Central Cables Berhad

XLPE

XLPE INSULATED POWER CABLES
BS & IEC STANDARDS

Central Cables Berhad

196701000235(7169-A)

since 1967

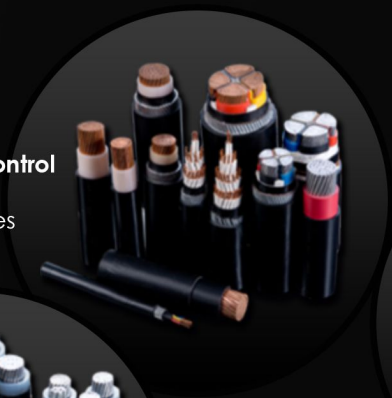
power of CENTRAL in all of us

COMMITMENT . EXCELLENCE . NURTURING . TOGETHER . RESPONSIVE . ACCOUNTABLE . LEAD

We are a Malaysian incorporated company since **June 1967** in Malaysia. We operate from two facilities with combined area of 491,000 sqft and production capacity of RM400 million. We produce power and control cables and bare conductors up to 500kV systems, complying to the International Electro-technical Commission (IEC), British Standards (BS) and Malaysian Standard (MS). We are accredited with ISO 9001:2015 Certification for Quality Management System by IQNet and SIRIM QAS.

Central To Nation's Growth

Low Voltage Power & Control XLPE & PVC Cables
1, 2, 3, 4-cores, Multicores



Underground Medium Voltage XLPE Cables
11kV, 22kV, 33kV
1-core, 3-cores

Aerial Bundled XLPE & PE Cables
1kV, 11kV, 22kV, 33kV

Overhead Bare Conductors
Up to 500kV

Housing Wire

central cables berhad

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CERTIFIED TO ISO 9001:2015
CERT. NO. : QMS 00561



CONTENT



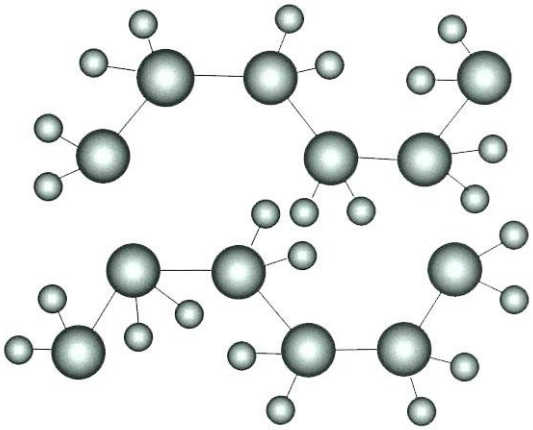

WHAT IS XLPE?

XLPE is an abbreviated designation of “cross-linked polyethylene”. Polyethylene has a linear molecular structure as shown in A. Molecules of polyethylene not chemically bonded as shown in B are easily deformed at high temperature, while XLPE molecules bonded in a three dimensional network as shown in C and D, have strong resistance to deformation even at high temperatures.

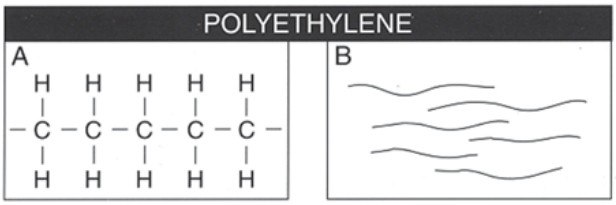
Cross linked polyethylene is produced from polyethylene under high pressure with organic peroxides as additives. The application of heat and pressure is used to effect the cross linking. This causes the individual molecular chains to link with one another which in turn causes the material to change from a thermoplastic to an elastic material.

An important advantage of XLPE as insulation for medium and high voltage cables is their low dielectric loss. The dielectric loss factor is about one decimal power lower than that of paper insulated cables and about two decimal powers lower than that of PVC-insulated cables. Since the dielectric constant is also more favourable, the mutual capacitance of XLPE cables is also lower, thus reducing the charging currents and earth-leakage currents in networks without the rigid star-point earthing.

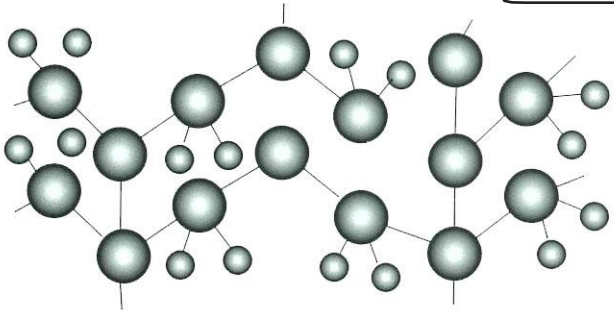
Structure of PE and XLPE

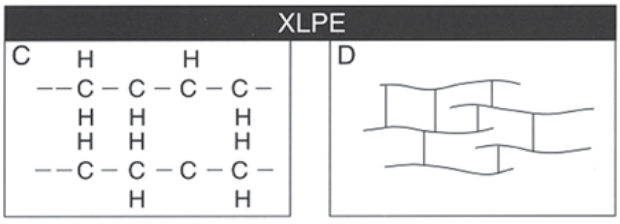


Polyethylene



Crosslinked Polyethylene





XLPE Insulation Advantages

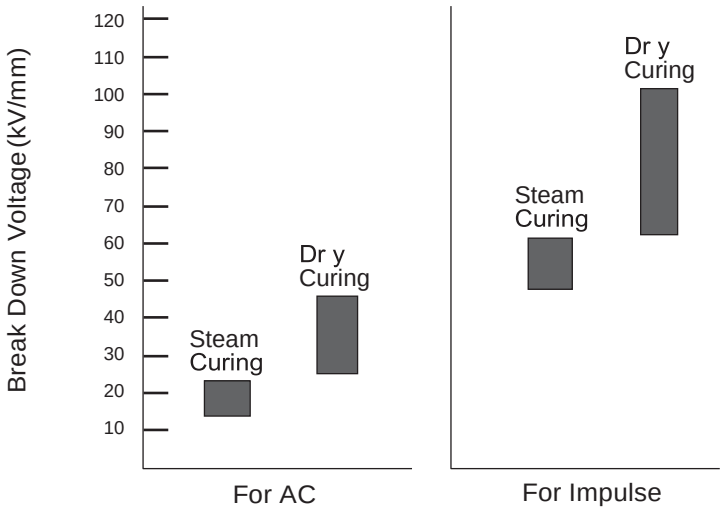
1. Outstanding physical and mechanical toughness
2. Extremely low moisture absorption
3. Excellent ozone resistance
4. Strong resistance to chemicals fumes and gases
5. Low SIC and power factor
6. High impulse strength
7. High insulation resistance and dielectric strength
8. Capability of carrying and terminating
9. Easy to splice and terminate

EXCELLENT XLPE INSULATION

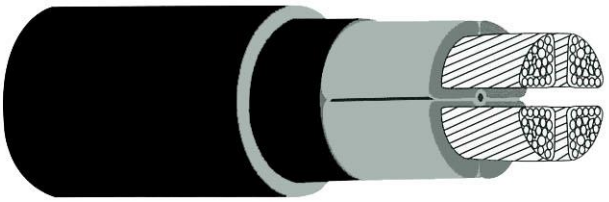
In order to obtain excellent high quality and stable cable insulation, Central Cables have selected Nokia CDCC (completely dry curing and cooling) to produce the most important part in high voltage cable insulation. The curing and cooling is done using dry Nitrogen Gas, heat transfer is by radiation and convection. This method provides the cable insulation in:

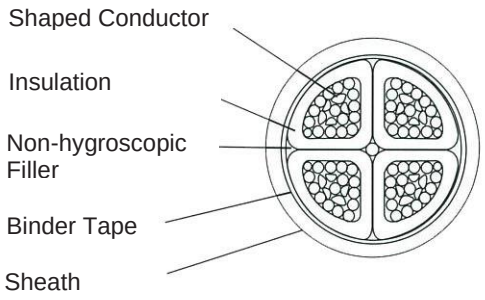
1. Minimizing the water content
2. Minimizing the number of microvoids
3. Reduces mechanical stress in the insulation
4. Avoid mechanical stress, treeing and electrochemical treeing
5. Reduces the insulation shrink back phenomenon

A.C. and Impulse Voltage Break Down Characteristic



XLPE INSULATED UNARMOURED SHEATHED CABLE FOR VOLTAGES 1kV IEC 60502-1





DESCRIPTION

Single core and Multicore cables with copper or aluminium conductor, cross-linked polyethylene (XLPE) insulated, extruded outer sheath with Polyvinyl Chloride (PVC) or Polyethylene (PE).

CONSTRUCTION

Conductor

Plain annealed copper or aluminium stranded conductor class 2 complying to IEC 60228.

Insulation

An extruded layer of cross-linked polyethylene (XLPE) compound rated at 90^{o}C

Colours for core identification

Single Core-natural (black on request)
Two Core-red, black
Three Core-red, yellow, and blue
Four Core-red, yellow, blue and black

Lay Up Cores

Two, three, four or five insulated conductors are laid up together, if necessary filled with non-hygroscopic material compatible with the insulation and covered with of PVC or PE inner sheath which may be an integral part of the filling.

Non-conductive binder tape

Applied when requested by purchaser for single core.

A layer of non-conductive tape helically wrap with overlap laid over lay up cores.

Outer sheath

Extruded layer made from black PVC (ST-2) or PE (ST-7) compound. Additive like Anti-termite repellent, anti-rodent or different outer sheath colour are available upon request.

XLPE INSULATED UNARMOURED SHEATHED CABLE 0.6/1 (1.2)kV

SINGLE CORE - CU / XLPE / PVC SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Nominal diameter of conductor	Nominal insulation thickness	Nominal thickness of PVC sheath	Approximate overall diameter	Standard packing length
mm^2	mm	mm	mm	mm	m/drum
1.5	1.6	0.7	1.4	5.7	5000
2.5	2.0	0.7	1.4	6.2	5000
4	2.6	0.7	1.4	6.8	5000
6	3.1	0.7	1.4	7.3	5000
10	4.0	0.7	1.4	8.2	4500
16	4.7	0.7	1.4	8.9	3500
25	5.9	0.9	1.4	10.5	2500
35	7.0	0.9	1.4	11.6	2000
50	8.1	1.0	1.4	12.9	1500
70	9.7	1.1	1.4	14.7	1000
95	11.5	1.1	1.4	16.5	1000
120	12.9	1.2	1.4	18.1	1000
150	14.3	1.4	1.4	19.9	1000
185	16.0	1.6	1.4	22.0	1000
240	18.4	1.7	1.4	24.6	1000
300	20.6	1.8	1.4	27.0	1000
400	23.3	2.0	1.4	30.1	1000
500	26.3	2.2	1.4	33.5	1000
630	29.9	2.4	1.4	37.5	1000

Note : c.s – circular stranded; c.c – circular stranded compacted

SINGLE CORE - CU / XLPE / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per cable*			Maximum voltage drop	Minimum charging current	Maximum Capacitance	Maximum Reactance
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
mm^2	A	A	A	mV/A/m	A/km	µF/km	ohm/km
1.5	23	22	24	30.859**	0.0415	0.220	0.145
2.5	32	31	34	18.899**	0.0495	0.263	0.135
4	43	42	44	11.759**	0.0598	0.317	0.125
6	54	52	57	7.858**	0.0706	0.375	0.117
10	75	72	79	4.672**	0.0865	0.459	0.109
16	101	96	106	2.940**	0.1004	0.533	0.104
25	128	123	135	1.865**	0.0986	0.523	0.100
35	161	154	169	1.170#	0.1140	0.605	0.096
50	197	188	207	0.870#	0.1188	0.630	0.090
70	255	244	268	0.612#	0.1286	0.682	0.087
95	312	298	328	0.452#	0.1493	0.792	0.084
120	365	348	383	0.386#	0.1534	0.814	0.081
150	423	403	444	0.310#	0.1465	0.777	0.081
185	486	464	510	0.262#	0.1438	0.763	0.080
240	578	552	607	0.218#	0.1542	0.818	0.078
300	669	639	703	0.193#	0.1623	0.861	0.077
400	784	748	823	0.173#	0.1650	0.876	0.076
500	901	860	946	0.159#	0.1692	0.898	0.075
630	1036	989	1088	0.149#	0.1759	0.933	0.074

*Note : Electrical properties are calculated base on conditions in Appendix B.
**Note : Single Phase Voltage Drop.
#Note : Three Phase Voltage Drop.

XLPE INSULATED UNARMOURED SHEATHED CABLE 0.6/1 (1.2)kV

SINGLE CORE - AL / XLPE / PVC SHEATHED CABLE DIMENSION

Nominal cross- sectional area of conductor	Conductor shape	Nominal insulation thickness	Nominal thickness of sheath	Approximate overall diameter	Standard packing length
mm^2		mm	mm	mm	m/drum
16	c.c	0.7	1.4	8.9	3500
25	c.c	0.9	1.4	10.6	2500
35	c.c	0.9	1.4	11.6	2000
50	c.c	1.0	1.4	13.0	1500
70	c.c	1.1	1.4	14.8	1000
95	c.c	1.1	1.4	16.6	1000
120	c.c	1.2	1.4	18.2	1000
150	c.c	1.4	1.4	20.0	1000
185	c.c	1.6	1.4	22.2	1000
240	c.c	1.7	1.4	24.7	1000
300	c.c	1.8	1.4	27.1	1000
400	c.c	2.0	1.4	30.3	1000
500	c.c	2.2	1.4	33.7	1000
630	c.c	2.4	1.4	37.7	1000

Note : c.c – circular stranded compacted

SINGLE CORE - AL / XLPE / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per cable*			Maximum voltage drop	Minimum charging current	Maximum Capacitance	Maximum Reactance
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Trefoil	Trefoil	Trefoil				
mm^2	A	A	A	mV/A/m	A/km	µF/km	ohm/km
16	77	69	81	4.902**	0.1012	0.537	0.104
25	98	87	103	3.084**	0.0992	0.524	0.100
35	123	109	129	1.935#	0.1147	0.609	0.095
50	151	135	159	1.432#	0.1996	0.634	0.090
70	196	175	206	1.996#	0.1296	0.688	0.087
95	241	214	253	0.726#	0.1503	0.797	0.084
120	282	251	296	0.481#	0.1546	0.820	0.081
150	327	291	343	0.480#	0.1474	0.782	0.081
185	376	335	395	0.392#	0.1448	0.768	0.080
240	449	399	471	0.311#	0.1152	0.823	0.078
300	521	464	547	0.262#	0.1632	0.866	0.077
400	631	562	663	0.221#	0.1662	0.882	0.076
500	733	653	770	0.192#	0.1706	0.905	0.075
630	856	762	899	0.171#	0.1771	0.940	0.074

*Note : Electrical properties are calculated base on conditions in Appendix B.
*Note : Single Phase Voltage Drop.
#Note : Three Phase Voltage Drop.

