	1550
4x25	7/2.14	1.2	1.0	1.6	1.8	30.7	30.3	2005
4x25*	7/2.14	1.2	1.0	1.6	1.8	27.8	27.4	2005
4x35	19/1.53	1.2	1.0	1.6	1.9	33.7	33.3	2490
4x35*	19/1.53	1.2	1.0	1.6	1.9	30.3	29.9	2490
4x50*	19/1.78	1.4	1.2	2.0	2.0	35.4	34.6	3475
4x70*	19/2.14	1.4	1.2	2.0	2.1	39.2	38.4	4480
4x95*	19/2.52	1.6	1.2	2.0	2.2	43.3	43.5	5710
4x120*	37/2.03	1.6	1.4	2.5	2.4	49.3	48.1	7350
4x150*	37/2.25	1.8	1.4	2.5	2.5	53.6	52.4	8720
4x185*	37/2.52	2.0	1.6	2.5	2.6	59.0	57.4	10540
4x240*	61/2.25	2.2	1.6	2.5	2.8	65.7	64.1	13290
4x300*	61/2.52	2.4	1.6	2.5	3.0	72.0	70.4	16050
4x400*	61/2.85	2.6	1.8	3.15	3.3	81.3	79.3	20950

*Shaped stranded conductor (class 2)

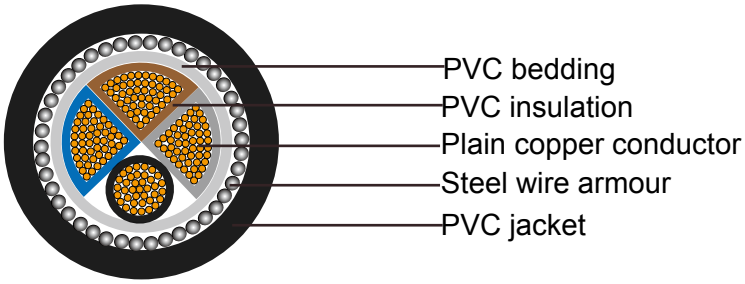
Four-core 600/1000V cables with solid aluminum conductors



Nominal cross-sectional area	Nominal insulation thickness	Nominal bedding thickness	Nominal alum wire armor dia.	Armour strip		Nominal sheath thickness	Approx. overall diameter			Approx. cable weight
				thickness	width		wire armor		strip armor	
							extruded bedding	taped bedding		
mm²	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg/km
4x16	1	1	1.6	0.6	2.4	1.7	24.7	24.3	22.3	1125
4x25	1.2	1	1.6	0.6	2.4	1.8	28.7	28.3	26.3	1390
4x25*	1.2	1	1.6	0.6	2.4	1.8	26.3	25.9	23.9	1390
4x35	1.2	1	1.6	0.6	2.4	1.9	31.3	30.9	28.9	1625
4x35*	1.2	1	1.6	0.6	2.4	1.9	28.6	28.2	26.2	1625
4x50*	1.4	1.2	2	1	3.6	2	33.3	32..5	30.5	2240
4x70*	1.4	1.2	2	1	3.6	2.1	36.8	36.0	34	2750
4x95*	1.6	1.2	2	1.4	4.8	2.2	41.5	40.7	39.5	3360
4x120*	1.6	1.4	2.5	1.4	4.8	2.4	46.1	44.9	42.7	4380
4x150*	1.8	1.4	2.5	1.4	4.8	2.5	50.1	48.9	46.7	5000
4x185*	2	1.6	2.5	1.8	6.4	2.6	55.1	53.5	52.1	5960
4x240*	2.2	1.6	2.5	1.8	6.4	2.8	61.2	59.6	58.2	7340
4x300*	2.4	1.6	2.5	1.8	6.4	3	67	65.4	64	8610

*Solid shaped conductor (class 1)

