



XLPE Insulated Power Cable
For Electricity Supply

Description

Single core and multi-core cables with copper conductors , XLPE insulated, Unarmoured or armoured and PVC sheathed. The cables are suitable for continuous operation at a maximum conductor temperature of 90°C.

Standards complied : IEC 502
Rated voltage : 600 / 1000 V

Construction

Conductors:

Plain annealed copper conductors complying with IEC 228. The conductors may be circular stranded, circular compact stranded or shaped stranded.

Insulation :

XLPE (cross-linked polyethylene) rated 90°C.

Identification of cores :

Single-core	red or natural
Two-core	red or black
Three-core	red, yellow and blue
Four-core	red, yellow, blue and black

Laying up (assembling) :

The cores of cable having two or more cores shall be laid up to form a compact and circular cable. Where necessary , binder tapes and non – hygroscopic fillers may be applied.

Bedding :

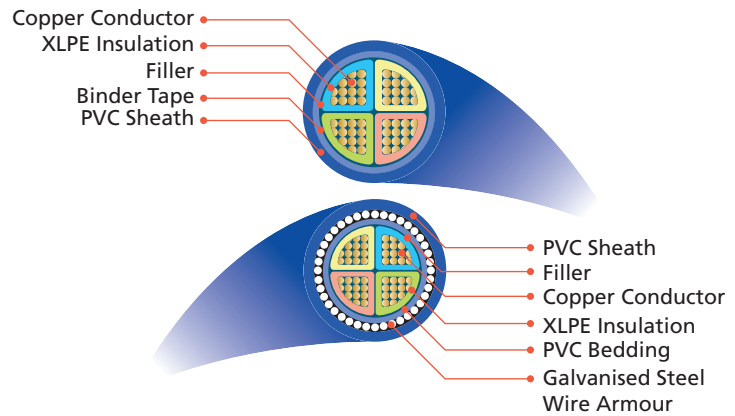
The bedding shall be a layer of extruded PVC and compound or lapped PVC tapes.

Armour :

The armour shall consist of a single layer of galvanised steel wires. Where single-core cables are armoured and are use on AC circuit , the armour shall consist of non-magnetic material , such as aluminium wire.

Sheath :

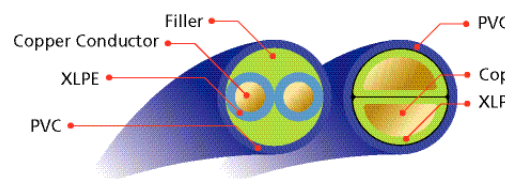
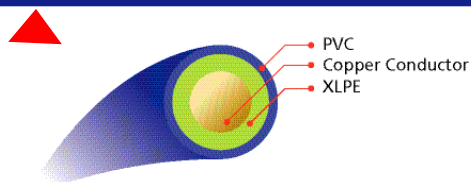
PVC type ST2 to IEC 502, colour black.



Single Core , XLPE Insulated, PVC Sheathed Unarmoured Cables

600 / 1000V MS IEC 60502 - 1

Nominal Cross-Sectional Area	Number and Diameter of Wires	Thickness of Insulation	Thickness of Sheath	Approx. Overall Diameter	Approx. Net Weight
mm ²	no / mm	mm	mm	mm	kg / km
16	7 / 1.70	0.7	1.4	9.7	215
25	7 / 2.14	0.9	1.4	11.4	320
35	19 / 1.53	0.9	1.4	12.6	420
50	19 / 1.78	1.0	1.4	13.9	545
70	19 / 2.14	1.1	1.4	15.9	770
95	19 / 2.52	1.1	1.5	18.0	1030
120	37 / 2.03	1.2	1.5	19.8	1280
150	37 / 2.25	1.4	1.6	22.0	1580
185	37 / 2.52	1.6	1.6	24.2	1980
240	61 / 2.25	1.7	1.7	27.5	2580
300	61 / 2.52	1.8	1.8	30.3	3200
400	61 / 2.85	2.0	1.9	33.8	4100
500	61 / 3.20	2.2	2.0	37.6	5100
630	127 / 2.52	2.4	2.2	42.3	6600
800	127 / 2.85	2.6	2.3	47.5	8350
1000	127 / 3.20	2.8	2.4	52.5	10500