XLPE INSULATED UNARMOURED SHEATHED CABLE 0.6/1 (1.2)kV

TWO CORE - CU/XLPE/PVC SHEATHED CABLE DIMENSION

Nominal cross- sectional area of conductor	Conductor shape	Nominal insulation thickness	Nominal thickness of sheath	Approximate overall diameter	Standard packing length
mm^2		mm	mm	mm	m/drum
1.5	c.s	0.7	1.8	9.7	3000
2.5	c.s	0.7	1.8	10.5	2500
4	c.s	0.7	1.8	11.6	2000
6	c.s	0.7	1.8	12.8	1500
10	c.s	0.7	1.8	14.4	1000
16	c.c	0.7	1.8	15.9	1000
25	s.s	0.9	1.8	15.9	1000
35	s.s	0.9	1.8	17.5	1000
50	s.s	1.0	1.8	19.8	1000
70	s.s	1.1	1.8	22.6	1000
95	s.s	1.1	1.9	25.3	1000
120	s.s	1.2	2.0	27.9	1000
150	s.s	1.4	2.2	31.3	1000
185	s.s	1.6	2.3	34.8	1000
240	s.s	1.7	2.5	39.0	1000
300	s.s	1.8	2.6	42.8	500
400	s.s	2.0	2.9	48.0	500

Note : c.s – circular stranded; c.c – circular stranded compacted; s.s – sectoral stranded (circular conductor can be produced upon request)

TWO CORE - CU/XLPE/PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per Conductor*			Maximum 1 phase voltage drop	Minimum charging current	Maximum Capacitance	Maximum Reactance
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Single Cable	Single Cable	Single Cable				
mm^2	A	A	A	mV/A/m	A/km	µF/km	ohm/km
1.5	24	22	25	30.86	0.0198	0.105	0.177
2.5	34	31	36	18.90	0.0214	0.114	0.168
4	47	43	49	11.761	0.0232	0.123	0.159
6	60	55	63	7.861	0.0246	0.131	0.152
10	82	75	86	4.676	0.0263	0.140	0.145
16	110	100	115	2.946	0.0274	0.146	0.140
25	142	130	149	1.871	0.0361	0.191	0.126
35	176	161	185	1.359	0.0386	0.205	0.121
50	214	196	225	1.061	0.0393	0.209	0.120
70	275	251	289	0.721	0.0406	0.215	0.114
95	335	306	352	0.541	0.0431	0.228	0.111
120	390	357	410	0.448	0.0442	0.235	0.108
150	450	411	473	0.386	0.0428	0.227	0.109
185	516	471	542	0.336	0.0425	0.226	0.109
240	610	557	641	0.265	0.0437	0.232	0.088
300	706	644	741	0.263	0.0451	0.239	0.105
400	824	752	865	0.244	0.0455	0.242	0.105

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED UNARMOURED SHEATHED CABLE 0.6/1 (1.2)kV

TWO CORE - AL / XLPE / PVC SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor Shape	Nominal insulation thickness	Nominal thickness of PVC sheath	Approximate overall diameter	Standard packing length
mm^2		mm	mm	mm	m/drum
16	c.c	0.7	1.8	9.1	2000
25	s.s	0.9	1.8	16.0	1000
35	s.s	0.9	1.8	17.5	1000
50	s.s	1.0	1.8	20.1	1000
70	s.s	1.1	1.8	22.9	1000
95	s.s	1.1	1.9	25.7	1000
120	s.s	1.2	2.0	28.4	1000
150	s.s	1.4	2.2	31.9	1000
185	s.s	1.6	2.3	35.4	1000
240	s.s	1.7	2.5	39.7	1000
300	s.s	1.8	2.6	43.6	1000
400	s.s	2.0	2.9	49.0	1000

Note : c.c – circular stranded compacted; s.s – sectoral stranded (circular conductor can be produced upon request)

TWO CORE - AL / XLPE / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per Conductor*			Maximum 1 phase voltage drop	Minimum charging current	Maximum Capacitance	Maximum Reactance
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Single Cable	Single Cable	Single Cable				
mm^2	A	A	A	mV/A/m	A/km	µF/km	ohm/km
16	87	77	91	4.906	0.0275	0.146	0.14
25	103	92	108	3.087	0.0362	0.192	0.123
35	129	114	135	2.239	0.0387	0.205	0.121
50	156	139	164	1.661	0.3870	0.206	0.118
70	201	179	211	1.159	0.0402	0.213	0.114
95	245	218	257	0.851	0.0424	0.225	0.111
120	286	254	300	0.686	0.0427	0.227	0.109
150	330	293	346	0.573	0.0419	0.227	0.110
185	378	336	397	0.476	0.0417	0.221	0.110
240	448	398	470	0.388	0.0426	0.226	0.108
300	517	460	543	0.335	0.0433	0.230	0.107
400	631	562	663	0.293	0.0437	0.232	0.106

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED UNARMOURED SHEATHED CABLE 0.6/1 (1.2)kV

THREE CORE - CU / XLPE / PVC SHEATHED CABLE DIMENSION

Nominal cross- sectional area of conductor	Conductor Shape	Nominal insulation thickness	Nominal thickness of sheath	Approximate overall diameter	Standard packing length
mm^2		mm	mm	mm	m/drum
1.5	c.s	0.7	1.8	10.2	2500
2.5	c.s	0.7	1.8	11.1	2000
4	c.s	0.7	1.8	12.2	2000
6	c.s	0.7	1.8	13.5	1500
10	c.s	0.7	1.8	15.7	1000
16	c.c	0.7	1.8	16.9	1000
25	s.s	0.9	1.8	18.0	1000
35	s.s	0.9	1.8	19.8	1000
50	s.s	1.0	1.8	22.5	1000
70	s.s	1.1	1.9	26.0	1000
95	s.s	1.1	2.0	29.3	1000
120	s.s	1.2	2.1	32.4	1000
150	s.s	1.4	2.3	36.3	1000
185	s.s	1.6	2.4	40.3	1000
240	s.s	1.7	2.6	45.3	500
300	s.s	1.8	2.7	49.8	500
400	s.s	2.0	3.0	55.5	500

Note : c.s – circular stranded; c.c – circular stranded compacted; s.s – sectoral stranded (circular conductor can be produced upon request)

THREE CORE - CU / XLPE / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per Conductor*			Maximum 3 phase voltage drop	Minimum charging current	Maximum Capacitance	Maximum Reactance
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Single Cable	Single Cable	Single Cable				
mm^2	A	A	A	mV/A/m	A/km	µF/km	ohm/km
1.5	22	20	23	26.725	0.0415	0.220	0.152
2.5	30	28	32	16.367	0.0495	0.263	0.145
4	40	37	42	10.184	0.0598	0.317	0.140
6	51	47	54	6.806	0.0706	0.375	0.135
10	71	65	75	4.048	0.0865	0.459	0.131
16	95	87	100	2.550	0.1004	0.533	0.128
25	121	110	127	1.619	0.0986	0.523	0.119
35	150	137	158	1.175	0.1140	0.605	0.116
50	183	167	192	0.877	0.1180	0.630	0.113
70	234	214	246	0.623	0.1286	0.682	0.112
95	284	259	298	0.468	0.1463	0.792	0.110
120	330	301	346	0.387	0.1546	0.820	0.108
150	380	347	399	0.334	0.1465	0.777	0.109
185	434	397	456	0.291	0.1438	0.763	0.109
240	512	468	538	0.252	0.1542	0.818	0.108
300	591	540	621	0.230	0.1632	0.866	0.107
400	706	644	741	0.213	0.1662	0.882	0.106

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED UNARMOURED SHEATHED CABLE 0.6/1 (1.2)kV

THREE CORE - AL / XLPE / PVC SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Nominal thickness of sheath	Approximate overall diameter	Standard packing length
mm^2		mm	mm	mm	m/drum
16	c.c	0.7	1.8	9.5	1000
25	s.s	0.9	1.8	18.2	1000
35	s.s	0.9	1.8	20.1	1000
50	s.s	1.0	1.8	23.0	1000
70	s.s	1.1	1.9	23.2	1000
95	s.s	1.1	2.0	30.0	1000
120	s.s	1.2	2.1	33.3	1000
150	s.s	1.4	2.3	37.2	500
185	s.s	1.6	2.4	41.4	500
240	s.s	1.7	2.6	46.5	500
300	s.s	1.8	2.7	51.2	500
400	s.s	2.0	3.0	57.6	500

Note : c.c – circular stranded compacted; s.s – sectoral stranded (circular conductor can be produced upon request)

THREE CORE - AL / XLPE / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross- sectional area of conductor	Maximum current rating per Conductor*			Maximum 3 phase voltage drop	Minimum charging current	Maximum Capacitance	Maximum Reactance
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Single Cable	Single Cable	Single Cable				
mm^2	A	A	A	mV/A/m	A/km	µF/km	ohm/km
16	73	65	77	2.156	0.1012	0.537	0.144
25	92	82	97	1.782	0.0992	0.526	0.119
35	114	102	120	1.565	0.1147	0.061	0.130
50	139	124	146	1.441	0.1196	0.634	0.129
70	178	158	187	1.007	0.0778	0.413	0.124
95	216	192	227	0.741	0.1503	0.797	0.121
120	250	223	263	0.599	0.1546	0.820	0.119
150	290	258	304	0.503	0.1474	0.939	0.120
185	330	294	347	0.497	0.1448	0.768	0.111
240	390	347	409	0.337	0.1552	0.823	0.109
300	449	399	471	0.293	0.1516	0.804	0.109
400	543	483	570	0.257	0.1662	0.882	0.109

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED UNARMOURED SHEATHED CABLE 0.6/1 (1.2)kV

FOUR CORE - CU / XLPE / PVC SHEATHED CABLE DIMENSION

Nominal cross- sectional area of conductor	Conductor Shape	Nominal insulation thickness	Nominal thickness of sheath	Approximate overall diameter	Standard packing length
mm^2		mm	mm	mm	m/drum
1.5	c.s	0.7	1.8	10.8	2000
2.5	c.s	0.7	1.8	12.0	2000
4	c.s	0.7	1.8	13.3	1500
6	c.s	0.7	1.8	14.6	1000
10	c.s	0.7	1.8	16.7	1000
16	c.c	0.7	1.8	18.4	1000
25	s.s	0.9	1.8	20.1	1000
35	s.s	0.9	1.8	22.2	1000
50	s.s	1.0	1.8	25.3	1000
70	s.s	1.1	2.0	29.5	1000
95	s.s	1.1	2.1	33.3	1000
120	s.s	1.2	2.3	37.0	1000
150	s.s	1.4	2.4	41.2	500
185	s.s	1.6	2.6	46.0	500
240	s.s	1.7	2.8	51.7	500
300	s.s	1.8	3.0	57.0	250

Note : c.s – circular stranded; c.c – circular stranded compacted; s.s – sectoral stranded (circular conductor can be produced upon request)

FOUR CORE - CU / XLPE / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per Conductor*			Maximum 3 phase voltage drop	Minimum charging current	Maximum Capacitance	Maximum Reactance
	Buried direct in ground	In single- way PE duct in ground	In tray in air (indoor)				
	Single Cable	Single Cable	Single Cable				
mm^2	A	A	A	mV/A/m	A/km	µF/km	ohm/km
1.5	22	20	23	26.725	0.0415	0.220	0.159
2.5	30	28	32	16.367	0.0495	0.263	0.152
4	40	37	42	10.185	0.0598	0.317	0.147
6	51	47	54	6.807	0.0706	0.375	0.142
10	71	65	75	4.049	0.0865	0.459	0.138
16	95	87	100	2.551	0.1004	0.533	0.136
25	121	110	127	1.621	0.0986	0.523	0.128
35	150	137	158	1.178	0.1140	0.605	0.125
50	183	167	192	0.881	0.1188	0.630	0.122
70	234	214	246	0.628	0.3627	0.682	0.120
95	284	259	298	0.474	0.1493	0.792	0.118
120	330	301	346	0.395	0.1546	0.820	0.117
150	380	347	399	0.343	0.1465	0.777	0.118
185	434	397	456	0.301	0.1438	0.118	0.763
240	512	468	538	0.264	0.1542	0.818	0.117
300	591	540	621	0.242	0.1632	0.866	0.116

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED UNARMOURED SHEATHED CABLE 0.6/1 (1.2)kV

FOUR CORE - AL / XLPE / PVC SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Nominal thickness of sheath	Approximate overall diameter	Standard packing length
mm^2		mm	mm	mm	m/drum
16	c.c	0.7	1.8	18.4	1000
25	s.s	0.9	1.8	20.4	1000
35	s.s	0.9	1.8	22.6	1000
50	s.s	1.0	1.8	25.8	1000
70	s.s	1.1	2.0	30.1	1000
95	s.s	1.1	2.1	34.0	1000
120	s.s	1.2	2.3	37.9	1000
150	s.s	1.4	2.4	42.2	1000
185	s.s	1.6	2.6	47.2	500
240	s.s	1.7	2.8	53.0	500
300	s.s	1.8	3.0	58.6	500
400	s.s	2.0	3.3	65.8	500

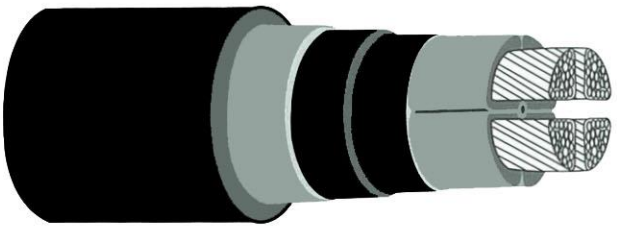
Note : c.c – circular stranded compacted; s.s – sectoral stranded (circular conductor can be produced upon request)

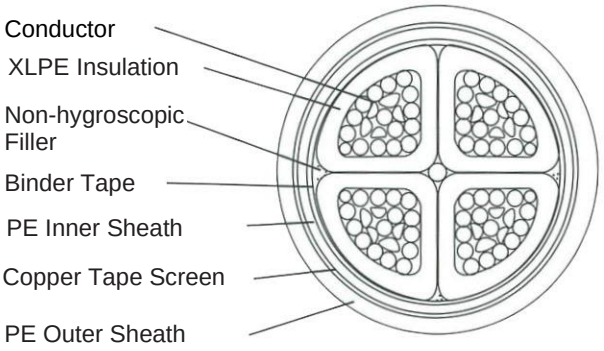
FOUR CORE - AL / XLPE / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per Conductor*			Maximum 3 phase voltage drop	Minimum charging current	Maximum Capacitance	Maximum Reactance
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Single Cable	Single Cable	Single Cable				
mm^2	A	A	A	mV/A/m	A/km	µF/km	ohm/km
16	73	65	77	4.248	0.1004	0.533	0.136
25	92	82	97	2.674	0.0992	0.526	0.128
35	114	102	120	1.940	0.1147	0.609	0.126
50	139	124	146	1.402	0.1196	0.634	0.125
70	178	158	187	1.006	0.1296	0.688	0.121
95	216	192	227	0.741	0.1503	0.797	0.120
120	250	223	263	0.599	0.1546	0.820	0.118
150	290	258	304	0.503	0.1474	0.782	0.119
185	330	294	347	0.420	0.1448	0.768	0.119
240	390	347	409	0.346	0.1552	0.823	0.118
300	449	399	471	0.303	0.1553	0.824	0.118
400	543	483	570	0.268	0.1747	0.927	0.117

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED UNARMOURED SHEATHED CABLE WITH CU TAPE SCREENED FOR VOLTAGES 1kV





DESCRIPTION

Circular compacted stranded aluminium conductor, cross-linked polyethylene, extruded outer sheath made from polyethylene with copper tape screening. Complies with Tenaga Nasional Berhad (TNB) specification.

CONSTRUCTION

Conductor

Aluminium (Al) conductor complying to class 2 in IEC 60228.

Insulation

An extruded layer of cross-linked polyethylene (XLPE) compound rated at 90ºC

Colours for core identification

Four Core-red, yellow, blue and black

Lay Up Cores

Four insulated conductors are laid up together, if necessary filled with non-hygroscopic material compatible with the insulation

Non-conductive binder tape

A layer of non-conductive tape helically wrap with overlap laid over lay up cores.

Inner Sheath

Extruded layer made from black PE (ST-7) compound.