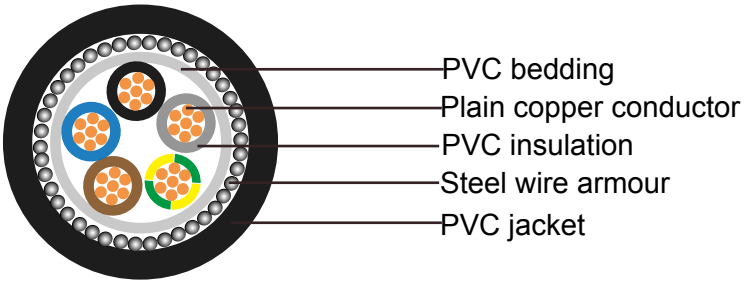
3+1 Core (4 Core with reduced neutral) 600/1000V cables with stranded copper conductors



Nominal cross-sectional area		Nominal insulation thickness		Nominal bedding thickness	Nominal wire armor dia.	Nominal sheath thickness	Approx. Overall Diameter	Approx. cable weight
Phase	Neutral	Phase	Neutral					
mm²	mm²	mm	mm	mm	mm	mm	mm	kg/mm
3x10	1x6	1.0	0.8	1.0	1.25	1.8	23.4	1370
3x16	1x10	1.0	1.0	1.0	1.25	1.8	25.0	1620
3x25*	1x16	1.2	1.0	1.0	1.6	1.8	27.8	1900
3x35*	1x16	1.2	1.0	1.0	1.6	1.8	29.5	2300
3x50*	1x25	1.4	1.2	1.0	1.6	1.9	33.1	3050
3x70*	1x35	1.4	1.2	1.2	2.0	2.0	38.0	4130
3x95*	1x50	1.6	1.4	1.2	2.0	2.2	43.7	5370
3x120*	1x70	1.6	1.4	1.4	2.5	2.3	49.0	6840
3x150*	1x70	1.8	1.4	1.4	2.5	2.4	52.0	8040
3x185*	1x95	2.0	1.6	1.4	2.5	2.5	57.2	9760
3x240*	1x120	2.2	1.6	1.6	2.5	2.7	63.7	12210
3x300*	1x150	2.4	1.8	1.6	2.5	2.9	69.8	14840
3x300*	1x185	2.4	2.0	1.6	2.5	2.9	71.8	17730
3x400*	1x185	2.6	2.0	1.8	3.15	3.1	78.6	19090

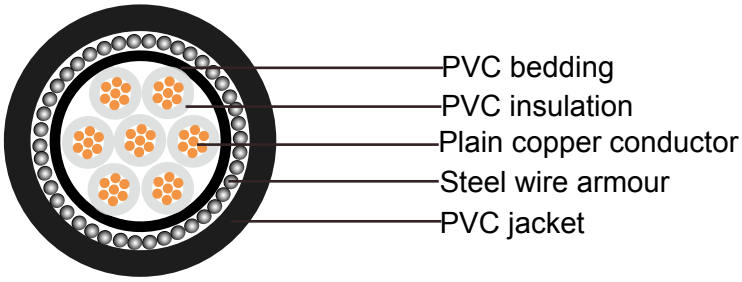
*Shaped stranded conductor (class 2)

Five-core 600/1000V cables with stranded copper conductors



Nominal cross-sectional area	Number/ wire	Nominal insulation thickness	Nominal bedding thick-ness	Nominal wire armor dia.	Nominal sheath thick-ness	Approx. overall diameter		Approx. cable weight
						extruded bedding	taped bedding	
mm²	No./mm	mm	mm	mm	mm	mm	mm	kg/mm
5x1.5	7/0.53	0.6	0.8	0.9	1.4	14.3	-	430
5x2.5	7/0.67	0.7	0.8	0.9	1.5	16.3	-	545
5x4	7/0.85	0.8	0.8	1.25	1.5	19.0	-	790
5x6	7/1.04	0.8	0.8	1.25	1.6	20.9	-	880
5x10	7/1.35	1.0	1.0	1.6	1.7	25.8	-	1150
5x16	7/1.70	1.0	1.0	1.6	1.7	28.4	28.0	1670
5x25	7/2.14	1.2	1.0	1.6	1.9	33.5	33.1	2250
5x35	19/1.53	1.2	1.0	1.6	1.9	36.6	36.2	2670
5x50	19/1.78	1.4	1.2	2.0	2.1	43.0	42.2	3590
5x70	19/2.14	1.4	1.2	2.0	2.2	48.1	47.3	4610