Two-Core , XLPE Insulated, PVC Sheathed Unarmoured Cables

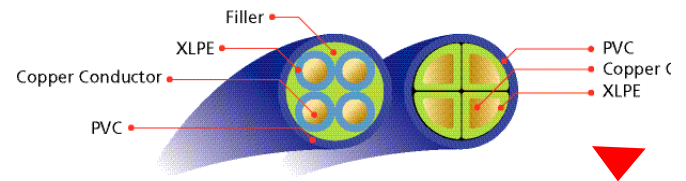
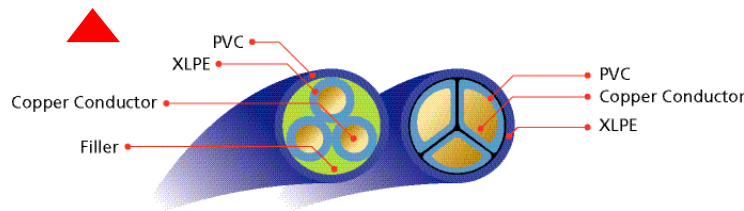
600 / 1000V MS IEC 60502 - 1

Nominal Cross-Sectional Area	Number and Diameter of Wires	Thickness of Insulation	Thickness of Sheath	Approx. Overall Diameter	Approx. Net weight
mm ²	no / mm	mm	mm	mm	kg / km
16	7 / 1.70	0.7	1.8	17.2	490
25	7 / 2.14 or 19 / 1.35	0.9	1.8	20.8	650
35	19 / 1.53	0.9	1.8	19.3	840
50	19 / 1.78	1.0	1.8	21.5	1150
70	19 / 2.14	1.1	1.8	24.5	1545
95	37 / 1.78	1.1	1.9	27.4	2070
120	37 / 2.03	1.2	2.0	30.4	2580
150	37 / 2.25	1.4	2.2	34.0	3200
185	37 / 2.52	1.6	2.3	37.6	3955
240	61 / 2.25	1.7	2.5	42.3	5150
300	61 / 2.52	1.8	2.6	46.8	6340
400	61 / 2.85	2.0	2.9	52.6	8150

Three-Core , XLPE Insulated . PVC Sheathed Unarmoured Cables

600 / 1000V MS IEC 60502 - 1

Nominal Cross-Sectional Area	Number and Diameter of Wires	Thickness of Insulation	Thickness of Sheath	Approx. Overall Diameter	Approx. Net Weight
mm ²	no / mm	mm	mm	mm	kg / km
16	7 / 1.70	0.7	1.8	18.3	645
25	7 / 2.14 or 19 / 1.35	0.9	1.8	22.1	925
35	19 / 1.53	0.9	1.8	21.5	1210
50	19 / 1.78	1.0	1.8	24.6	1600
70	19 / 2.14	1.1	1.9	27.9	2260
95	37 / 1.78	1.1	2.0	31.8	3090
120	37 / 2.03	1.2	2.1	35.2	3890
150	37 / 2.25	1.4	2.3	38.9	4760
185	37 / 2.52	1.6	2.4	43.5	5910
240	61 / 2.25	1.7	2.6	48.8	7800
300	61 / 2.52	1.8	2.8	54.0	9650
400	61 / 2.85	2.0	3.0	61.0	12000


Four-Core , XLPE Insulated . PVC Sheathed Unarmoured Cables

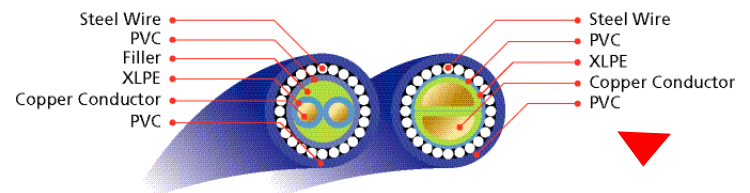
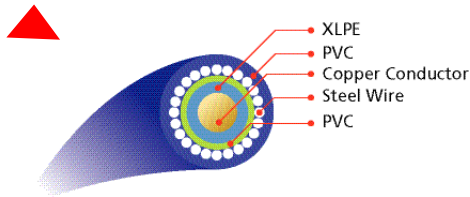
600 / 1000V MS IEC 60502 - 1