Metallic Screening

Two layers of copper tape (CTS) helically wrap with overlap laid over inner sheath.

Separator Binder Tape

A layer of non-conductive tape helically wrap with overlap laid over metallic screen when necessary.

Outer sheath

Extruded layer made from black PE (ST-7) compound. Additive like Anti-termite repellent, anti-rodent or different outer sheath colour are available upon request.

XLPE INSULATED UNARMOURED SHEATHED CABLE WITH CU TAPE SCREENED 0.6/1 (1.2)kV

FOUR CORE - AL / XLPE / MDPE / CTS / MDPE SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Nominal diameter of conductor	Nominal insulation thickness	Nominal thickness of MDPE inner sheath	Metallic screening	Nominal thickness of MDPE sheath	Approximate overall diameter	Standard packing length
				Nominal thickness of copper tape			
mm^2	mm	mm	mm	mm x n	mm	mm	m/drum
25#	s.s	0.9	1.0	0.1 x 2	1.8	23.8	1000
35	s.s	0.9	1.0	0.1 x 2	1.8	26.5	1000
50	s.s	1.0	1.0	0.1 x 2	1.9	29.6	1000
70#	s.s	1.1	1.2	0.1 x 2	2.0	34.0	1000
95	s.s	1.1	1.2	0.1 x 2	2.2	38.2	1000
120#	s.s	1.2	1.4	0.1 x 2	2.3	42.2	1000
150	s.s	1.4	1.4	0.1 x 2	2.5	46.6	1000
185#	s.s	1.6	1.4	0.1 x 2	2.6	51.4	1000
240	s.s	1.7	1.6	0.1 x 2	2.9	57.9	1000
300#	s.s	1.8	1.6	0.1 x 2	3.0	63.2	1000
400	s.s	2.0	1.8	0.1 x 2	3.3	70.9	500

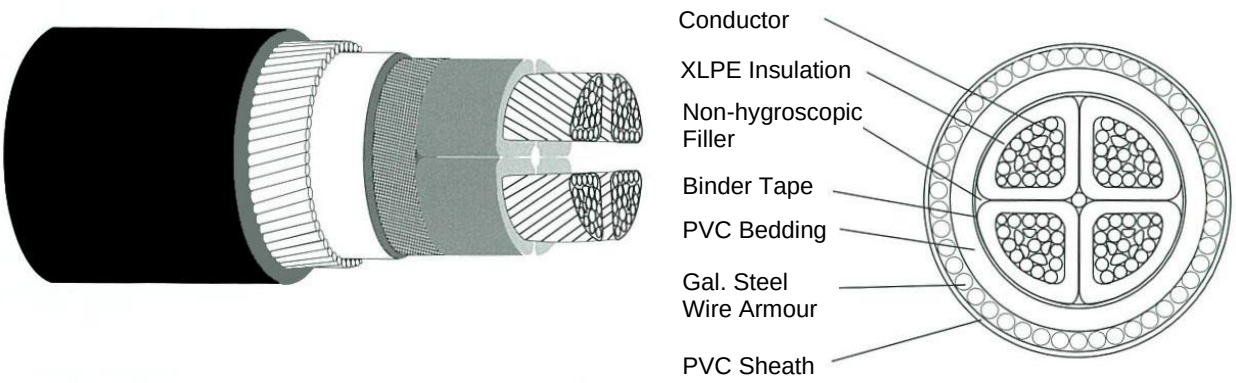
Note : s.s – sectoral stranded (circular conductor can be produced upon request)

FOUR CORE - AL / XLPE / MDPE / CTS / MDPE SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per Conductor*			Maximum 3 phase voltage drop	Minimum charging current	Maximum Capacitance	Maximum Reactance
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Single Cable	Single Cable	Single Cable				
mm^2	A	A	A	mV/A/m	A/km	µF/km	ohm/km
25#	102	90	107	2.674	0.0992	0.526	0.128
35	126	112	132	1.940	0.1147	0.609	0.126
50	153	136	160	1.402	0.1196	0.634	0.125
70#	196	174	205	1.006	0.1296	0.688	0.121
95	238	211	249	0.741	0.1503	0.797	0.120
120#	275	245	289	0.599	0.1546	0.820	0.118
150	318	283	334	0.503	0.1474	0.782	0.119
185#	363	323	381	0.420	0.1448	0.768	0.119
240	428	381	449	0.346	0.1552	0.823	0.118
300#	493	439	518	0.303	0.1553	0.824	0.118
400	597	531	626	0.268	0.1747	0.927	0.117

*Note : Electrical properties are calculated base on conditions in Appendix B.
#Note: TNB specification.

XLPE INSULATED ARMOURED SHEATHED CABLE FOR VOLTAGES 1kV AND 3.3kV TO IEC 60502-1



DESCRIPTION

Circular compacted stranded copper or aluminium conductor, cross-linked polyethylene, covered with extruded inner sheath, armoured, extruded outer sheath made from MDPE or HDPE or PVC.

CONSTRUCTION

Conductor

Plain circular compacted stranded copper (Cu) or aluminium (Al) conductor conform to class 2 in IEC 60228.

Insulation

An extruded layer of cross-linked polyethylene (XLPE) compound rated at 90^{o}C

Colours for core identification

Single Core-natural (black on request)
Two Core-red, black
Three Core-red, yellow, and blue
Four Core-red, yellow, blue and black

Lay Up Cores

Two, three, four or five insulated conductors are laid up together, if necessary filled with non-hygroscopic material compatible with the insulation and covered with of PVC or MDPE or HDPE inner sheath which may be an integral part of the filling.

Non-conductive binder tape

Applied when necessary

A layer of non-conductive tape helically wrap with overlap laid over lay up cores.

Inner Sheath

Extruded layer made from black PVC or MDPE or HDPE compound.

Armour

Single Core-Aluminium wires shall be applied helically over the inner sheath
Mutli Core-Galvanized Steel wires shall be applied helically over the inner sheath.

Non-conductive binder tape

A layer of non-conductive tape helically wrap with overlap laid over armour when necessary.

Outer sheath

Extruded layer made from black PVC or MDPE or HDPE compound. Additive like Anti-termite repellent, anti-rodent or different outer sheath colour are available upon request.

XLPE INSULATED ARMOURED SHEATHED CABLE
0.6/1 (1.2)kV

SINGLE CORE - CU / XLPE / PVC / AWA / PVC SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Nominal thickness of inner sheath	Armouring wire diameter	Nominal thickness of PVC outer sheath	Approximate overall diameter	Standard packing length
mm^2		mm	mm	mm	mm	mm	m/drum
1.5	c.s	0.7	1.0	0.9	1.4	10.4	1000
2.5	c.s	0.7	1.0	0.9	1.4	10.8	1000
4	c.s	0.7	1.0	0.9	1.4	11.4	1000
6	c.s	0.7	1.0	0.9	1.4	11.9	1000
10	c.s	0.7	1.0	0.9	1.4	12.8	1000
16	c.c	0.7	1.0	0.9	1.4	13.5	1000
25	c.c	0.9	1.0	0.9	1.4	15.1	1000
35	c.c	0.9	1.0	0.9	1.4	16.2	1000
50	c.c	1.0	1.0	1.25	1.5	18.2	1000
70	c.c	1.1	1.0	1.25	1.5	20.0	1000
95	c.c	1.1	1.0	1.25	1.6	21.8	1000
120	c.c	1.2	1.0	1.6	1.7	24.5	1000
150	c.c	1.4	1.0	1.6	1.7	26.3	1000
185	c.c	1.6	1.0	1.6	1.8	28.4	1000
240	c.c	1.7	1.0	1.6	1.9	31.2	1000
300	c.c	1.8	1.0	1.6	1.9	33.6	1000
400	c.c	2.0	1.2	2.0	2.1	38.3	1000
500	c.c	2.2	1.2	2.0	2.2	41.9	1000
630	c.c	2.4	1.2	2.0	2.3	46.1	500

Note : c.s – circular stranded; c.c – circular stranded compacted

SINGLE CORE - CU / XLPE / PVC / AWA / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross- sectional area of conductor	Maximum current rating per cable*			Maximum voltage drop	Minimum charging current	Maximum Capacitance	Maximum Reactance
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Trefoil	Trefoil	Trefoil				
mm^2	A	A	A	mV/A/m	A/km	µF/km	ohm/km
1.5	25	23	26	30.860**	0.0415	0.220	0.182
2.5	36	32	37	18.900**	0.0495	0.263	0.169
4	46	42	48	11.761**	0.0598	0.317	0.158
6	57	52	60	7.860**	0.0706	0.375	0.148
10	77	70	81	4.675**	0.0865	0.457	0.137
16	101	92	106	2.944**	0.1004	0.533	0.130
25	135	123	141	1.870**	0.0986	0.523	0.123
35	162	148	170	1.175#	0.1140	0.605	0.117
50	213	194	223	0.877#	0.1188	0.630	0.112
70	270	247	284	0.621#	0.1286	0.682	0.106
95	331	302	347	0.462#	0.1463	0.792	0.101
120	385	351	404	0.382#	0.1534	0.814	0.101
150	438	400	460	0.324#	0.1465	0.777	0.099
185	505	461	530	0.277#	0.1438	0.763	0.096
240	597	545	627	0.234#	0.1542	0.818	0.093
300	684	625	718	0.209#	0.1623	0.861	0.091
400	775	708	814	0.192#	0.1650	0.876	0.091
500	873	797	916	0.177#	0.1692	0.898	0.089
630	975	891	1024	0.167#	0.1759	0.933	0.087

*Note : Electrical properties are calculated base on conditions in Appendix B.
**Note : Single Phase Voltage Drop.
#Note : Three Phase Voltage Drop.

XLPE INSULATED ARMOURED SHEATHED CABLE
0.6/1 (1.2)kV

SINGLE CORE - AL / XLPE / PVC / AWA / PVC DIMENSION

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Nominal thickness of inner sheath	Armouring wire diameter	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
mm^2		mm	mm	mm	mm	mm	m/drum
16	c.c	0.7	1.0	0.9	1.4	13.5	1000
25	c.c	0.9	1.0	0.9	1.4	15.2	1000
35	c.c	0.9	1.0	0.9	1.4	16.2	1000
50	c.c	1.0	1.0	1.25	1.5	18.3	1000
70	c.c	1.1	1.0	1.25	1.6	20.1	1000
95	c.c	1.1	1.0	1.25	1.7	21.9	1000
120	c.c	1.2	1.0	1.6	1.7	24.6	1000
150	c.c	1.4	1.0	1.6	1.7	26.4	1000
185	c.c	1.6	1.0	1.6	1.8	28.6	1000
240	c.c	1.7	1.0	1.6	1.9	31.3	1000
300	c.c	1.8	1.0	1.6	1.9	33.7	1000
400	c.c	2.0	1.2	2.0	2.1	38.5	1000
500	c.c	2.2	1.2	2.0	2.2	42.2	1000
630	c.c	2.4	1.2	2.0	2.3	46.4	1000

Note : c.c – circular stranded compacted

SINGLE CORE - AL / XLPE / PVC / AWA / PVC ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per cable*			Maximum 3 phase voltage drop	Minimum charging current	Maximum Capacitance	Maximum Reactance
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
mm^2	A	A	A	mV/A/m	A/km	µF/km	ohm/km
16	78	71	82	4.248	0.1012	0.537	0.1279
25	99	90	104	2.673	0.0992	0.526	0.1224
35	124	113	130	1.938	0.1147	0.609	0.1163
50	153	140	161	1.438	0.1196	0.634	0.1143
70	198	181	208	1.001	0.1296	0.688	0.1060
95	243	222	256	0.733	0.1503	0.797	0.1010
120	285	260	299	0.589	0.1546	0.820	0.1002
150	330	301	346	0.489	0.1474	0.782	0.0983
185	380	347	399	0.402	0.1448	0.768	0.0960
240	453	414	476	0.323	0.1552	0.823	0.0920
300	526	480	553	0.274	0.1632	0.865	0.0904
400	595	543	624	0.236	0.1702	0.903	0.0908
500	677	618	711	0.208	0.1706	0.905	0.0888
630	764	697	802	0.187	0.1771	0.937	0.0865

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED ARMOURED SHEATHED CABLE
0.6/1 (1.2)kV

TWO CORE - CU / XLPE / PVC / SWA / PVC SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Nominal thickness of inner sheath	Armouring wire diameter	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
mm^2		mm	mm	mm	mm	mm	m/drum
1.5	c.s	0.7	1.0	0.9	1.8	13.5	1000
2.5	c.s	0.7	1.0	0.9	1.8	14.3	1000
4	c.s	0.7	1.0	0.9	1.8	15.4	1000
6	c.s	0.7	1.0	0.9	1.8	16.6	1000
10	c.s	0.7	1.0	1.25	1.8	18.9	1000
16	c.c	0.7	1.0	1.25	1.8	20.4	1000
25	s.s	0.9	1.0	1.6	1.8	21.6	1000
35	s.s	0.9	1.0	1.6	1.8	23.1	1000
50	s.s	1.0	1.0	1.6	1.9	25.6	1000
70	s.s	1.1	1.0	1.6	2.0	28.6	1000
95	s.s	1.1	1.2	2.0	2.1	32.5	1000
120	s.s	1.2	1.2	2.0	2.2	35.2	1000
150	s.s	1.4	1.2	2.0	2.4	38.6	1000
185	s.s	1.6	1.4	2.5	2.5	43.9	1000
240	s.s	1.7	1.4	2.5	2.7	48.0	500
300	s.s	1.8	1.6	2.5	2.9	52.4	500
400	s.s	2.0	1.6	2.5	3.1	57.5	500

Note : c.s – circular stranded; c.c – circular stranded compacted; s.s – sectoral stranded (circular conductor can be produced upon request)

TWO CORE - CU / XLPE / PVC / SWA / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per conductor*			Maximum 1 phase voltage drop	Minimum charging current	Maximum Capacitance	Maximum Reactance
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Single Cable	Single Cable	Single Cable				
mm^2	A	A	A	mV/A/m	A/km	µF/km	ohm/km
1.5	24	22	25	30.86	0.0415	0.220	0.198
2.5	35	32	36	18.901	0.0495	0.263	0.187
4	47	43	49	11.762	0.0598	0.317	0.177
6	61	55	64	7.862	0.0706	0.375	0.169
10	83	76	87	4.678	0.0865	0.459	0.162
16	111	101	116	2.949	0.1004	0.533	0.156
25	143	131	151	1.881	0.0813	0.435	0.159
35	178	162	187	1.370	0.0986	0.523	0.149
50	216	198	227	1.023	0.1196	0.634	0.133
70	278	254	292	0.731	0.1296	0.688	0.128
95	339	309	356	0.554	0.1503	0.797	0.126
120	394	360	414	0.462	0.1546	0.820	0.123
150	455	415	478	0.401	0.1474	0.782	0.122
185	521	476	547	0.354	0.1448	0.768	0.123
240	617	563	647	0.309	0.1552	0.823	0.120
300	713	651	748	0.263	0.1632	0.866	0.118
400	832	760	874	0.228	0.1662	0.882	0.116

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED ARMOURED SHEATHED CABLE
0.6/1 (1.2)kV