Multi-core 600/1000V cables with stranded copper conductors



No. of Cores	Nominal cross-sectional area	Number/ wire	Nominal insulation thickness	Nominal bedding thick-ness	Nominal alum wire armor dia.	Nominal sheath thick-ness	Approx. overall diameter	Approx. cable weight
	mm²	No./mm	mm	mm	mm	mm	mm	kg/mm
7	1.5	7/0.53	0.6	0.8	0.9	1.4	15.2	500
10	1.5	7/0.53	0.6	0.8	1.25	1.5	18.6	780
12	1.5	7/0.53	0.6	0.8	1.25	1.5	19.4	830
19	1.5	7/0.53	0.6	0.8	1.25	1.6	22.2	1090
27	1.5	7/0.53	0.6	1.0	1.6	1.7	26.7	1600
37	1.5	7/0.53	0.6	1.0	1.6	1.8	29.2	1940
48	1.5	7/0.53	0.6	1.0	1.6	1.9	32.9	2360
7	2.5	7/0.67	0.7	0.8	1.25	1.5	18.0	750
10	2.5	7/0.67	0.7	0.8	1.25	1.6	21.8	1000
12	2.5	7/0.67	0.7	0.8	1.25	1.6	22.4	1080
19	2.5	7/0.67	0.7	1.0	1.6	1.7	26.6	1640
27	2.5	7/0.67	0.7	1.0	1.6	1.8	30.7	2110
37	2.5	7/0.67	0.7	1.0	1.6	1.9	34.0	2600
48	2.5	7/0.67	0.7	1.2	2.0	2.1	39.5	3520
7	4	7/0.85	0.8	0.8	1.25	1.6	20.5	970
10	4	7/0.85	0.8	1.0	1.6	1.7	26.1	1500
12	4	7/0.85	0.8	1.0	1.6	1.7	26.8	1630
19	4	7/0.85	0.8	1.0	1.6	1.8	30.5	2170
27	4	7/0.85	0.8	1.2	2.0	2.0	37.1	3170
37	4	7/0.85	0.8	1.2	2.0	2.1	40.8	3910
48	4	7/0.85	0.8	1.2	2.0	2.2	46.0	4790

BS 6346 PVC Insulated Cables,1900/3300V

Application

These cables are used for power and control circuits, they can offer excellent protection through the use of a heavy galvanized steel wire armour, so they are well adapted to underground use in industrial applications, in moist areas.

Construction

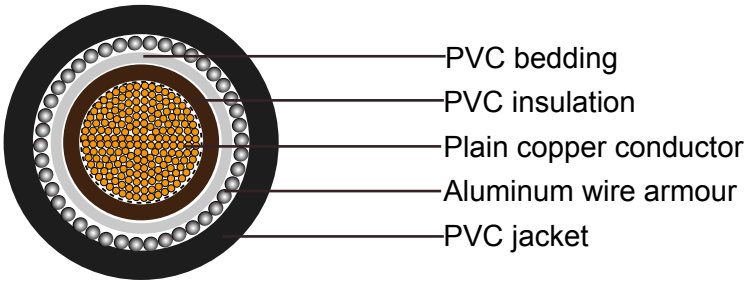
Conductor	Solid Aluminum or Copper conductor, round stranded or shaped, Class 2 to BS 6460, IEC 60228.
Insulation	PVC(Polyvinyl Chloride) type TI1
Colour Code	1 Core : Brown 2 Cores: Brown or Blue 3 Cores: Brown, Black, Grey 4 Cores: Blue, Brown, Black, Grey 5 Cores: Green-yellow, Blue, Brown, Black, Grey Above 5 Cores: White Cores with black numbers
Filler(optional)	PVC or Polypropylene yarn
Binder Tape(optional)	Polyester (Mylar) tape
Inner Sheath/ Bedding	PVC (Polyvinyl Chloride)
Armour	Single Core: AWA (Aluminum Wire Armour) Multi Core: SWA (Steel Wire or Tape Armour)
Outer Sheath	PVC(Polyvinyl Chloride), type TM1