Nominal Cross-Sectional Area	Number and Diameter of Wires	Thickness of Insulation	Thickness of Sheath	Approx. Overall Diameter	Approx. Net weight
mm ²	no / mm	mm	mm	mm	kg / km
16	7 / 1.70	0.7	1.8	19.5	820
25	7 / 2.14 or 19 / 1.35	0.9	1.8	22.0	1270
35	19 / 1.53	0.9	1.8	24.3	1650
50	19 / 1.78	1.0	1.9	27.5	2200
70	19 / 2.14	1.1	2.0	32.0	3100
95	37 / 1.78	1.1	2.1	35.8	4200
120	37 / 2.03	1.2	2.3	39.9	5280
150	37 / 2.25	1.4	2.4	44.0	6400
185	37 / 2.52	1.6	2.6	49.5	8000
240	61 / 2.25	1.7	2.8	55.8	10600
300	61 / 2.52	1.8	3.0	61.3	13100
400	61 / 2.85	2.0	3.3	68.5	16100

Single Core , XLPE Insulated, PVC Sheathed Armoured Cables

600 / 1000V MS IEC 60502 - 1

Nominal Cross-Sectional Area	Number and Diameter of Wires	Thickness of Insulation	Thickness of Sheath	Approx. Overall Diameter	Approx. Net weight
mm ²	no / mm	mm	mm	mm	kg / km
50	19 / 1.78	1.0	1.8	19.0	750
70	19 / 2.14	1.1	1.8	20.5	980
95	19 / 2.52	1.1	1.8	22.5	1270
120	37 / 2.03	1.2	1.8	24.0	1570
150	37 / 2.25	1.4	1.8	26.5	1890
185	37 / 2.52	1.6	1.8	28.5	2300
240	61 / 2.25	1.7	1.9	32.5	2990
300	61 / 2.52	1.8	1.9	37.0	3750
400	61 / 2.85	2.0	2.1	40.5	4800
500	61 / 3.20	2.2	2.2	44.5	5900
630	127 / 2.52	2.4	2.3	49.5	7500
800	127 / 2.85	2.6	2.5	55.6	9600
1000	127 / 3.20	2.8	2.7	61.5	11700


Two-Core , XLPE Insulated, PVC Sheathed Armoured Cables

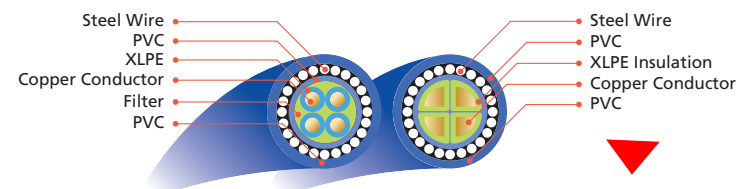
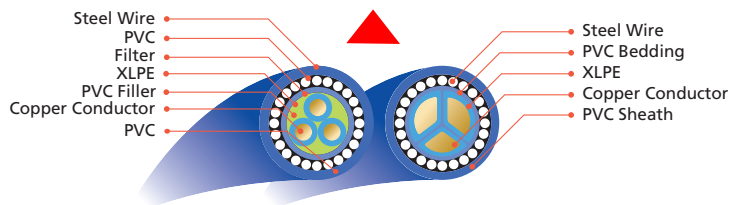
600 / 1000V MS IEC 60502 - 1

Nominal Cross-Sectional Area	Number and Diameter of Wires	Thickness of Insulation	Thickness of Sheath	Approx. Overall Diameter	Approx. Net weight
mm ²	no / mm	mm	mm	mm	kg / km
16	7 / 1.70	0.7	1.8	21.0	860
25	7 / 2.14 or 19 / 1.35	0.9	1.8	22.5	1250
35	19 / 1.53	0.9	1.7	24.6	1480
50	19 / 1.78	1.0	1.8	27.0	1840
70	19 / 2.14	1.1	2.0	30.0	2450
95	37 / 1.78	1.1	2.1	34.0	3300
120	37 / 2.03	1.2	2.2	37.0	4000
150	37 / 2.25	1.4	2.3	40.5	4650
185	37 / 2.52	1.6	2.5	45.5	6000
240	61 / 2.25	1.7	2.7	51.0	7600
300	61 / 2.52	1.8	2.8	55.5	9000
400	61 / 2.85	2.0	3.1	61.0	11000