TWO CORE - AL / XLPE / PVC / SWA / PVC SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor Shape	Nominal insulation thickness	Nominal thickness of inner sheath	Armouring wire diameter	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
mm^2		mm	mm	mm	mm	mm	m/drum
16	c.c	0.7	1.0	1.25	1.8	20.5	1000
25	s.s	0.9	1.0	1.6	1.8	21.6	1000
35	s.s	0.9	1.0	1.6	1.8	23.2	1000
50	s.s	1.0	1.0	1.6	1.9	25.9	1000
70	s.s	1.1	1.0	1.6	2.0	28.9	1000
95	s.s	1.1	1.2	2.0	2.1	32.9	1000
120	s.s	1.2	1.2	2.0	2.2	38.5	1000
150	s.s	1.4	1.2	2.0	2.4	39.1	1000
185	s.s	1.6	1.4	2.5	2.5	44.5	1000
240	s.s	1.7	1.4	2.5	2.7	48.8	1000
300	s.s	1.8	1.6	2.5	2.9	53.3	500
400	s.s	2.0	1.6	2.5	3.1	58.5	500

Note : c.c – circular stranded compacted; s.s – sectoral stranded (circular conductor can be produced upon request)

TWO CORE - AL / XLPE / PVC / SWA / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Conductor Shape	Nominal insulation thickness	Nominal thickness of inner sheath	Armouring wire diameter	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
mm^2		mm	mm	mm	mm	mm	m/drum
16	c.c	0.7	1.0	1.25	1.8	20.5	1000
25	s.s	0.9	1.0	1.6	1.8	21.6	1000
35	s.s	0.9	1.0	1.6	1.8	23.2	1000
50	s.s	1.0	1.0	1.6	1.9	25.9	1000
70	s.s	1.1	1.0	1.6	2.0	28.9	1000
95	s.s	1.1	1.2	2.0	2.1	32.9	1000
120	s.s	1.2	1.2	2.0	2.2	38.5	1000
150	s.s	1.4	1.2	2.0	2.4	39.1	1000
185	s.s	1.6	1.4	2.5	2.5	44.5	1000
240	s.s	1.7	1.4	2.5	2.7	48.8	1000
300	s.s	1.8	1.6	2.5	2.9	53.3	500
400	s.s	2.0	1.6	2.5	3.1	58.5	500

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED ARMOURED SHEATHED CABLE
0.6/1 (1.2)kV

THREE CORE - CU / XLPE / PVC / SWA / PVC SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Nominal thickness of inner sheath	Armouring wire diameter	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
mm^2		mm	mm	mm	mm	mm	m/drum
1.5	c.s	0.7	1.0	0.9	1.8	14.0	1000
2.5	c.s	0.7	1.0	0.9	1.8	14.9	1000
4	c.s	0.7	1.0	0.9	1.8	16.0	1000
6	c.s	0.7	1.0	0.9	1.8	17.3	1000
10	c.s	0.7	1.0	1.25	1.8	19.8	1000
16	c.c	0.7	1.0	1.25	1.8	21.4	1000
25	s.s	0.9	1.0	1.6	1.8	23.6	1000
35	s.s	0.9	1.0	1.6	1.8	25.4	1000
50	s.s	1.0	1.0	1.6	1.9	28.4	1000
70	s.s	1.1	1.2	2.0	2.1	33.3	1000
95	s.s	1.1	1.2	2.0	2.2	36.5	1000
120	s.s	1.2	1.2	2.0	2.3	39.6	1000
150	s.s	1.4	1.4	2.5	2.5	45.3	500
185	s.s	1.6	1.4	2.5	2.6	49.4	500
240	s.s	1.7	1.6	2.5	2.8	54.7	500
300	s.s	1.8	1.6	2.5	3.0	59.4	250
400	s.s	2.0	1.6	2.5	3.3	65.1	250

Note : c.s – circular stranded; c.c – circular stranded compacted; s.s – sectoral stranded (circular conductor can be produced upon request)

THREE CORE - CU / XLPE / PVC / SWA / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per conductor*			Maximum 3 phase voltage drop	Minimum charging current	Maximum Capacitance	Maximum Reactance
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Single Cable	Single Cable	Single Cable				
mm^2	A	A	A	mV/A/m	A/km	µF/km	ohm/km
1.5	22	20	23	26.725	0.0415	0.220	0.152
2.5	30	27	31	16.367	0.0492	0.263	0.145
4	40	37	42	10.184	0.0598	0.317	0.140
6	52	47	55	6.806	0.0706	0.375	0.135
10	73	67	77	4.048	0.0865	0.459	0.131
16	93	85	98	2.55	0.1004	0.533	0.125
25	123	112	129	1.619	0.0986	0.523	0.119
35	154	141	162	1.175	0.114	0.065	0.116
50	188	171	197	0.877	0.118	0.630	0.113
70	238	217	249	0.623	0.1286	0.682	0.112
95	289	264	303	0.468	0.1493	0.792	0.110
120	337	307	354	0.389	0.1534	0.814	0.108
150	386	352	405	0.334	0.1557	0.826	0.109
185	439	401	461	0.291	0.1438	0.763	0.109
240	519	473	544	0.252	0.1542	0.820	0.108
300	595	543	625	0.23	0.1623	0.861	0.107
400	687	628	722	0.214	0.165	0.876	0.106

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED ARMOURED SHEATHED CABLE
0.6/1 (1.2)kV

THREE CORE - AL / XLPE / PVC / SWA / PVC SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor Shape	Nominal insulation thickness	Nominal thickness of inner sheath	Armouring wire diameter	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
mm^2		mm	mm	mm	mm	mm	m/drum
16	c.c	0.7	1.0	1.25	1.8	22.7	1000
25	s.s	0.9	1.0	1.6	1.8	23.6	1000
35	s.s	0.9	1.0	1.6	1.8	25.7	1000
50	s.s	1.0	1.0	1.6	1.9	28.9	1000
70	s.s	1.1	1.2	2.0	2.1	33.9	1000
95	s.s	1.1	1.2	2.0	2.2	37.2	1000
120	s.s	1.2	1.2	2.0	2.3	40.5	1000
150	s.s	1.4	1.4	2.5	2.5	46.3	500
185	s.s	1.6	1.4	2.5	2.6	50.4	500
240	s.s	1.7	1.6	2.5	2.8	56.0	500
300	s.s	1.8	1.6	2.5	3.0	60.8	500
400	s.s	2.0	1.6	2.5	3.3	67.2	500

Note : c.c – circular stranded compacted; s.s – sectoral stranded (circular conductor can be produced upon request)

THREE CORE - AL / XLPE / PVC / SWA / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per conductor*			Maximum 3 phase voltage drop	Minimum charging current	Maximum Capacitance	Maximum Reactance
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Single Cable	Single Cable	Single Cable				
mm^2	A	A	A	mV/A/m	A/km	µF/km	ohm/km
16	69	63	73	4.248	0.0744	0.395	0.134
25	91	83	96	2.673	0.0992	0.526	0.119
35	111	101	116	1.938	0.1147	0.609	0.117
50	137	125	143	1.437	0.1196	0.634	0.114
70	173	158	182	1.003	0.1414	0.750	0.113
95	211	192	221	0.737	0.1503	0.797	0.111
120	254	232	267	0.594	0.1535	0.814	0.110
150	292	267	307	0.497	0.1474	0.782	0.110
185	335	306	352	0.413	0.1448	0.768	0.115
240	398	364	418	0.337	0.1552	0.823	0.109
300	464	423	487	0.293	0.1632	0.869	0.109
400	536	489	563	0.257	0.1662	0.882	0.109

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED ARMOURED SHEATHED CABLE
0.6/1 (1.2)kV

FOUR CORE - CU / XLPE / PVC / SWA / PVC SHEATHED CABLE DIMENSION

Nominal cross- sectional area of conductor	Conductor shape	Nominal insulation thickness	Nominal thickness of inner sheath	"Armouring wire diameter"	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
mm^2		mm	mm	mm	mm	mm	m/drum
1.5	c.s	0.7	1.0	0.9	1.8	14.4	1000
2.5	c.s	0.7	1.0	0.9	1.8	15.8	1000
4	c.s	0.7	1.0	0.9	1.8	17.1	1000
6	c.s	0.7	1.0	1.25	1.8	19.1	1000
10	c.s	0.7	1.0	1.25	1.8	21.2	1000
16	c.c	0.7	1.0	1.6	1.8	24.1	1000
25	s.s	0.9	1.0	1.6	1.8	25.7	1000
35	s.s	0.9	1.0	1.6	1.9	28.0	1000
50	s.s	1.0	1.0	2.0	2.0	32.1	1000
70	s.s	1.1	1.2	2.0	2.2	36.7	1000
95	s.s	1.1	1.2	2.0	2.3	40.5	1000
120	s.s	1.2	1.4	2.5	2.5	46.4	500
150	s.s	1.4	1.4	2.5	2.7	50.5	500
185	s.s	1.6	1.4	2.5	2.8	55.1	500
240	s.s	1.7	1.6	2.5	3.0	61.1	250
300	s.s	1.8	1.6	2.5	3.2	66.5	250
400	s.s	2.0	1.8	3.2	3.6	75.0	250

Note : c.s – circular stranded; c.c – circular stranded compacted; s.s – sectoral stranded (circular conductor can be produced upon request)

FOUR CORE - CU / XLPE / PVC / SWA / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per conductor*			Maximum 3 phase voltage drop	Minimum charging current	Maximum Capacitance	Maximum Reactance
	Buried direct in ground	In single- way PE duct in ground	In tray in air (indoor)				
	Single Cable	Single Cable	Single Cable				
mm^2	A	A	A	mV/A/m	A/km	µF/km	ohm/km
1.5	22	20	23	26.725	0.0415	0.220	0.159
2.5	30	27	31	16.367	0.0495	0.263	0.152
4	40	37	42	10.185	0.0598	0.317	0.147
6	52	47	55	6.807	0.0706	0.375	0.142
10	73	67	77	4.049	0.0865	0.046	0.138
16	93	85	98	2.551	0.1004	0.533	0.136
25	123	112	129	1.621	0.0986	0.523	0.128
35	154	141	162	1.178	0.1140	0.605	0.125
50	188	171	197	0.882	0.1188	0.630	0.124
70	238	217	249	0.628	0.1286	0.682	0.120
95	289	264	303	0.474	0.1473	0.792	0.118
120	337	307	354	0.395	0.1534	0.814	0.117
150	386	352	405	0.343	0.1465	0.777	0.118
185	439	401	461	0.301	0.1438	0.763	0.118
240	519	473	544	0.264	0.1542	0.188	0.117
300	595	543	625	0.243	0.1623	0.861	0.116
400	687	628	722	0.228	0.1650	0.876	0.116

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED ARMOURED SHEATHED CABLE
0.6/1 (1.2)kV

FOUR CORE - AL / XLPE / PVC / SWA / PVC SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Nominal thickness of inner sheath	Armouring wire diameter	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
mm^2		mm	mm	mm	mm	mm	m/drum
16	c.c	0.7	1.0	1.6	1.8	25.6	1000
25	s.s	0.9	1.0	1.6	1.8	26.0	1000
35	s.s	0.9	1.0	1.6	1.9	28.4	1000
50	s.s	1.0	1.0	2.0	2.0	32.6	1000
70	s.s	1.1	1.2	2.0	2.2	37.4	1000
95	s.s	1.1	1.2	2.0	2.3	41.2	1000
120	s.s	1.2	1.4	2.5	2.5	46.9	500
150	s.s	1.4	1.4	2.5	2.7	51.4	500
185	s.s	1.6	1.4	2.5	2.8	56.2	500
240	s.s	1.7	1.6	2.5	3.0	62.5	500
300	s.s	1.8	1.6	2.5	3.2	68.0	500
400	s.s	2.0	1.8	3.15	3.6	77.2	500

Note : c.c – circular stranded compacted; s.s – sectoral stranded (circular conductor can be produced upon request)

FOUR CORE - AL / XLPE / PVC / SWA / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross- sectional area of conductor	Maximum current rating per conductor*			Maximum 3 phase voltage drop	Minimum charging current	Maximum Capacitance	Maximum Reactance
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Single Cable	Single Cable	Single Cable				
mm^2	A	A	A	mV/A/m	A/km	µF/km	ohm/km
16	69	63	73	4.249	0.0744	0.395	0.141
25	91	83	96	2.674	0.0992	0.526	0.128
35	111	101	116	1.940	0.1147	0.061	0.126
50	137	125	143	1.440	0.1196	0.634	0.123
70	173	158	182	1.006	0.1296	0.688	0.121
95	211	192	221	0.741	0.1503	0.797	0.120
120	254	232	267	0.599	0.1564	0.820	0.118
150	292	267	307	0.503	0.1474	0.782	0.119
185	335	306	352	0.420	0.1448	0.768	0.119
240	398	364	418	0.346	0.1552	0.823	0.118
300	464	423	487	0.303	0.1632	0.866	0.118
400	536	489	563	0.268	0.1662	0.882	0.117

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED ARMOURED SHEATHED CABLE
1.9/3.3(3.6)kV

SINGLE CORE - CU / XLPE / PVC / AWA / PVC SHEATHED CABLE DIMENSION

Nominal cross- sectional area of conductor	Conductor shape	Nominal insulation thickness	Nominal thickness of inner sheath	Armouring wire diameter	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
mm^2		mm	mm	mm	mm	mm	m/drum
50	c.c	2.0	1.0	1.25	1.5	20.2	1000
70	c.c	2.0	1.0	1.25	1.6	21.8	1000
95	c.c	2.0	1.0	1.6	1.7	24.3	1000
120	c.c	2.0	1.0	1.6	1.7	26.1	1000
150	c.c	2.0	1.0	1.6	1.8	27.5	1000
185	c.c	2.0	1.0	1.6	1.8	29.3	1000
240	c.c	2.0	1.0	1.6	1.9	31.8	1000
300	c.c	2.0	1.0	1.6	2.0	33.7	1000
400	c.c	2.0	1.2	2.0	2.1	38.3	1000
500	c.c	2.2	1.2	2.0	2.2	41.9	1000
630	c.c	2.4	1.2	2.0	2.3	46.1	500

Note : c.c – circular stranded compacted

SINGLE CORE - CU / XLPE / PVC / AWA / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per cable*			Maximum 3 phase voltage drop	Minimum charging current	Maximum Capacitance	Maximum Reactance
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Trefoil	Trefoil	Trefoil				
mm^2	A	A	A	mV/A/m	A/km	µF/km	ohm/km
50	215	196	225	1.017	0.3591	0.349	0.121
70	273	249	287	0.720	0.4185	0.404	0.112
95	334	305	351	0.539	0.4817	0.465	0.108
120	389	355	408	0.444	0.5331	0.514	0.104
150	443	404	465	0.377	0.5842	0.564	0.101
185	510	466	535	0.322	0.6460	0.623	0.098
240	603	551	633	0.271	0.7309	0.705	0.094
300	684	625	719	0.241	0.8928	0.861	0.091
400	776	709	815	0.222	0.9078	0.876	0.091
500	881	805	925	0.206	0.9308	0.898	0.089
630	985	899	1034	0.192	0.9674	0.933	0.087

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED ARMOURED SHEATHED CABLE 1.9/3.3(3.6)kV

SINGLE CORE - AL / XLPE / PVC / AWA / PVC SHEATHED CABLE DIMENSION

Nominal cross- sectional area of conductor	Conductor Shape	Nominal insulation thickness	Nominal thickness of inner sheath	Armouring wire diameter	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
mm^2		mm	mm	mm	mm	mm	m/drum
50	c.c	2.0	1.0	1.25	1.5	20.27	1000
70	c.c	2.0	1.0	1.25	1.6	21.93	1000
95	c.c	2.0	1.0	1.6	1.7	24.4	1000
120	c.c	2.0	1.0	1.6	1.7	26.2	1000
150	c.c	2.0	1.0	1.6	1.8	27.6	1000
185	c.c	2.0	1.0	1.6	1.8	29.4	1000
240	c.c	2.0	1.0	1.6	1.9	31.9	1000
300	c.c	2.0	1.0	1.6	1.9	33.8	1000
400	c.c	2.0	1.2	2.0	2.1	38.5	1000
500	c.c	2.2	1.2	2.0	2.2	42.2	1000
630	c.c	2.4	1.2	2.0	2.3	46.4	1000