Technical Information

Voltage rating	1900/3300V
Temperature rating	-20°C to +60°C
Bending radius	Single core: 10 x overall diameter Multicores: 8 x overall diameter
Flame retardant	IEC60332 part 1, BS4066 part 1

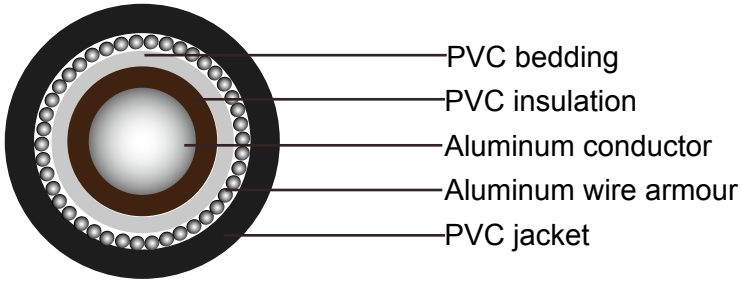
Cable Parameter

Single-core 1900/3300 V cables with circular stranded copper conductor



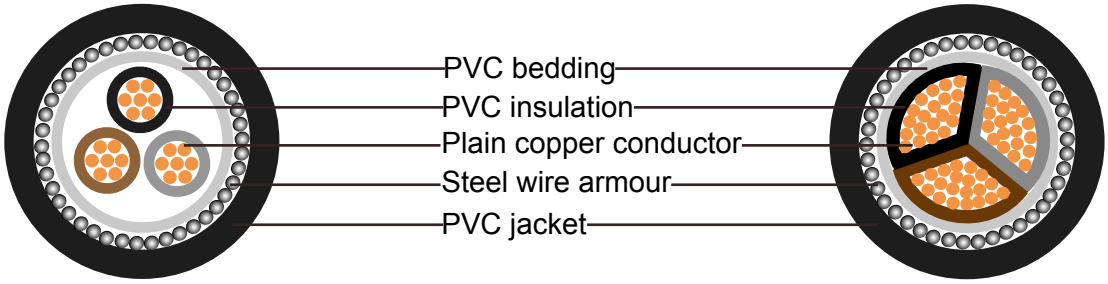
Nominal cross-sectional area	Number/ wire	Nominal insulation thickness	Nominal bedding thickness	Nominal alum wire armor dia.	Nominal sheath thickness	Approx. overall diameter	Approx. cable weight
mm²	No./mm	mm	mm	mm	mm	mm	kg/mm
1x50	19/1.78	2.2	0.8	1.25	1.6	21.0	840
1x70	19/2.14	2.2	0.8	1.25	1.6	22.8	1070
1x95	19/2.52	2.2	1.0	1.6	1.7	26.0	1445
1x120	37/2.03	2.2	1.0	1.6	1.7	27.7	1715
1x150	37/2.25	2.2	1.0	1.6	1.8	29.4	2010
1x185	37/2.52	2.2	1.0	1.6	1.8	31.3	2380
1x240	61/2.25	2.2	1.0	1.6	1.9	34.1	2975
1x300	61/2.52	2.4	1.0	1.6	1.9	37.0	3615
1x400	61/2.85	2.6	1.2	2.0	2.1	42.0	4655
1x500	61/3.20	2.8	1.2	2.0	2.1	45.6	5725
1x630	61/3.65	2.8	1.2	2.0	2.2	49.7	7150
1x800	127/2.85	2.8	1.4	2.5	2.4	55.8	9160
1x1000	127/3.20	3.0	1.4	2.5	2.5	61.0	11400

Single-core 1900/3300 V cables with solid aluminum conductor



Nominal cross-sectional area	Nominal insulation thickness	Nominal bedding thickness	Nominal alum wire armor dia.	Nominal sheath thickness	Approx. overall diameter	Approx. cable weight
mm²	mm	mm	mm	mm	mm	kg/mm
1x50	2.2	0.8	1.25	1.6	19.8	625
1x70	2.2	0.8	1.25	1.6	21.3	735
1x95	2.2	1.0	1.6	1.7	24.3	965
1x120	2.2	1.0	1.6	1.7	25.6	1090
1x150	2.2	1.0	1.6	1.8	27.1	1250
1x185	2.2	1.0	1.6	1.8	28.8	1415
1x240	2.2	1.0	1.6	1.9	31.2	1680
1x300	2.4	1.0	1.6	1.9	33.7	1935