Three-Core , XLPE Insulated, PVC Sheathed Armoured Cables

600 / 1000V MS IEC 60502 - 1

Nominal Cross-Sectional Area	Number and Diameter of Wires	Thickness of Insulation	Thickness of Sheath	Approx. Overall Diameter	Approx. Net Weight
mm ²	no / mm	mm	mm	mm	kg / km
16	7 / 1.70	0.7	1.8	22.0	1050
25	7 / 2.14 or 19 / 1.35	0.9	1.8	25.0	1650
35	19 / 1.53	0.9	1.9	26.5	1980
50	19 / 1.78	1.0	2.0	30.5	2500
70	19 / 2.14	1.1	2.2	34.5	3540
95	37 / 1.78	1.1	2.3	39.0	4500
120	37 / 2.03	1.2	2.5	42.5	5500
150	37 / 2.25	1.4	2.6	47.5	6930
185	37 / 2.52	1.6	2.8	52.0	8100
240	61 / 2.25	1.7	3.0	57.5	10480
300	61 / 2.52	1.8	3.0	63.0	12550
400	61 / 2.85	2.0	3.5	70.0	16400


Four-Core , XLPE Insulated, PVC Sheathed Armoured Cables

600 / 1000V MS IEC 60502 - 1

Nominal Cross-Sectional Area	Number and Diameter of Wires	Thickness of Insulation	Thickness of Sheath	Approx. Overall Diameter	Approx. Net weight
mm ²	no / mm	mm	mm	mm	kg / km
16	7/1.70	0.7	1.8	25.0	1520
25	7 / 2.14 or 19 / 1.35	0.9	1.8	28.0	2100
35	19 / 1.53	0.9	1.8	30.0	2500
50	19 / 1.78	1.0	1.8	33.5	3500
70	19 / 2.14	1.1	2.0	39.0	4500
95	37 / 1.78	1.1	2.2	43.5	5800
120	37 / 2.03	1.2	2.3	48.0	7250
150	37 / 2.25	1.4	2.5	53.0	8950
185	37 / 2.52	1.6	2.6	58.5	10800
240	61 / 2.25	1.7	2.8	65.0	13800
300	61 / 2.52	1.8	3.0	70.0	16800
400	61 / 2.85	2.0	3.2	80.0	22000

Current Ratings for XLPE Insulated , PVC – Sheathed , Armoured Cables

600 / 1000V MS IEC 60502 - 1

Nominal area of conductor	Single core*				Two core		Three and Four core	
	Two cables spaced #		Three cables trefoil touching		Current rating	Approximate volt drop per amp per metre	Current rating	Approximate volt drop per amp per metre
	Current rating	Approximate volt drop per amp per metre	Current rating	Approximate volt drop per amp per metre				
mm ²	amp	mV	amp	mV	amp	mV	amp	mV
16	•	•	•	•	115	2.90	100	2.60
25	•	•	•	•	155	1.90	135	1.60
35	•	•	•	•	190	1.30	165	1.20
50	275	1.00	225	0.86	230	1.00	195	0.87
70	345	0.74	290	0.62	290	0.70	250	0.61
95	420	0.56	350	0.46	360	0.52	305	0.45
120	490	0.47	410	0.37	415	0.42	355	0.36
150	550	0.42	465	0.32	470	0.35	415	0.30
185	620	0.37	540	0.27	550	0.29	470	0.25
240	730	0.33	630	0.23	640	0.24	560	0.21
300	830	0.30	720	0.21	740	0.22	630	0.19
400	900	0.29	830	0.19	820	0.20	720	0.18
500	1000	0.28	920	0.18	•	•	•	•
630	1100	0.27	1040	0.17	•	•	•	•
800	1210	0.26	1140	0.16	•	•	•	•
1000	1320	0.25	1370	0.15	•	•	•	•

*Single core cables are aluminium wire armoured

#Adjacent cable surfaces separated by one cable diameter.

Current Ratings for XLPE Insulated , PVC – Sheathed , Unarmoured Cables 600 / 1000V MS IEC 60502 - 1

Nominal area of conductor	Single core						Two core		Three and Four core	
	Two cables spaced #		Three cables				Current rating	Approximate volt drop per amp per metre	Current rating	Approximate volt drop per amp per metre
	Current rating	Approximate volt drop per amp per metre	Trifoil Touching		Laid flat spaced #					
			Current rating	Approximate volt drop per amp per metre	Current rating	Approximate volt drop per amp per metre				
mm ²	amp	mV	amp	mV	amp	mV	amp	mV	amp	mV
16	•	•	•	•	•	•	115	2.90	96	2.50
25	•	•	•	•	•	•	150	1.80	130	1.60
35	•	•	•	•	•	•	180	1.30	160	1.10
50	255	1.00	215	0.85	250	0.88	225	0.98	190	0.85
70	330	0.72	270	0.61	325	0.64	280	0.69	245	0.60
95	410	0.56	340	0.45	395	0.49	350	0.51	300	0.44
120	480	0.46	400	0.36	470	0.41	405	0.41	350	0.36
150	550	0.40	460	0.31	540	0.36	465	0.35	400	0.30
185	640	0.35	530	0.26	620	0.32	540	0.29	465	0.25
240	760	0.31	630	0.22	740	0.29	630	0.24	560	0.21
300	900	0.29	740	0.19	880	0.27	740	0.21	630	0.19
400	1060	0.27	870	0.17	1040	0.26	840	0.19	720	0.18
500	1250	0.26	1020	0.16	1210	0.25	•	•	•	•
630	1480	0.25	1140	0.15	1420	0.24	•	•	•	•
800	1620	0.24	1260	0.14	1560	0.23	•	•	•	•
1000	1770	0.23	1400	0.13	1700	0.22	•	•	•	•