Note : c.c – circular stranded compacted

SINGLE CORE - AL / XLPE / PVC / AWA / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per cable*			Maximum 3 phase voltage drop	Minimum charging current	Maximum Capacitance	Maximum Reactance
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Trefoil	Trefoil	Trefoil				
mm^2	A	A	A	mV/A/m	A/km	µF/km	ohm/km
50	161	147	169	1.438	0.2080	0.349	0.118
70	209	190	219	1.003	0.2428	0.407	0.111
95	257	234	269	0.469	0.2790	0.467	0.108
120	292	267	307	0.386	0.3090	0.518	0.104
150	333	304	349	0.328	0.3384	0.567	0.101
185	384	350	403	0.280	0.3746	0.628	0.098
240	458	418	481	0.236	0.4235	0.710	0.094
300	527	481	554	0.209	0.5168	0.866	0.091
400	595	543	625	0.192	0.5264	0.882	0.091
500	684	625	718	0.208	0.5403	0.905	0.089
630	772	704	810	0.187	0.5608	0.940	0.087

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED ARMOURED SHEATHED CABLE
1.9/3.3 (3.6)kV

THREE CORE - CU / XLPE / PVC / SWA / PVC SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor Shape	Nominal insulation thickness	Nominal thickness of inner sheath	Armouring wire diameter	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
mm^2	mm	mm	mm	mm	mm	mm	m/drum
16	c.c	2	1.0	1.6	1.8	28.1	1000
25	s.s	2	1.0	1.6	1.8	30.7	1000
35	s.s	2	1.0	1.6	1.8	25.7	1000
50	s.s	2	1.0	2.0	1.9	29.5	1000
70	s.s	2	1.0	2.0	2.0	33.1	1000
95	s.s	2	1.0	2.0	2.2	36.5	1000
120	s.s	2	1.2	2.5	2.2	41.6	1000
150	s.s	2	1.2	2.5	2.3	41.6	1000
185	s.s	2	1.2	2.5	2.4	49.6	500
240	s.s	2	1.4	2.5	2.6	55.1	500
300	s.s	2	1.4	2.5	2.7	59.9	250
400	s.s	2	1.6	2.5	3.0	66.5	250

Note : c.c – circular stranded compacted; s.s – sectoral stranded (circular conductor can be produced upon request)

THREE CORE - CU / XLPE / PVC / SWA / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross- sectional area of conductor	Maximum current rating per conductor*			Maximum 3 phase voltage drop	Minimum charging current	Maximum Capacitance	Maximum Reactance
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Single Cable	Single Cable	Single Cable				
mm^2	A	A	A	mV/A/m	A/km	µF/km	ohm/km
16	95	87	100	2.546	0.2338	0.226	0.1024
25	126	115	132	1.615	0.2789	0.269	0.0962
35	156	142	164	1.166	0.5708	0.551	0.0796
50	189	172	198	0.866	0.6532	0.630	0.0748
70	252	230	264	0.607	0.7710	0.744	0.0726
95	305	278	320	0.446	0.8966	0.865	0.0710
120	345	315	362	0.362	1.0069	0.971	0.0691
150	389	355	408	0.302	1.1007	1.062	0.0684
185	445	407	468	0.253	1.2239	1.181	0.0675
240	504	460	529	0.208	1.3933	1.344	0.0662
300	599	547	629	0.181	1.5605	1.505	0.0655
400	694	634	729	0.161	1.7593	1.697	0.0648

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED ARMOURED SHEATHED CABLE 1.9/3.3 (3.6)kV

THREE CORE - AL / XLPE / PVC / SWA / PVC DIMENSION

Nominal cross-sectional area of conductor	Nominal diameter of conductor	Nominal insulation thickness	Nominal thickness of inner sheath	Armouring wire diameter	Nominal thickness of PVC outer sheath	Approximate overall diameter	Standard packing length
mm^2	mm	mm	mm	mm	mm	mm	m/drum
16	c.c	2.0	1.0	1.6	1.8	28.1	1000
25	c.c	2.0	1.0	1.6	1.8	30.7	1000
35	s.s	2.0	1.0	1.6	1.8	25.7	1000
50	s.s	2.0	1.0	2.0	1.8	29.5	1000
70	s.s	2.0	1.0	2.0	1.9	33.1	1000
95	s.s	2.0	1.0	2.0	2.0	36.5	1000
120	s.s	2.0	1.2	2.5	2.2	41.6	1000
150	s.s	2.0	1.2	2.5	2.3	45.4	500
185	s.s	2.0	1.2	2.5	2.4	49.6	500
240	s.s	1.7	1.6	2.5	2.6	56.0	500
300	s.s	1.8	1.6	2.5	2.8	60.8	500
400	s.s	2.0	1.6	2.5	3.0	66.5	500

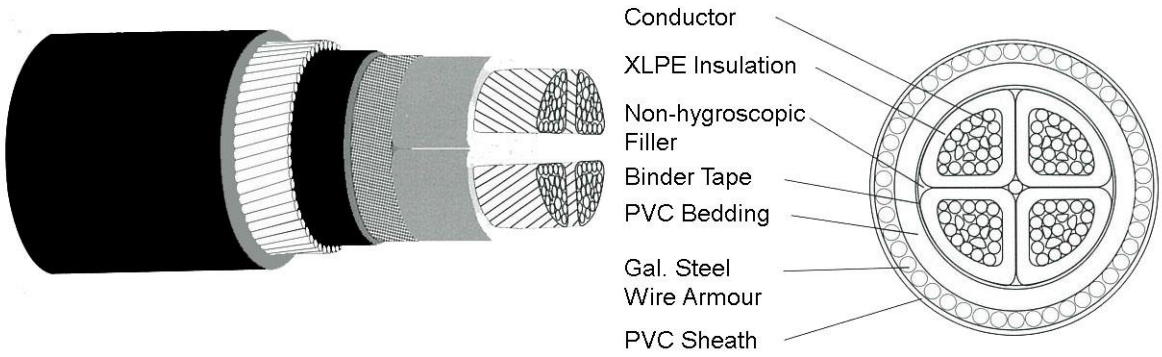
Note : c.c – circular stranded compacted; s.s – sectoral stranded (circular conductor can be produced upon request)

THREE CORE - AL / XLPE / PVC / AWA / PVC ELECTRICAL PROPERTIES

Nominal cross- sectional area of conductor	Maximum current rating per conductor*			Maximum 3 phase voltage drop	Minimum charging current	Maximum Capacitance	Maximum Reactance
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Single Cable	Single Cable	Single Cable				
mm^2	A	A	A	mV/A/m	A/km	µF/km	ohm/km
16	74	68	78	4.248	0.0744	0.395	0.134
25	98	89	103	2.673	0.0992	0.526	0.119
35	118	108	124	1.938	0.1147	0.609	0.117
50	146	133	153	1.437	0.1196	0.634	0.114
70	185	169	195	1.003	0.1414	0.750	0.113
95	225	206	236	0.737	0.1503	0.797	0.111
120	272	248	286	0.594	0.1535	0.814	0.110
150	313	286	328	0.497	0.1474	0.782	0.110
185	359	327	376	0.413	0.1448	0.768	0.115
240	426	389	447	0.337	0.1552	0.823	0.109
300	496	453	521	0.293	0.1632	0.869	0.109
400	573	524	602	0.257	0.1662	0.882	0.109

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED ARMOURED SHEATHED CABLE FOR VOLTAGES 1kV AND 3.3kV TO BS 5467



DESCRIPTION
Circular compacted stranded copper or aluminium conductor, cross-linked polyethylene, covered with extruded inner sheath, armoured, extruded outer sheath made from PVC.

CONSTRUCTION

Conductor
Plain circular compacted stranded copper (Cu) or aluminium (Al) conductor conform to class 2 in IEC 60228.

Insulation
An extruded layer of cross-linked polyethylene (XLPE) compound at rated 90°C

Colours for core identification
Single Core-natural (black on request)
Two Core-red, black
Three Core-red, yellow, and blue
Four Core-red, yellow, blue and black
Five Core-red, yellow, blue, black, and green/yellow
Six Core and above-numbering on white core

Lay Up Cores
Two, three, four or five insulated conductors are laid up together, if necessary filled with non-hygroscopic material compatible with the insulation and covered with of PVC inner sheath which may be an integral part of the filling.

Non-conductive binder tape
Applied when necessary
A layer of non-conductive tape helically wrap with overlap laid over lay up cores.

Inner Sheath
Extruded layer made from black PVC compound. Additive like Anti-termite repellent, anti-rodent or different separation sheath colour are available upon request.

Armour
Single Core cables-Aluminium wires shall be applied helically over the inner sheath
Mutli Core cables-Galvanized Steel wires shall be applied helically over the inner sheath.

Non-conductive binder tape
A layer of non-conductive tape helically wrap with overlap laid over armour when necessary.

Outer sheath
Extruded layer made from black PVC compound. Additive like Anti-termite repellent, anti-rodent or different outer sheath colour are available upon request.

XLPE INSULATED ARMOURED SHEATHED CABLE
0.6/1(1.2)kV

SINGLE CORE - CU / XLPE / PVC / AWA / PVC DIMENSION

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Nominal thickness of inner sheath	Armouring wire diameter	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
mm^2		mm	mm	mm	mm	mm	m/drum
50	c.c	1.0	0.8	0.9	1.5	16.5	1000
70	c.c	1.1	0.8	1.25	1.5	19.0	1000
95	c.c	1.1	0.8	1.25	1.6	21.0	1000
120	c.c	1.2	0.8	1.25	1.6	22.6	1000
150	c.c	1.4	1.0	1.6	1.7	26.1	1000
185	c.c	1.6	1.0	1.6	1.8	28.4	1000
240	c.c	1.7	1.0	1.6	1.8	31.0	1000
300	c.c	1.8	1.0	1.6	1.9	33.6	1000
400	c.c	2.0	1.2	2.0	2.0	38.1	1000
500	c.c	2.2	1.2	2.0	2.1	41.7	1000
630	c.c	2.4	1.2	2.0	2.2	45.9	500

Note : c.c – circular stranded compacted

SINGLE CORE - CU / XLPE / PVC / AWA / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross- sectional area of conductor	Maximum current rating per cable*			Maximum 3 phase voltage drop	Minimum charging current	Maximum Capacitance	Maximum Reactance
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Trefoil	Trefoil	Trefoil				
mm^2	A	A	A	mV/A/m	A/km	µF/km	ohm/km
50	210	193	240	0.875	0.119	0.6301	0.1056
70	255	236	300	0.619	0.129	0.6820	0.1031
95	302	283	367	0.461	0.149	0.7922	0.0988
120	342	321	424	0.378	0.153	0.8140	0.0954
150	382	360	483	0.324	0.147	0.7772	0.0980
185	426	407	555	0.277	0.144	0.7627	0.0962
240	483	472	657	0.234	0.154	0.8179	0.0926
300	543	531	754	0.208	0.162	0.8612	0.0905
400	600	603	872	0.192	0.165	0.8756	0.0907
500	701	681	1005	0.177	0.169	0.8978	0.0877
630	783	766	1152	0.167	0.176	0.9332	0.0866

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED ARMOURED SHEATHED CABLE 0.6/1(1.2)kV

TWO CORE - CU / XLPE / PVC / SWA / PVC SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Nominal thickness of inner sheath	Armouring wire diameter	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
mm^2		mm	mm	mm	mm	mm	m/drum
1.5	c.s	0.6	0.8	0.9	1.3	11.7	1000
2.5	c.s	0.7	0.8	0.9	1.4	13.1	1000
4	c.s	0.7	0.8	0.9	1.4	14.2	1000
6	c.s	0.7	0.8	0.9	1.4	15.4	1000
10	c.s	0.7	0.8	0.9	1.5	17.2	1000
16	c.c	0.7	0.8	1.25	1.5	19.4	1000
25	s.s	0.9	0.8	1.25	1.6	19.6	1000
35	s.s	0.9	1.0	1.6	1.7	22.9	1000
50	s.s	1.0	1.0	1.6	1.8	25.4	1000
70	s.s	1.1	1.0	1.6	1.9	28.4	1000
95	s.s	1.1	1.2	2.0	2.0	32.3	1000
120	s.s	1.2	1.2	2.0	2.1	35.0	1000
150	s.s	1.4	1.2	2.0	2.2	38.2	1000
185	s.s	1.6	1.4	2.5	2.4	43.7	1000
240	s.s	1.7	1.4	2.5	2.6	47.6	500
300	s.s	1.8	1.6	2.5	2.6	51.8	500
400	s.s	2.0	1.6	2.5	2.8	56.9	500

Note : c.s – circular stranded; c.c – circular stranded compacted; s.s – sectoral stranded (circular conductor can be produced upon request)

TWO CORE - CU / XLPE / PVC / SWA / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross- sectional area of conductor	Maximum current rating per conductor*			Maximum 1 phase voltage drop	Minimum charging current	Maximum Capacitance	Maximum Reactance
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Single Cable	Single Cable	Single Cable				
mm^2	A	A	A	mV/A/m	A/km	µF/km	ohm/km
1.5	26	24	27	30.858	0.047	0.2470	0.0950
2.5	37	34	39	18.898	0.050	0.2628	0.0929
4	51	46	53	11.758	0.060	0.3174	0.0872
6	65	60	68	7.857	0.071	0.3747	0.0830
10	89	81	93	4.044	0.087	0.4588	0.0787
16	119	109	125	2.544	0.100	0.5327	0.0761
25	157	138	239	1.612	0.099	0.5232	0.0764
35	195	165	199	1.346	0.114	0.6046	0.0741
50	235	195	244	1.000	0.119	0.6301	0.0748
70	294	238	305	0.701	0.129	0.6802	0.0738
95	366	285	372	0.516	0.149	0.9506	0.7922
120	422	323	429	0.362	0.155	0.8204	0.0708
150	479	362	488	0.351	0.147	0.7772	0.0714
185	555	409	560	0.295	0.144	0.7627	0.0716
240	657	474	662	0.245	0.154	0.8179	0.0708
300	749	534	759	0.215	0.163	0.8658	0.0702
400	859	606	878	0.191	0.166	0.8819	0.0696

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED ARMOURED SHEATHED CABLE
0.6/1 (1.2)kV

THREE CORE - CU / XLPE / PVC / SWA / PVC SHEATHED CABLE DIMENSION

Nominal cross- sectional area of conductor	Conductor shape	Nominal insulation thickness	Nominal thickness of inner sheath	Armouring wire diameter	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
mm^2		mm	mm	mm	mm	mm	m/drum
1.5	c.s	0.6	0.8	0.9	1.3	12.1	1000
2.5	c.s	0.7	0.8	0.9	1.4	13.7	1000
4	c.s	0.7	0.8	0.9	1.4	14.8	1000
6	c.s	0.7	0.8	0.9	1.4	16.1	1000
10	c.s	0.7	0.8	1.25	1.5	18.8	1000
16	c.c	0.7	0.8	1.25	1.6	20.6	1000
25	s.s	0.9	1.0	1.6	1.7	23.4	1000
35	s.s	0.9	1.0	1.6	1.8	25.4	1000
50	s.s	1.0	1.0	1.6	1.8	28.2	1000
70	s.s	1.1	1.0	1.6	1.9	31.7	1000
95	s.s	1.1	1.2	2.0	2.1	36.3	1000
120	s.s	1.2	1.2	2.0	2.2	39.4	1000
150	s.s	1.4	1.4	2.5	2.3	44.9	500
185	s.s	1.6	1.4	2.5	2.4	49.0	500
240	s.s	1.7	1.4	2.5	2.6	53.9	500
300	s.s	1.8	1.6	2.5	2.7	58.8	250
400	s.s	2.0	1.6	2.5	2.9	64.3	250