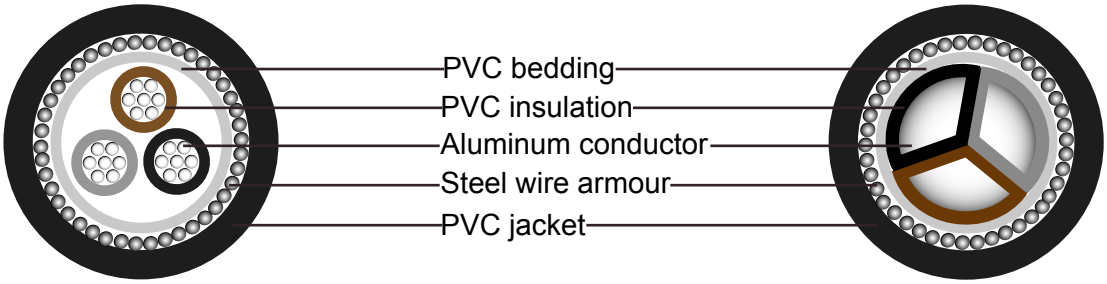
Three-core 1900/3300 V cables with stranded copper conductors



Nominal cross-sectional area	Number/ wire	Nominal insulation thickness	Nominal bedding thickness	Nominal wire armor dia.	Nominal sheath thickness	Approx. overall diameter	Approx. cable weight
mm²	No./mm	mm	mm	mm	mm	mm	kg/mm
3x16	7/1.70	2.2	1.0	1.6	1.8	30.3	1700
3x25	7/2.14	2.2	1.0	1.6	1.8	33.1	2085
3x35	19/1.53	2.2	1.0	1.6	1.9	35.8	2405
3x35*	19/1.53	2.2	1.0	1.6	1.9	32.1	2405
3x50*	19/1.78	2.2	1.2	2.0	2.0	35.6	3160
3x70*	19/2.14	2.2	1.2	2.0	2.1	38.9	3925
3x95*	19/2.52	2.2	1.2	2.0	2.2	42.3	4860
3x120*	37/2.03	2.2	1.4	2.5	2.3	46.6	6205
3x150*	37/2.25	2.2	1.4	2.5	2.4	49.4	7175
3x185*	37/2.52	2.2	1.4	2.5	2.5	52.8	8320
3x240*	61/2.25	2.2	1.6	2.5	2.6	57.8	10395
3x300*	61/2.52	2.4	1.6	2.5	2.8	63.2	12575
3x400*	61/2.85	2.6	1.6	2.5	3.0	69.6	15325

*Shaped stranded conductor (class 2)

Three-core 1900/3300 V cables with solid aluminum conductors



Nominal cross-sectional area	Nominal insulation thickness	Nominal bedding thickness	Nominal Armor dia.	Nominal sheath thickness	Approx. overall diameter	Approx. cable weight
mm²	mm	mm	mm	mm	mm	kg/mm
3x16	2.2	1.0	1.6	1.8	28.9	1630
3x25	2.2	1.0	1.6	1.8	31.3	1880
3x35	2.2	1.0	1.6	1.9	33.7	2145
3x35*	2.2	1.0	1.6	1.9	30.6	2145
3x50*	2.2	1.2	2.0	2.0	33.9	2880
3x70*	2.2	1.2	2.0	2.1	36.9	3340
3x95*	2.2	1.2	2.0	2.2	40.0	3870
3x120*	2.2	1.4	2.5	2.3	44.0	4980
3x150*	2.2	1.4	2.5	2.4	46.5	5585
3x185*	2.2	1.4	2.5	2.5	49.6	6250
3x240*	2.2	1.6	2.5	2.6	54.2	7315
3x300*	2.4	1.6	2.5	2.8	59.2	8365

*Shaped conductor (class 1)