Adjacent cable surfaces separated by one cable diameter.

Rating Factors for other Ambient Air Temperature

Ambient air temperature°C	25	30	35	40	45	50	55	60
Rating factor	1.04	1.00	0.95	0.90	0.85	0.79	0.73	0.67

Current Ratings for XLPE Insulated , PVC – Sheathed , Armoured Cables 600 / 1000V MS IEC 60502 - 1

Nominal area of conductor	Single core*				Two core		Three and Four core	
	Two cables spaced #		Three cables trefoil Touching		Current rating	Approximate volt drop per amp per metre	Current rating	Approximate volt drop per amp per metre
	Current rating	Approximate volt drop per amp per metre	Current rating	Approximate volt drop per amp per metre				
mm ²	amp	mV	amp	mV	amp	mV	amp	mV
16	•	•	•	•	130	2.90	105	2.60
25	•	•	•	•	165	1.90	140	1.60
35	•	•	•	•	200	1.30	165	1.20
50	255	0.99	220	0.86	235	1.00	200	0.87
70	315	0.70	270	0.61	295	0.70	245	0.61
95	375	0.53	320	0.46	355	0.52	295	0.45
120	430	0.43	365	0.37	400	0.42	335	0.36
150	475	0.37	405	0.32	445	0.35	375	0.30
185	540	0.31	455	0.27	500	0.29	430	0.25
240	620	0.26	520	0.23	585	0.24	495	0.21
300	700	0.24	585	0.21	650	0.22	550	0.19
400	770	0.21	650	0.19	730	0.19	620	0.18
500	850	0.20	720	0.18	•	•	•	•
630	930	0.19	780	0.17	•	•	•	•
800	1020	0.18	880	0.16	•	•	•	•
1000	1110	0.17	930	0.15	•	•	•	•

* Single core cables are aluminium wire armoured

Current Ratings for XLPE Insulated , PVC – Sheathed , Unarmoured Cables 600 / 1000V MS IEC 60502 - 1

Nominal area of conductor	Single core							Two core		Three and Four core	
	Two cables spaced #		Three cables				Current rating	Approximate volt drop per amp per metre	Current rating	Approximate volt drop per amp per metre	
	Current rating	Approximate volt drop per amp per metre	Trifoil or laid flat touching		Laid flat spaced #						
			Current rating	Approximate volt drop per amp per metre	Current rating	Approximate volt drop per amp per metre					
mm ²	amp	mV	amp	mV	mV	amp	mV	amp	mV	amp	mV
16	•	•	•	•	•	•	•	130	2.80	110	2.50
25	•	•	•	•	•	•	•	165	1.80	135	1.60
35	•	•	•	•	•	•	•	200	1.30	165	1.10
50	265	1.00	215	0.85	0.87	230	0.88	235	0.97	200	0.84
70	325	0.72	265	0.61	0.62	285	0.64	295	0.68	245	0.59
95	380	0.56	310	0.44	0.45	330	0.49	360	0.50	295	0.44
120	440	0.46	360	0.36	0.37	375	0.41	400	0.41	340	0.35
150	495	0.40	405	0.31	0.32	425	0.36	465	0.34	375	0.29
185	570	0.35	455	0.26	0.27	485	0.32	510	0.29	430	0.25
240	660	0.31	530	0.22	0.23	570	0.29	610	0.24	500	0.21
300	740	0.29	610	0.19	0.21	640	0.27	670	0.21	560	0.18
400	850	0.27	690	0.17	0.19	740	0.26	770	0.19	660	0.16
500	950	0.26	780	0.16	0.18	840	0.25	•	•	•	•
630	1100	0.25	890	0.15	0.17	940	0.24	•	•	•	•
800	1210	0.24	980	0.14	0.16	1030	0.23	•	•	•	•
1000	1320	0.23	1070	0.13	0.15	1130	0.22	•	•	•	•