Note : c.s – circular stranded; c.c – circular stranded compacted; s.s – sectoral stranded (circular conductor can be produced upon request)

THREE CORE - CU / XLPE / PVC / SWA / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per conductor*			Maximum 1 phase voltage drop	Minimum charging current	Maximum Capacitance	Maximum Reactance
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Single Cable	Single Cable	Single Cable				
mm^2	A	A	A	mV/A/m	A/km	µF/km	ohm/km
1.5	24	22	25	26.724	0.0436	0.2312	0.1015
2.5	33	30	35	16.366	0.0495	0.2628	0.0969
4	43	40	46	10.183	0.0598	0.3174	0.0912
6	56	51	59	6.804	0.0706	0.3747	0.0870
10	78	71	82	4.044	0.0865	0.4588	0.0827
16	104	95	109	2.544	0.1004	0.5327	0.0801
25	129	118	136	1.612	0.0986	0.5232	0.0804
35	161	147	169	1.166	0.1440	0.6046	0.0782
50	196	179	205	0.866	0.1118	0.6301	0.0748
70	251	229	263	0.607	0.1286	0.6820	0.7380
95	304	277	319	0.446	0.1493	0.7922	0.0720
120	352	322	370	0.362	0.1546	0.8204	0.0708
150	406	371	427	0.304	0.1465	0.7772	0.0714
185	464	424	488	0.256	0.1438	0.7627	0.0716
240	548	500	575	0.210	0.1934	1.0258	0.0682
300	633	578	664	0.185	0.1632	0.8658	0.0698
400	755	689	793	0.167	0.1662	0.8819	0.0696

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED ARMOURED SHEATHED CABLE 0.6/1 (1.2)kV

FOUR CORE - CU / XLPE / PVC / SWA / PVC SHEATHED CABLE DIMENSION

Nominal cross- sectional area of conductor	Conductor Shape	Nominal insulation thickness	Nominal thickness of inner sheath	Armouring wire diameter	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
mm^2		mm	mm	mm	mm	mm	m/drum
1.5	c.s	0.6	0.8	0.9	1.3	12.9	1000
2.5	c.s	0.7	0.8	0.9	1.4	14.6	1000
4	c.s	0.7	0.8	0.9	1.4	15.9	1000
6	c.s	0.7	0.8	1.25	1.5	18.1	1000
10	c.s	0.7	0.8	1.25	1.5	20.2	1000
16	c.c	0.7	0.8	1.25	1.6	22.1	1000
25	s.s	0.9	1.0	1.6	1.7	25.5	1000
35	s.s	0.9	1.0	1.6	1.8	27.8	1000
50	s.s	1.0	1.0	1.6	1.9	31.1	1000
70	s.s	1.1	1.2	2.0	2.1	36.7	1000
95	s.s	1.1	1.2	2.0	2.2	40.3	1000
120	s.s	1.2	1.4	2.5	2.3	45.6	500
150	s.s	1.4	1.4	2.5	2.4	49.9	500
185	s.s	1.6	1.4	2.5	2.6	54.7	500
240	s.s	1.7	1.6	2.5	2.7	60.5	250
300	s.s	1.8	1.6	2.5	2.9	65.9	250
400	s.s	2.0	1.8	3.15	3.2	74.6	250

Note : c.s – circular stranded; c.c – circular stranded compacted; s.s – sectoral stranded (circular conductor can be produced upon a request)

FOUR CORE - CU / XLPE / PVC / SWA / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross- sectional area of conductor	Maximum current rating per conductor*			Maximum 3 phase voltage drop	Minimum charging current	Maximum Capacitance	Maximum Reactance
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Single Cable	Single Cable	Single Cable				
mm^2	A	A	A	mV/A/m	A/km	µF/km	ohm/km
1.5	24	22	25	26.7239	0.0466	0.247	0.0991
2.5	33	30	35	16.3662	0.0495	0.2628	0.0969
4	43	40	46	10.1827	0.0598	0.3808	0.0912
6	56	51	59	7.8567	0.0706	0.3747	0.0870
10	78	71	82	4.044	0.0865	0.4588	0.0827
16	104	95	109	2.544	0.100	0.5327	0.0801
25	129	118	136	1.612	0.099	0.5232	0.0804
35	161	147	169	1.660	0.114	0.6046	0.0782
50	196	179	205	0.866	0.119	0.6301	0.0748
70	251	229	263	0.607	0.573	0.6820	0.0738
95	304	277	319	0.446	0.149	0.7922	0.0720
120	352	322	370	0.362	0.155	0.8204	0.0708
150	406	371	427	0.304	0.147	0.7772	0.0714
185	464	424	488	0.256	0.144	0.7627	0.0716
240	548	500	575	0.211	0.154	0.8179	0.0704
300	633	578	664	0.185	0.163	0.8658	0.0698
400	755	689	793	0.166	0.166	0.8819	0.0696

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED ARMOURED SHEATHED CABLE
0.6/1 (1.2)kV

FIVE CORE - CU / XLPE / PVC / SWA / PVC SHEATHED CABLE DIMENSION

Nominal cross- sectional area of conductor	Conductor shape	Nominal insulation thickness	Nominal thickness of inner sheath	Armouring wire diameter	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
mm^2		mm	mm	mm	mm	mm	m/drum
1.5	c.s	0.6	0.8	0.9	1.4	13.9	1000
2.5	c.s	0.7	0.8	0.9	1.4	15.5	1000
4	c.s	0.7	0.8	0.9	1.5	17.2	1000
6	c.s	0.7	0.8	1.25	1.5	19.4	1000
10	c.s	0.7	0.8	1.25	1.6	21.9	1000
16	c.c	0.7	1.0	1.6	1.7	25.6	1000
25	c.c	0.9	1.0	1.6	1.8	30.2	1000
35	c.c	0.9	1.0	1.6	1.9	33.2	1000
50	c.c	1.0	1.2	2.0	2.0	38.6	1000
70	c.c	1.1	1.2	2.0	2.2	43.9	1000

Note : c.s – circular stranded; c.c – circular stranded compacted

SEVEN CORE - CU / XLPE / PVC / SWA / PVC SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Nominal thickness of inner sheath	Armouring wire diameter	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
mm^2		mm	mm	mm	mm	mm	m/drum
1.5	c.s	0.6	0.8	0.9	1.4	14.7	1000
2.5	c.s	0.7	0.8	0.9	1.4	16.5	1000
4	c.s	0.7	0.8	1.25	1.5	19.1	1000

Note : c.s – circular stranded

TWELVE CORE - CU / XLPE / PVC / SWA / PVC SHEATHED CABLE DIMENSION

Nominal cross- sectional area of conductor	Conductor shape	Nominal insulation thickness	Nominal thickness of inner sheath	Armouring wire diameter	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
mm^2		mm	mm	mm	mm	mm	m/drum
1.5	c.s	0.6	0.8	1.25	1.5	18.8	1000
2.5	c.s	0.7	0.8	1.25	1.6	21.6	1000
4	c.s	0.7	1.0	1.6	1.6	25.4	1000

Note : c.s – circular stranded

XLPE INSULATED ARMOURED SHEATHED CABLE
0.6/1 (1.2)kV

NINETEEN CORE - CU / XLPE / PVC / SWA / PVC SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Nominal thickness of inner sheath	Armouring wire diameter	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
mm^2		mm	mm	mm	mm	mm	m/drum
1.5	c.s	0.6	0.8	1.25	1.6	21.4	1000
2.5	c.s	0.7	1.0	1.6	1.7	26.2	1000
4	c.s	0.7	1.0	1.6	1.7	28.9	1000

Note : c.s – circular stranded

TWENTY SEVEN CORE - CU / XLPE / PVC / SWA / PVC SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Nominal thickness of inner sheath	Armouring wire diameter	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
mm^2		mm	mm	mm	mm	mm	m/drum
1.5	c.s	0.6	1.0	1.6	1.7	26.3	1000
2.5	c.s	0.7	1.0	1.6	1.8	30.3	1000
4	c.s	0.7	1.0	1.6	1.9	33.9	1000

Note : c.s – circular stranded

THIRTY SEVEN CORE - CU / XLPE / PVC / SWA / PVC SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Nominal thickness of inner sheath	Armouring wire diameter	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
mm^2		mm	mm	mm	mm	mm	m/drum
1.5	c.s	0.6	1.0	1.6	1.7	28.7	1000
2.5	c.s	0.7	1.0	1.6	1.8	33.2	1000
4	c.s	0.7	1.2	2.0	2.0	38.6	1000

Note : c.s – circular stranded

XLPE INSULATED ARMOURED SHEATHED CABLE
0.6/1 (1.2)kV

FOURTY EIGHT CORE - CU / XLPE / PVC / SWA / PVC SHEATHED CABLE DIMENSION

Nominal cross- sectional area of conductor	Conductor shape	Nominal insulation thickness	Nominal thickness of inner sheath	Armouring wire diameter	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
mm^2		mm	mm	mm	mm	mm	m/drum
1.5	c.s	0.6	1.0	1.6	1.7	32.1	1000
2.5	c.s	0.7	1.0	1.6	1.8	38.7	1000
4	c.s	0.7	1.2	2.0	2.0	43.4	1000

Note : c.s – circular stranded

XLPE INSULATED ARMOURED SHEATHED CABLE
1.9/3.3(3.6)kV

SINGLE CORE - CU / XLPE / PVC / AWA / PVC SHEATHED CABLE DIMENSION

Nominal cross- sectional area of conductor	Conductor shape	Nominal insulation thickness	Nominal thickness of inner sheath	Armouring wire diameter	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
mm^2		mm	mm	mm	mm	mm	m/drum
50	c.c	2.0	0.8	1.25	1.6	19.4	1000
70	c.c	2.0	0.8	1.25	1.6	21.0	1000
95	c.c	2.0	0.8	1.25	1.6	22.8	1000
120	c.c	2.0	1.0	1.6	1.7	25.9	1000
150	c.c	2.0	1.0	1.6	1.7	27.3	1000
185	c.c	2.0	1.0	1.6	1.8	29.2	1000
240	c.c	2.0	1.0	1.6	1.8	31.6	1000
300	c.c	2.0	1.0	1.6	1.9	34.0	1000
400	c.c	2.0	1.2	2.0	2.0	38.1	1000
500	c.c	2.2	1.2	2.0	2.1	41.7	1000
630	c.c	2.4	1.2	2.0	2.2	45.9	500

Note : c.c – circular stranded compacted

SINGLE CORE - CU / XLPE / PVC / AWA / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross- sectional area of conductor	Maximum current rating per cable*			Maximum 3 phase voltage drop	Minimum charging current	Maximum Capacitance	Maximum Reactance
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Trefoil	Trefoil	Trefoil				
mm^2	A	A	A	mV/A/m	A/km	µF/km	ohm/km
50	203	198	252	0.878	0.3591	0.3464	0.1158
70	248	242	314	0.622	0.4185	0.4037	0.1093
95	297	290	382	0.464	0.4817	0.4646	0.1040
120	336	328	439	0.384	0.5331	0.5142	0.1040
150	377	368	498	0.326	0.5842	0.5635	0.1008
185	425	415	570	0.279	0.6460	0.6231	0.0979
240	491	480	672	0.235	0.7309	0.7050	0.0938
300	553	540	769	0.210	0.8103	0.7816	0.0913
400	626	612	888	0.192	0.9078	0.8756	0.0907
500	706	690	1021	0.177	0.9308	0.8978	0.0887
630	792	776	1171	0.167	0.9674	0.9332	0.0866

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED ARMOURED SHEATHED CABLE 1.9/3.3(3.6)kV

THREE CORE - CU / XLPE / PVC / SWA / PVC SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Nominal thickness of inner sheath	Armouring wire diameter	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
mm^2		mm	mm	mm	mm	mm	m/drum
16	c.c	2	1.0	1.6	1.8	28.1	1000
25	c.c	2	1.0	1.6	1.8	30.7	1000
35	s.s	2	1.0	1.6	1.9	30.4	1000
50	s.s	2	1.2	2.0	2.0	34.0	1000
70	s.s	2	1.2	2.0	2.1	37.1	1000
95	s.s	2	1.2	2.0	2.2	40.2	1000
120	s.s	2	1.4	2.5	2.3	44.6	1000
150	s.s	2	1.4	2.5	2.4	47.5	500
185	s.s	2	1.4	2.5	2.5	50.6	500
240	s.s	2	1.6	2.5	2.6	55.3	500
300	s.s	2	1.6	2.5	2.7	59.2	250
400	s.s	2	1.6	2.5	2.9	64.3	250

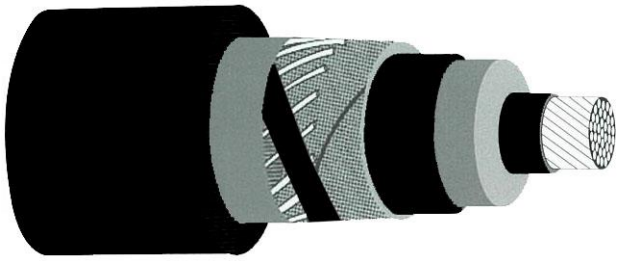
Note : c.c – circular stranded compacted; s.s – sectoral stranded (circular conductor can be produced upon request)

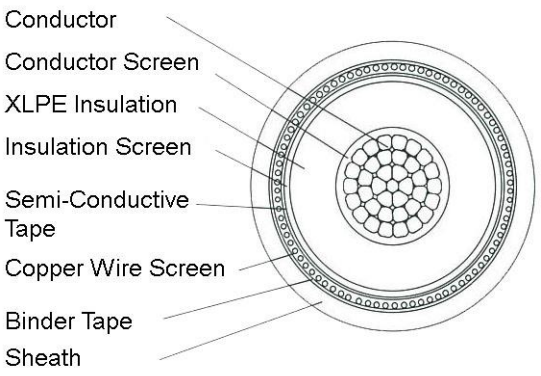
THREE CORE - CU / XLPE / PVC / SWA / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross- sectional area of conductor	Maximum current rating per conductor*			Maximum 3 phase voltage drop	Minimum charging current	Maximum Capacitance	Maximum Reactance
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Trefoil	Trefoil	Trefoil				
mm^2	A	A	A	mV/A/m	A/km	µF/km	ohm/km
16	113	106	123	2.546	0.234	0.2256	0.1024
25	144	136	161	1.615	0.279	0.2691	0.0962
35	172	163	196	1.169	0.318	0.3062	0.0922
50	203	198	252	0.866	0.653	0.6301	0.0748
70	248	242	314	0.607	0.771	0.7437	0.0727
95	297	290	382	0.446	0.897	0.8648	0.0710
120	336	328	439	0.363	0.828	0.7990	0.0711
150	377	368	498	0.302	1.101	1.0617	0.0684
185	425	415	570	0.253	1.224	1.1806	0.0675
240	491	480	672	0.208	1.393	1.3439	0.0662
300	553	540	769	0.181	1.561	1.5052	0.0655
400	626	612	888	0.161	1.759	1.6970	0.0648

*Note : Electrical properties are calculated base on conditions in Appendix B.

SINGLE CORE - XLPE INSULATED UNARMOURED SHEATHED CABLE FOR VOLTAGES 6.6kV UP TO AND INCLUDING 33kV TO IEC 60502-2





DESCRIPTION
Circular compacted stranded copper or aluminium conductor, cross-linked polyethylene, with copper tape or copper wire or aluminium wire screen and extruded outer sheath made from PE or PVC.