Technical Reference

Maximum resistance of conductor and armour for single-core cable having aluminum wire armour

Nominal cross sectional area of conductor	Maximum resistance per km of cable at 20 °C					
	Copper conductor	Aluminum conductor	Aluminum wire armour			
			Cables with stranded copper conductor		Cables with solid aluminum conductor	
			600/1000V	1900/3300 V	600/1000V	1900/3300 V
mm²	Ω	Ω	Ω	Ω	Ω	Ω
50	0.387	0.641	1.3	0.75	1.4	0.79
70	0.268	0.443	0.75	0.67	0.84	0.73
95	0.193	0.32	0.67	0.61	0.75	0.67
120	0.153	0.253	0.61	0.42	0.69	0.47
150	0.124	0.206	0.42	0.39	0.47	0.43
185	0.0991	0.164	0.38	0.37	0.42	0.4
240	0.0754	0.125	0.34	0.34	0.38	0.37
300	0.0601	0.1	0.31	0.31	0.35	0.34
400	0.047	—	0.22	0.22	—	—
500	0.0366	—	0.2	0.2	—	—
630	0.0283	—	0.18	0.18	—	—
800	0.0221	—	0.13	0.13	—	—
1 000	0.0176	—	0.12	0.12	—	—

Maximum resistance of conductor and armour for two-, three-, four- and five-core cables having wire armour

1) With stranded copper conductor

Nominal cross sectional area of conductor	Maximum resistance per km of cable at 20 °C						
	Copper conductor	Aluminum conductor	Steel wire armour				
			Cables with stranded copper conductors				
			Two-core	Three-core		Four-core	Five-core
			600/1000V	600/1000V	1900/3300 V	600/1000V	600/1000V
mm²	Ω	Ω	Ω	Ω	Ω	Ω	Ω
1.5	12.1	—	10.2	9.5	—	8.8	8.2
2.5	7.41	—	8.8	8.2	—	7.7	6.8
4	4.61	—	7.9	7.5	—	6.8	6.2
6	3.08	—	7	6.7	—	4.3	3.9
10	1.83	—	6	4	—	3.7	3.4
16	1.15	1.91	3.7	3.5	1.9	3.1	2.2

Nominal cross sectional area of conductor	Maximum resistance per km of cable at 20 °C						
	Copper conductor	Aluminum conductor	Steel wire armour				
			Cables with stranded copper conductors				
			Two-core	Three-core		Four-core	Five-core
			600/ 1000V	600/ 1000V	1900/ 3300 V	600/ 1000V	600/ 1000V
mm²	Ω	Ω	Ω	Ω	Ω	Ω	Ω
25	0.727	1.2	3.7	2.5	1.7	2.0 2.3	1.8
35	0.524	0.868	2.6	2.3	1.8	—	1.6
50	0.387	0.641	2.3	2	1.3	1.8	1.1
70	0.268	0.443	2	1.8	1.2	1.2	0.94
95	0.193	0.32	1.4	1.3	1.1	1.1	—
120	0.153	0.253	1.3	1.2	0.76	0.76	—
150	0.124	0.206	1.2	0.78	0.71	0.68	—
185	0.099 1	0.164	0.82	0.71	0.65	0.61	—
240	0.075 4	0.125	0.73	0.63	0.59	0.54	—
300	0.060 1	0.1	0.67	0.58	0.55	0.49	—
400	0.047 0	—	0.59	0.52	0.5	0.35	—

2) With solid aluminum conductor

Nominal cross-sectional area of conductor	Maximum resistance per km of cable at 20 °C					
	Copper conductor	Aluminum conductor	Steel wire armour			
			Cables with solid aluminum conductors			
			Two-core	Three-core		Four-core
			600/1000V	600/1000V	1900/3300 V	600/ 1000V
mm²	Ω	Ω	Ω	Ω	Ω	Ω
1.5	12.1	—	—	—	—	—
2.5	7.41	—	—	—	—	—
4	4.61	—	—	—	—	—
6	3.08	—	—	—	—	—
10	1.83	—	—	—	—	—
16	1.15	1.91	4	3.8	2	3.4
25	0.727	1.2	4.1	2.7	1.9	2.4
35	0.524	0.868	2.9	2.5	1.9	2.2
50	0.387	0.641	2.6	2.2	1.4	1.9
70	0.268	0.443	2.3	1.9	1.3	1.3
95	0.193	0.32	1.6	1.4	1.2	1.2
120	0.153	0.253	—	1.2	0.82	0.82
150	0.124	0.206	—	0.86	0.76	0.74
185	0.099 1	0.164	—	0.76	0.71	0.67
240	0.075 4	0.125	—	0.68	0.64	0.59
300	0.060 1	0.1	—	0.63	0.59	0.54
400	0.047 0	—	—	—	—	—