Adjacent cable surfaces separated by one cable diameter

Basic Assumptions

Ground temperature	25 °C
Ground thermal resistivity	1.2 °C m / W
Depth of laying	0.5 metre (to the centre of cable or trefoil group of cables)
Maximum conductor temperature	90 °C

Rating Factors for other Ground Temperature

Ground air temperature °C	15	20	25	30	35	40	45
Rating factor	1.07	1.04	1.0	0.96	0.92	0.88	0.83

Current Ratings for XLPE Insulated , PVC – Sheathed , Armoured Cables 600 / 1000V MS IEC 60502 - 1

Nominal area of conductor	Single core*				Two core		Three and Four core	
	Two cables : ducts touching		Three cables: ducts trefoil touching		Current rating	Approximate volt drop per amp per metre	Current rating	Approximate volt drop per amp per metre
	Current rating	Approximate volt drop per amp per metre	Current rating	Approximate volt drop per amp per metre				
mm ²	amp	mV	amp	mV	amp	mV	amp	mV
16	•	•	•	•	105	2.90	87	2.60
25	•	•	•	•	135	1.90	115	1.60
35	•	•	•	•	165	1.30	140	1.20
50	240	1.10	220	0.93	195	1.00	165	0.87
70	290	0.80	260	0.70	240	0.70	200	0.61
95	340	0.65	310	0.56	290	0.52	245	0.45
120	385	0.55	345	0.48	330	0.42	280	0.36
150	415	0.50	380	0.43	375	0.35	315	0.30
185	450	0.45	410	0.39	425	0.29	355	0.25
240	515	0.40	465	0.35	485	0.24	410	0.21
300	565	0.37	510	0.32	550	0.22	460	0.19
400	600	0.35	540	0.30	620	0.20	520	0.18
500	640	0.33	580	0.28	•	•	•	•
630	700	0.30	620	0.26	•	•	•	•
800	770	0.28	680	0.24	•	•	•	•
1000	840	0.26	740	0.21	•	•	•	•

* Single core cables are aluminium wire armoured.

Current Ratings for XLPE Insulated , PVC – Sheathed , Unarmoured Cables 600 / 1000V MS IEC 60502 - 1

Nominal area of conductor	Single core					Two core		Tree and Four core	
	Two cables : ducts Touching		Three cables: ducts trefoil touching,trefoil or flat			Current rating	Approximate volt drop per amp per metre	Current rating	Approximate volt drop per amp per metre
	Current rating	Approximate volt drop per amp per metre	Current rating	Approximate volt drop per amp per metre					
				Trefoil	Flat				
mm ²	amp	mV	amp	mV	mV	amp	mV	amp	mV
16	•	•	•	•	•	110	2.9	87	2.5
25	•	•	•	•	•	130	1.8	120	1.6
35	•	•	•	•	•	160	1.3	135	1.1
50	245	1.1	225	0.93	0.94	190	0.98	165	0.85
70	300	0.80	275	0.70	0.72	240	0.69	200	0.60
95	350	0.65	320	0.56	0.57	285	0.51	240	0.44
120	405	0.55	370	0.48	0.50	330	0.41	280	0.36
150	455	0.50	415	0.43	0.45	370	0.35	310	0.30
185	520	0.45	465	0.39	0.41	425	0.29	355	0.25
240	610	0.40	540	0.35	0.37	485	0.24	410	0.21
300	690	0.37	610	0.32	0.35	560	0.21	465	0.19
400	790	0.35	700	0.30	0.32	630	0.19	530	0.18
500	900	0.32	790	0.28	0.31	•	•	•	•
630	1030	0.30	900	0.26	0.29	•	•	•	•
800	1130	0.28	990	0.25	0.28	•	•	•	•
1000	1230	0.26	1080	0.24	0.27	•	•	•	•

Basic Assumptions

Ground temperature	25 °C
Ground thermal resistivity	1.2 °C m / W
Depth of laying	0.5 metre (to the centre of cable or trefoil group of cables)
Maximum conductor temperature	90 °C

Rating Factors for other Ground Temperature

Ground air temperature °C	15	20	25	30	35	40	45
Rating factor	1.07	1.04	1.0	0.96	0.92	0.88	0.83

Allowable Short Circuit Currents for XLPE Insulated Cables