CONSTRUCTION

Conductor
Plain circular compacted stranded copper (Cu) or aluminium (Al) conductor conform to class 2 in IEC 60228.

Conductor screen
An extruded thin layer of semi-conductive compound as a 1st layer by triple extrusion process.

Insulation
An extruded layer of cross-linked polyethylene (XLPE) compound as a 2nd layer by triple extrusion process.

Insulation screen
An extruded thin layer of semi-conductive compound as a 3rd layer by triple extrusion process.

Semi-conductive tape
Applied under copper wire screen or aluminium wire screen when requested by purchaser
A layer of helically wrap semi-conductive water blocking tape with overlap laid over insulation screen.

Metallic screen
1 or 2 layer(s) of Copper tape (CTS) helically wrap with overlap laid over insulation screen or numbers of copper wires (CWS) or numbers of aluminium wires (AWS) laid over semi-conductive tape. An equalizing copper tape with open helically wrap and metallic screen construction base on customer's earth fault current requirement are available upon request.

Binder tape
Applied when necessary
A layer of non-conductive or semi-conductive tape helically wrap with overlap laid over metallic screen.

Outer sheath
Extruded layer made from black PVC(ST-2) or PE(ST-7) compound. Additive like Anti-termite repellent, anti-rodent or different outer sheath colour are available upon request.

XLPE INSULATED UNARMOURED SHEATHED CABLE 3.8/6.6(7.2)kV

SINGLE CORE - CU / XLPE / CTS / PVC SHEATHED CABLE DIMENSION

Nominal cross- sectional area of conductor	Conductor shape	Nominal insulation thickness	Metallic screening	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
			Nominal thickness of copper tape			
mm^2		mm	mm	mm	mm	m/drum
16	c.c	2.5	0.1	1.5	15.7	1000
25	c.c	2.5	0.1	1.5	16.9	1000
35	c.c	2.5	0.1	1.5	18.0	1000
50	c.c	2.5	0.1	1.6	19.3	1000
70	c.c	2.5	0.1	1.6	20.9	1000
95	c.c	2.5	0.1	1.7	22.9	1000
120	c.c	2.5	0.1	1.7	24.3	1000
150	c.c	2.5	0.1	1.8	25.9	1000
185	c.c	2.5	0.1	1.8	27.6	1000
240	c.c	2.6	0.1	1.9	30.4	1000
300	c.c	2.8	0.1	2.0	33.2	1000
400	c.c	3.0	0.1	2.1	36.5	1000
500	c.c	3.2	0.1	2.2	40.1	1000
630	c.c	3.2	0.1	2.3	43.9	1000

Note : c.c – circular stranded compacted

SINGLE CORE - CU / XLPE / CTS / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per cable*			Maximum 3 phase voltage drop	Minimum charging current	Positive & negative sequence impedance at 25°C*	Zero sequence impedance at 25°C*
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Trefoil	Trefoil	Trefoil				
mm^2	A	A	A	mV/A/m	A/km	ohm/km	ohm/km
16	113	107	124	2.55	0.1768	1.1727 + j0.1391	5.1019 + j0.0805
25	146	137	162	1.62	0.205	0.7415 + j0.1297	4.3290 + j0.0723
35	173	163	196	1.18	0.2298	0.5346 + j0.1232	4.2310 + j0.0602
50	204	193	236	0.878	0.2564	0.3950 + j0.1155	3.4839 + j0.0591
70	249	236	293	0.622	0.2941	0.2739 + j0.1090	3.0731 + j0.0538
95	296	282	358	0.464	0.3342	0.1977 + j0.1043	2.7421 + j0.0495
120	336	320	413	0.381	0.3667	0.1572 + j0.0999	2.5256 + j0.0458
150	375	357	469	0.324	0.3988	0.1280 + j0.0974	2.3440 + j0.0435
185	422	402	538	0.275	0.4378	0.1030 + j0.0944	2.1586 + j0.0411
240	488	465	635	0.232	0.4802	0.0796 + j0.0913	1.9347 + j0.0385
300	547	524	728	0.208	0.506	0.0647 + j0.0897	1.7518 + j0.0373
400	614	587	837	0.188	0.5394	0.0523 + j0.0879	1.5748 + j0.0360
500	707	676	965	0.174	0.576	0.0428 + j0.0862	1.4166 + j0.0862
630	815	780	1113	0.169	0.64	0.0357 + j0.0878	1.2811 + j0.0368

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED UNARMOURED SHEATHED CABLE 3.8/6.6(7.2)kV

SINGLE CORE - AL / XLPE / CTS / PVC SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Metallic screening	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
			Nominal thickness of copper tape			
mm^2		mm	mm	mm	mm	m/drum
16	c.c	2.5	0.1	1.5	15.7	1000
25	c.c	2.5	0.1	1.5	17.0	1000
35	c.c	2.5	0.1	1.5	18.0	1000
50	c.c	2.5	0.1	1.6	19.4	1000
70	c.c	2.5	0.1	1.6	21.0	1000
95	c.c	2.5	0.1	1.7	23.0	1000
120	c.c	2.5	0.1	1.7	24.4	1000
150	c.c	2.5	0.1	1.8	26.0	1000
185	c.c	2.5	0.1	1.8	27.8	1000
240	c.c	2.6	0.1	1.9	30.5	1000
300	c.c	2.8	0.1	2.0	33.3	1000
400	c.c	3.0	0.1	2.1	36.7	1000
500	c.c	3.2	0.1	2.2	40.1	1000
630	c.c	3.2	0.1	2.3	44.1	1000

Note : c.c – circular stranded compacted

SINGLE CORE - AL / XLPE / CTS / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per cable*			Maximum 3 phase voltage drop	Minimum charging current	Positive & negative sequence impedance at 25°C*	Zero sequence impedance at 25°C*
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Trefoil	Trefoil	Trefoil				
mm^2	A	A	A	mV/A/m	A/km	ohm/km	ohm/km
16	81	70	96	4.248	0.1768	1.9485 + j0.1391	8.3931 + j0.0805
25	104	90	126	2.674	0.2060	1.2243 + j0.1294	7.0912 + j0.0721
35	124	107	153	1.935	0.2309	0.8856 + j0.1230	6.3286 + j0.0665
50	146	127	183	0.247	0.2578	0.0675 + j0.1152	5.1139 + j0.0589
70	178	156	229	1.085	0.0548	0.4521 + j0.2640	5.0201 + j0.2089
95	211	186	278	0.734	0.3360	0.3270 + j0.1041	4.4833 + j0.0493
120	241	213	322	0.589	0.3692	0.2588 + j0.0997	4.1233 + j0.0456
150	270	240	366	0.489	0.4011	0.2111 + j0.0972	3.8301 + j0.0433
185	306	272	421	0.401	0.4407	0.1685 + j0.0942	3.5528 + j0.0410
240	354	317	499	0.321	0.4830	0.1292 + j0.0911	3.1585 + j0.0384
300	399	360	574	0.273	0.5085	0.1042 + j0.0896	2.8619 + j0.0372
400	456	414	549	0.233	0.5430	0.0822 + j0.0878	2.5679 + j0.0359
500	644	586	776	0.204	0.579	0.0654 + j0.0862	2.3218 + j0.0347
630	750	682	904	0.183	0.6488	0.0526 + j0.0837	2.0875 + j0.0327

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED UNARMOURED SHEATHED CABLE 3.8/6.6(7.2)kV

SINGLE CORE - AL / XLPE / CWS / MDPE SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Metallic screening	Nominal thickness of sheath	Approximate overall diameter	Standard packing length
			Nominal thickness of copper tape			
mm^2		mm	mm	mm	mm	m/drum
16	c.c	2.5	16	1.5	19.8	1000
25	c.c	2.5	16	1.5	21.0	1000
35	c.c	2.5	16	1.6	22.2	1000
50	c.c	2.5	16	1.6	23.4	1000
70	c.c	2.5	16	1.7	25.2	1000
95	c.c	2.5	16	1.7	26.9	1000
120	c.c	2.5	16	1.8	28.6	1000
150	c.c	2.5	25	1.8	30.0	1000
185	c.c	2.5	25	1.9	31.9	1000
240	c.c	2.6	25	1.9	34.4	1000
300	c.c	2.8	25	2.0	37.2	1000
400	c.c	3.0	35	2.2	40.7	1000
500	c.c	3.2	35	2.3	44.4	500
630	c.c	3.2	35	2.4	48.2	500

Note : c.c – circular stranded compacted

SINGLE CORE - AL / XLPE / CWS / MDPE SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per cable*			Maximum 3 phase voltage drop	Minimum charging current	Positive & negative sequence impedance at 25°C*	Zero sequence impedance at 25°C*
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Trefoil	Trefoil	Trefoil				
mm^2	A	A	A	mV/A/m	A/km	ohm/km	ohm/km
16	81	70	96	4.250	0.0313	1.9485 + j0.1535	2.8582 + j0.0937
25	104	90	126	2.676	0.0367	1.2243 + j0.1429	2.1284 + j0.0841
35	124	107	153	1.942	0.0414	0.8856 + j0.1363	1.7850 + j0.0777
50	146	127	183	1.441	0.0464	0.6541 + j0.1272	1.5483 + j0.0694
70	178	156	229	1.006	0.0535	0.4522 + j0.1203	1.3390 + j0.0632
95	211	186	278	0.738	0.0610	0.3269 + j0.1143	1.2061 + j0.0581
120	241	213	322	0.594	0.0672	0.2587 + j0.1098	1.1317 + j0.0538
150	270	240	366	0.494	0.0732	0.2109 + j0.1064	0.7990 + j0.0511
185	306	272	421	0.407	0.0806	0.1683 + j0.1031	0.7530 + j0.0481
240	354	317	499	0.328	0.0881	0.1290 + j0.0990	0.7085 + j0.0449
300	399	360	574	0.28	0.0921	0.1039 + j0.0968	0.6787 + j0.0432
400	456	414	549	0.241	0.0978	0.0818 + j0.0946	0.5007 + j0.0412
500	644	586	776	0.212	0.1039	0.0650 + j0.0923	0.4799 + j0.0395
630	750	682	904	0.190	0.1164	0.0521 + j0.0895	0.4630 + j0.0371

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED UNARMOURED SHEATHED CABLE 6.35/11(12)kV

SINGLE CORE - CU / XLPE / CTS / PVC SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Metallic screening	Nominal thickness of sheath	Approximate overall diameter	Standard packing length
			Nominal thickness of copper tape			
mm^2		mm	mm	mm	mm	m/drum
16	c.c	3.4	0.1	1.5	17.5	1000
25	c.c	3.4	0.1	1.6	18.9	1000
35	c.c	3.4	0.1	1.6	20.0	1000
50	c.c	3.4	0.1	1.6	21.1	1000
70	c.c	3.4	0.1	1.7	22.9	1000
95	c.c	3.4	0.1	1.7	24.7	1000
120	c.c	3.4	0.1	1.8	26.3	1000
150	c.c	3.4	0.1	1.8	27.7	1000
185	c.c	3.4	0.1	1.9	29.6	1000
240	c.c	3.4	0.1	2.0	32.2	1000
300	c.c	3.4	0.1	2.0	34.4	1000
400	c.c	3.4	0.1	2.2	37.5	1000
500	c.c	3.4	0.1	2.2	40.5	1000
630	c.c	3.4	0.1	2.4	44.5	500

Note : c.c – circular stranded compacted

SINGLE CORE - CU / XLPE / CTS / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per cable*			Maximum 3 phase voltage drop	Minimum charging current	Positive & negative sequence impedance at 25°C*	Zero sequence impedance at 25°C*
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Trefoil	Trefoil	Trefoil				
mm^2	A	A	A	mV/A/m	A/km	ohm/km	ohm/km
16	113	107	124	2.553	0.2555	1.7270 + j0.1463	4.6132 + j0.0894
25	146	137	162	1.623	0.2955	0.7414 + j0.1367	3.9088 + j0.0801
35	173	163	196	1.179	0.3292	0.5345 + j0.1299	3.4993 + j0.0740
50	204	193	236	0.881	0.3654	0.3949 + j0.1211	3.1672 + j0.0659
70	249	236	293	0.625	0.4166	0.2738 + j0.1148	2.8105 + j0.0600
95	296	282	358	0.467	0.4708	0.1976 + j0.1090	2.5232 + j0.0551
120	336	320	413	0.385	0.5147	0.1571 + j0.1049	2.3348 + j0.0511
150	375	357	469	0.327	0.5581	0.1278 + j0.1017	2.1761 + j0.0454
185	422	402	538	0.280	0.6106	0.1029 + j0.0958	2.1033 + j0.0457
240	488	465	635	0.237	0.6824	0.0794 + j0.0949	1.8279 + j0.0422
300	547	524	728	0.21	0.7495	0.0640 + j0.0920	1.6843 + j0.0399
400	614	587	837	0.190	0.8317	0.0522 + j0.0896	1.5375 + j0.0376
500	707	676	965	0.175	0.9237	0.0427 + j0.0868	1.4012 + j0.0354
630	815	780	1113	0.164	1.0331	0.0356 + j0.0847	1.2684 + j0.0334

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED UNARMOURED SHEATHED CABLE 6.35/11(12)kV

SINGLE CORE - AL / XLPE / CTS / PVC SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Metallic screening	Nominal thickness of PVC sheath	Approximate overall diameter	Standard packing length
			Nominal thickness of copper tape			
mm^2		mm	mm	mm	mm	m/drum
16	c.c	3.4	0.1	1.5	17.5	1000
25	c.c	3.4	0.1	1.6	19.0	1000
35	c.c	3.4	0.1	1.6	20.0	1000
50	c.c	3.4	0.1	1.6	21.2	1000
70	c.c	3.4	0.1	1.7	23.0	1000
95	c.c	3.4	0.1	1.7	24.8	1000
120	c.c	3.4	0.1	1.8	26.4	1000
150	c.c	3.4	0.1	1.8	27.8	1000
185	c.c	3.4	0.1	1.9	29.8	1000
240	c.c	3.4	0.1	2.0	32.3	1000
300	c.c	3.4	0.1	2.0	34.5	1000
400	c.c	3.4	0.1	2.2	37.7	1000
500	c.c	3.4	0.1	2.2	40.5	500
630	c.c	3.4	0.1	2.4	44.7	500

Note : c.c – circular stranded compacted

SINGLE CORE - AL / XLPE / CTS / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per cable*			Maximum 3 phase voltage drop	Minimum charging current	Positive & negative sequence impedance at 25°C*	Zero sequence impedance at 25°C*
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Trefoil	Trefoil	Trefoil				
mm^2	A	A	A	mV/A/m	A/km	ohm/km	ohm/km
16	81	70	96	4.249	0.1541	1.9485 + j0.1459	7.5756 + j0.0891
25	104	90	126	2.675	0.2968	1.2243 + j0.1364	6.4059 + j0.0799
35	124	107	153	1.941	0.3308	0.8856 + j0.1296	5.7337 + j0.0738
50	146	127	183	1.439	0.3673	0.6541 + j0.1208	5.1857 + j0.0657
70	178	156	229	1.004	0.4194	0.4523 + j0.1144	4.5936 + j0.0597
95	211	186	278	0.736	0.4732	0.3269 + j0.1088	4.1272 + j0.0549
120	241	213	322	0.592	0.5181	0.2588 + j0.1054	3.1836 + j0.0509
150	270	240	366	0.492	0.5612	0.2110 + j0.1023	3.5571 + j0.0483
185	306	272	421	0.404	0.6145	0.1684 + j0.0993	3.2869 + j0.0455
240	354	317	499	0.324	0.6864	0.1291 + j0.0947	2.9850 + j0.0506
300	399	360	574	0.276	0.7532	0.1041 + j0.0918	2.7521 + j0.0398
400	456	414	549	0.235	0.8371	0.0821 + j0.0894	2.5074 + j0.0374
500	644	586	776	0.205	0.9237	0.0653 + j0.0868	2.2823 + j0.0353
630	750	682	904	0.184	1.0398	0.0526 + j0.0845	2.0669 + j0.0333