Electrical Properties(600/1000V)

1) Single core with copper conductor

Nominal area of conductor	Single Core Stranded Copper Conductors					
	Current Ratings			Approximate voltage drop per ampere per metre		
	Direct in ground	In single way ducts	Installed in air	Ground	Duct	Air
mm²	amps	amps	amps	mV	mV	mV
50	235	235	222	0.87	0.93	0.87
70	290	280	285	0.62	0.70	0.62
95	345	330	346	0.47	0.56	0.47
120	390	370	402	0.39	0.48	0.39
150	435	405	463	0.33	0.43	0.33
185	490	440	529	0.28	0.39	0.28
240	560	500	625	0.24	0.35	0.24
300	630	550	720	0.21	0.32	0.21
400	700	580	815	0.20	0.30	0.20
500	770	620	918	0.18	0.28	0.18
630	840	670	1027	0.17	0.26	0.17
800	888	692	1119	0.17	0.25	0.17
1000	942	735	1214	0.16	0.24	0.16

1) Single core with aluminum conductor

Nominal area of conductor	Single Core Aluminum Conductors					
	Current Ratings			Approximate voltage drop per ampere per metre		
	Direct in ground	In single way ducts	Installed in air	Ground	Duct	Air
mm²	amps	amps	amps	mV	mV	mV
50	175	180	162	1.40	1.60	1.40
70	220	220	207	0.98	1.00	0.98
95	260	260	252	0.72	0.79	0.74
120	295	295	292	0.58	0.66	0.60
150	330	330	337	0.48	0.57	0.49
185	375	365	391	0.39	0.49	0.41
240	435	410	465	0.31	0.42	0.34
300	490	455	540	0.27	0.38	0.29
400	540	480	625	0.35	0.38	0.25
500	580	510	714	0.31	0.35	0.22
630	630	540	801	0.28	0.32	0.20

2) Two cores with copper conductor

Nominal area of conductor	Two Cores Stranded Copper Conductors					
	Current Ratings			Approximate voltage drop per ampere per metre		
	Direct in ground	In single way ducts	Installed in air	Ground	Duct	Air
mm²	amps	amps	amps	mV	mV	mV
16*	140	115	115	2.9	2.9	2.9
25*	180	145	152	1.9	1.9	1.9
35*	215	175	188	1.3	1.3	1.3
50	255	210	228	1.0	1.0	1.0
70	315	260	291	0.7	0.7	0.7

2) Two cores with aluminum conductor

Nominal area of conductor	Two Cores Aluminum Conductors					
	Current Ratings			Approximate voltage drop per ampere per metre		
	Direct in ground	In single way ducts	Installed in air	Ground	Duct	Air
mm²	amps	amps	amps	mV	mV	mV
25*	135	110	112	3.1	3.1	3.1
35*	165	130	138	2.2	2.2	2.2
50	195	155	166	1.7	1.7	1.7
70	240	195	211	1.1	1.1	1.1
95	288	237	254	0.8	0.8	0.8

3) Three cores with copper conductor

Nominal area of conductor	Three Cores Stranded Copper Conductors					
	Current Ratings			Approximate voltage drop per ampere per metre		
	Direct in ground	In single way ducts	Installed in air	Ground	Duct	Air
mm²	amps	amps	amps	mV	mV	mV
16	115	94	99	2.5	2.5	2.5
25	150	125	131	1.7	1.7	1.7
35	180	150	162	1.2	1.2	1.2
50	215	175	197	0.9	0.9	0.9
70	265	215	251	0.6	0.6	0.6
95	315	260	304	0.5	0.5	0.5
120	360	300	353	0.4	0.4	0.4
150	405	335	406	0.3	0.3	0.3
185	460	380	463	0.3	0.3	0.3
240	530	440	546	0.2	0.2	0.2
300	590	495	628	0.2	0.2	0.2
400	667	570	728	0.2	0.2	0.2

3) Three cores with aluminum conductor

Nominal area of conductor	Three Cores Aluminum Conductors					
	Current Ratings			Approximate voltage drop per ampere per metre		
	Direct in ground	In single way ducts	Installed in air	Ground	Duct	Air
mm²	amps	amps	amps	mV	mV	mV
16	89	72	74	4.2	4.2	4.2
25	115	94	98	2.7	2.7	2.7
35	135	110	120	1.9	1.9	1.9
50	165	135	145	1.4	1.4	1.4
70	200	165	185	1.0	1.0	1.0
95	240	200	224	0.7	0.7	0.7
120	275	230	264	0.6	0.6	0.6
150	310	255	305	0.5	0.5	0.5
185	350	295	350	0.4	0.4	0.4
240	410	340	418	0.3	0.3	0.3
300	460	385	488	0.3	0.3	0.3
400	520	443	562	0.2	0.2	0.2

4) Four cores with copper conductor

Nominal area of conductor	Four Cores Stranded Copper Conductors					
	Current Ratings			Approximate voltage drop per ampere per metre		
	Direct in ground	In single way ducts	Installed in air	Ground	Duct	Air
mm²	amps	amps	amps	mV	mV	mV
16	115	94	99	2.5	2.5	2.5
25	150	125	131	1.7	1.7	1.7
35	180	150	162	1.2	1.2	1.2
50	215	175	197	0.9	0.9	0.9
70	265	215	251	0.6	0.6	0.6
95	315	260	304	0.5	0.5	0.5
120	360	300	353	0.4	0.4	0.4
150	405	335	406	0.3	0.3	0.3
185	460	380	463	0.3	0.3	0.3
240	530	440	546	0.2	0.2	0.2
300	590	495	628	0.2	0.2	0.2
400	667	570	728	0.2	0.2	0.2
500	720	605	800	0.2	0.2	0.2

4) Four cores with aluminum conductor

Nominal area of conductor	Four Cores Aluminum Conductors					
	Current Ratings			Approximate voltage drop per ampere per metre		
	Direct in ground	In single way ducts	Installed in air	Ground	Duct	Air
mm²	amps	amps	amps	mV	mV	mV
16	89	72	74	4.2	4.2	4.2
25	115	94	98	2.7	2.7	2.7
35	135	110	120	1.9	1.9	1.9
50	165	135	145	1.4	1.4	1.4
70	200	165	185	1.0	1.0	1.0
95	240	200	224	0.7	0.7	0.7
120	275	230	264	0.6	0.6	0.6
150	310	255	305	0.5	0.5	0.5
185	350	295	350	0.4	0.4	0.4
240	410	340	418	0.3	0.3	0.3
300	460	385	488	0.3	0.3	0.3
400	520	443	562	0.2	0.2	0.2
500	561	470	618	0.2	0.2	0.2

Electrical Properties(1900/3300 V)

Nominal area of conductor	Single Core Stranded Copper Conductors			Nominal area of conductor	Three Core Stranded Copper Conductors		
	Current Ratings				Current Ratings		
	Direct in ground	In single way ducts	Installed in air		Direct in ground	In single way ducts	Installed in air
mm²	amps	amps	amps	mm²	amps	amps	amps
50	222	219	228	16	114	96	106
70	271	264	285	25	147	124	142
95	324	310	350	35	175	147	168
120	366	342	407	50	207	174	202
150	409	376	463	70	254	214	255
185	460	414	528	95	304	257	312
240	528	464	623	120	345	293	361
300	589	506	710	150	387	328	410
400	651	535	808	185	436	371	471
500	720	579	915	240	502	428	554
630	789	624	1030	300	563	480	634
800	831	650	1119	-	-	-	-
1000	880	689	1214	-	-	-	-

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