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED UNARMOURED SHEATHED CABLE 6.35/11(12)kV

SINGLE CORE - AL / XLPE / CWS / MDPE SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Metallic screening	Nominal thickness of sheath	Approximate overall diameter	Standard packing length
			Nominal thickness of copper tape			
mm^2		mm	mm	mm	mm	m/drum
16	c.c	3.4	16	1.5	21.6	1000
25	c.c	3.4	16	1.6	23.0	1000
35	c.c	3.4	16	1.6	24.0	1000
50	c.c	3.4	16	1.7	25.4	1000
70	c.c	3.4	16	1.7	27.0	1000
95	c.c	3.4	16	1.8	28.9	1000
120	c.c	3.4	16	1.8	30.4	1000
150	c.c	3.4	25	1.9	32.0	1000
185	c.c	3.4	25	1.9	33.7	1000
240	c.c	3.4	25	2.0	35.8	1000
300	c.c	3.4	25	2.1	38.6	1000
400	c.c	3.4	35	2.2	41.5	1000
500	c.c	3.4	35	2.3	44.4	500
630	c.c	3.4	35	2.4	48.6	500

Note : c.c – circular stranded compacted

SINGLE CORE - AL / XLPE / CWS / MDPE SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per cable*			Maximum 3 phase voltage drop	Minimum charging current	Positive & negative sequence impedance at 25°C*	Zero sequence impedance at 25°C*
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Trefoil	Trefoil	Trefoil				
mm^2	A	A	A	mV/A/m	A/km	ohm/km	ohm/km
16	81	70	96	4.251	0.0265	1.9485 + j0.1590	2.8500 + j0.1007
25	104	90	126	2.677	0.0308	1.2243 + j0.1468	2.1203 + j0.0906
35	124	107	153	1.943	0.0344	0.8856 + j0.1412	1.7770 + j0.0839
50	146	127	183	1.442	0.0380	0.6541 + j0.1323	1.5403 + j0.0752
70	178	156	229	1.008	0.044	0.4522 + j0.1247	1.3313 + j0.0685
95	211	186	278	0.740	0.0498	0.3269 + j0.1188	1.1985 + j0.0630
120	241	213	322	0.596	0.0546	0.2587 + j0.1136	1.1241 + j0.0585
150	270	240	366	0.497	0.0593	0.2109 + j0.1104	0.7956 + j0.0554
185	306	272	421	0.410	0.0651	0.1683 + j0.1066	0.7496 + j0.0522
240	354	317	499	0.330	0.0728	0.1289 + j0.1015	0.7056 + j0.0482
300	399	360	574	0.283	0.0801	0.1038 + j0.0991	0.6762 + j0.0455
400	456	414	549	0.242	0.0892	0.0818 + j0.0958	0.5000 + j0.0462
500	644	586	776	0.212	0.0993	0.0650 + j0.0923	0.4795 + j0.0401
630	750	682	904	0.191	0.1112	0.0521 + j0.0900	0.4626 + j0.0377

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED UNARMOURED SHEATHED CABLE 8.7/15 (17.5)kV

SINGLE CORE - CU / XLPE /CTS / PVC SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Metallic screening	Nominal thickness of sheath	Approximate overall diameter	Standard packing length
			Nominal thickness of copper tape			
mm^2		mm	mm	mm	mm	m/drum
25	c.c	4.5	0.1	1.6	21.1	1000
35	c.c	4.5	0.1	1.7	22.4	1000
50	c.c	4.5	0.1	1.7	23.5	1000
70	c.c	4.5	0.1	1.8	25.3	1000
95	c.c	4.5	0.1	1.8	27.1	1000
120	c.c	4.5	0.1	1.9	28.7	1000
150	c.c	4.5	0.1	1.9	30.1	1000
185	c.c	4.5	0.1	2.0	32.0	1000
240	c.c	4.5	0.1	2.1	34.5	1000
300	c.c	4.5	0.1	2.1	36.8	1000
400	c.c	4.5	0.1	2.2	39.7	1000
500	c.c	4.5	0.1	2.3	42.9	1000
630	c.c	4.5	0.1	2.4	46.7	1000

Note : c.c – circular stranded compacted

SINGLE CORE - CU / XLPE / CWS / MDPE SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per cable*			Maximum 3 phase voltage drop	Minimum charging current	Positive & negative sequence impedance at 25°C*	Zero sequence impedance at 25°C*
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Trefoil	Trefoil	Trefoil				
mm^2	A	A	A	mV/A/m	A/km	ohm/km	ohm/km
25	146	137	162	1.625	0.3536	0.7414 + j0.1436	3.5122 + j0.0885
35	173	163	196	1.182	0.3917	0.5345 + j0.1370	3.1490 + j0.0819
50	204	193	236	0.883	0.4324	0.3949 + j0.1278	2.8586 + j0.0734
70	249	236	293	0.630	0.4899	0.2738 + j0.1210	2.5496 + j0.0668
95	296	282	358	0.471	0.5504	0.1975 + j0.1149	2.3020 + j0.0614
120	336	320	413	0.389	0.5995	0.1570 + j0.1104	2.1396 + j0.0570
150	375	357	469	0.332	0.6479	0.1277 + j0.1105	2.0024 + j0.0576
185	422	402	538	0.289	0.7063	0.1027 + j0.1069	1.8613 + j0.0509
240	488	465	635	0.242	0.7863	0.0792 + j0.0994	1.6996 + j0.0470
300	547	524	728	0.216	0.8609	0.0643 + j0.0962	1.5736 + j0.0443
400	614	587	837	0.195	0.9521	0.0519 + j0.0932	1.4437 + j0.0417
500	707	676	965	0.180	1.0542	0.0424 + j0.0904	1.3223 + j0.0392
630	815	780	1113	0.176	1.1756	0.0427 + j0.0877	1.2108 + j0.0368

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED UNARMOURED SHEATHED CABLE 8.7/15 (17.5)kV

SINGLE CORE - AL / XLPE / CTS / PVC SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Metallic screening	Nominal thickness of sheath	Approximate overall diameter	Standard packing length
			Nominal thickness of copper tape			
mm^2		mm	mm	mm	mm	m/drum
25	c.c	4.5	0.1	1.6	21.2	1000
35	c.c	4.5	0.1	1.7	22.4	1000
50	c.c	4.5	0.1	1.7	23.6	1000
70	c.c	4.5	0.1	1.8	25.4	1000
95	c.c	4.5	0.1	1.8	27.2	1000
120	c.c	4.5	0.1	1.9	28.8	1000
150	c.c	4.5	0.1	1.9	30.2	1000
185	c.c	4.5	0.1	2.0	32.2	1000
240	c.c	4.5	0.1	2.1	34.7	1000
300	c.c	4.5	0.1	2.1	36.9	1000
400	c.c	4.5	0.1	2.2	39.9	1000
500	c.c	4.5	0.1	2.3	42.9	500
630	c.c	4.5	0.1	2.4	46.9	500

Note : c.c – circular stranded compacted

SINGLE CORE - AL / XLPE / CTS / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per cable*			Maximum 3 phase voltage drop	Minimum charging current	Positive & negative sequence impedance at 25°C*	Zero sequence impedance at 25°C*
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Trefoil	Trefoil	Trefoil				
mm^2	A	A	A	mV/A/m	A/km	ohm/km	ohm/km
25	104	90	126	2.677	0.3551	1.2243 + j0.1433	5.7585 + j0.0882
35	124	107	153	1.942	0.3935	0.8856 + j0.1367	5.1624 + j0.0816
50	146	127	183	1.441	0.4346	0.6541 + j0.1275	4.2433 + j0.0731
70	178	156	229	1.006	0.4930	0.4552 + j0.1207	4.1695 + j0.0665
95	211	186	278	0.738	0.5532	0.3269 + j0.1146	3.7670 + j0.0612
120	241	213	322	0.594	0.6032	0.2587 + j0.1101	3.4964 + j0.0568
150	270	240	366	0.494	0.6513	0.2109 + j0.1067	3.2746 + j0.0538
185	306	272	421	0.407	0.7108	0.1683 + j0.1034	3.0400 + j0.0507
240	354	317	499	0.328	0.7907	0.1290 + j0.0992	2.7765 + j0.0468
300	399	360	574	0.280	0.8649	0.1039 + j0.0960	2.5718 + j0.0442
400	456	414	549	0.239	0.9582	0.0819 + j0.0930	2.3553 + j0.0415
500	644	586	776	0.210	1.0542	0.0651 + j0.0904	2.1544 + j0.0390
630	750	682	904	0.188	1.1830	0.0523 + j0.0875	1.9607 + j0.0367

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED UNARMOURED SHEATHED CABLE 8.7/15 (17.5)kV

SINGLE CORE - AL / XLPE / CWS / MDPE SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Metallic screening	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
			Nominal thickness of copper tape			
mm^2		mm	mm_2	mm	mm	m/drum
25	c.c	4.5	16	1.7	25.4	1000
35	c.c	4.5	16	1.7	26.4	1000
50	c.c	4.5	16	1.7	27.6	1000
70	c.c	4.5	16	1.8	29.4	1000
95	c.c	4.5	16	1.8	31.1	1000
120	c.c	4.5	16	1.9	32.8	1000
150	c.c	4.5	25	2.0	34.40	1000
185	c.c	4.5	25	2.1	36.1	1000
240	c.c	4.5	25	2.1	38.6	1000
300	c.c	4.5	25	2.2	41.0	1000
400	c.c	4.5	35	2.3	43.90	1000
500	c.c	4.5	35	2.4	47.2	500
630	c.c	4.5	35	2.5	51.0	500

Note : c.c – circular stranded compacted

SINGLE CORE - AL / XLPE / CWS / MDPE SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per cable*			Maximum 3 phase voltage drop	Minimum charging current	Positive & negative sequence impedance at 25°C*	Zero sequence impedance at 25°C*
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Trefoil	Trefoil	Trefoil				
mm^2	A	A	A	mV/A/m	A/km	ohm/km	ohm/km
25	104	90	126	2.678	0.0262	1.2243 + j0.1549	2.1106 + j0.0978
35	124	107	153	1.945	0.0206	0.8856 + j0.1475	1.7676 + j0.0912
50	146	127	183	1.444	0.0323	0.6541 + j0.1375	1.5308 + j0.0816
70	178	156	229	1.010	0.0368	0.4522 + j0.1300	1.3219 + j0.0744
95	211	186	278	0.743	0.0414	0.3269 + j0.1234	1.1894 + j0.0685
120	241	213	322	0.599	0.0452	0.2586 + j0.1184	1.1151 + j0.0637
150	270	240	366	0.45	0.0498	0.2108 + j0.1149	0.7914 + j0.0604
185	306	272	421	0.413	0.0535	0.1682 + j0.1109	0.7455 + j0.0569
240	354	317	499	0.334	0.0569	0.1288 + j0.1062	0.7016 + j0.0526
300	399	360	574	0.287	0.0653	0.1037 + j0.1029	0.6722 + j0.0469
400	456	414	549	0.246	0.0725	0.0816 + j0.0994	0.4978 + j0.0464
500	644	586	776	0.217	0.0805	0.0647 + j0.0962	0.4774 + j0.0436
630	750	682	904	0.195	0.906	0.0518 + j0.0932	0.4662 + j0.0410

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED UNARMOURED SHEATHED CABLE 12.7/22 (24)kV

SINGLE CORE - CU / XLPE / CTS / PVC SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Metallic screening	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
			Nominal thickness of copper tape			
mm^2		mm	mm	mm	mm	m/drum
35	c.c	5.5	0.1	1.7	24.4	1000
50	c.c	5.5	0.1	1.8	25.7	1000
70	c.c	5.5	0.1	1.8	27.3	1000
95	c.c	5.5	0.1	1.9	29.3	1000
120	c.c	5.5	0.1	1.9	30.7	1000
150	c.c	5.5	0.1	2.0	32.3	1000
185	c.c	5.5	0.1	2.0	34.00	1000
240	c.c	5.5	0.1	2.1	36.6	1000
300	c.c	5.5	0.1	2.2	39.0	1000
400	c.c	5.5	0.1	2.3	41.9	1000
500	c.c	5.5	0.1	2.4	45.1	1000
630	c.c	5.5	0.1	2.5	48.9	1000

Note : c.c – circular stranded compacted

SINGLE CORE - CU / XLPE / CTS / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per cable*			Maximum 3 phase voltage drop	Minimum charging current	Positive & negative sequence impedance at 25°C*	Zero sequence impedance at 25°C*
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Trefoil	Trefoil	Trefoil				
mm^2	A	A	A	mV/A/m	A/km	ohm/km	ohm/km
35	173	163	196	1.184	0.5167	0.5345 + j0.1424	2.8954 + j0.0883
50	204	193	236	0.886	0.5681	0.3949 + j0.1335	2.6321 + j0.0794
70	249	236	293	0.631	0.6404	0.2737 + j0.1258	2.3550 + j0.0724
95	296	282	358	0.475	0.7164	0.1975 + j0.1198	2.1345 + j0.0660
120	336	320	413	0.393	0.7779	0.1569 + j0.1146	1.9902 + j0.0619
150	375	357	469	0.336	0.8385	0.1276 + j0.1113	1.8683 + j0.0587
185	422	402	538	0.289	0.9117	0.1026 + j0.1075	1.7427 + j0.0553
240	488	465	635	0.246	1.0116	0.0791 + j0.1030	1.5984 + j0.0511
300	547	524	728	0.221	1.1047	0.0641 + j0.0998	1.4853 + j0.0481
400	614	587	837	0.200	1.2184	0.0516 + j0.0966	1.3682 + j0.0452
500	707	676	965	0.184	1.3457	0.0421 + j0.0936	1.2580 + j0.0424
630	815	780	1113	0.172	1.4969	0.0348 + j0.0906	1.1491 + j0.0398

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED UNARMOURED SHEATHED CABLE 12.7/22 (24)kV

SINGLE CORE - AL / XLPE / CTS / PVC SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Metallic screening	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
			Nominal thickness of copper tape			
mm^2		mm	mm	mm	mm	m/drum
35	c.c	5.5	0.1	1.7	24.4	1000
50	c.c	5.5	0.1	1.8	25.8	1000
70	c.c	5.5	0.1	1.8	27.4	1000
95	c.c	5.5	0.1	1.9	29.4	1000
120	c.c	5.5	0.1	1.9	30.8	1000
150	c.c	5.5	0.1	2.0	32.4	1000
185	c.c	5.5	0.1	2.0	34.2	1000
240	c.c	5.5	0.1	2.1	36.7	1000
300	c.c	5.5	0.1	2.2	30.1	1000
400	c.c	5.5	0.1	2.3	42.1	1000
500	c.c	5.5	0.1	2.4	45.3	1000
630	c.c	5.5	0.1	2.5	49.1	1000

Note : c.c – circular stranded compacted

SINGLE CORE - AL / XLPE / CTS / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per cable*			Maximum 3 phase voltage drop	Minimum charging current	Positive & negative sequence impedance at 25°C*	Zero sequence impedance at 25°C*
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Trefoil	Trefoil	Trefoil				
mm^2	A	A	A	mV/A/m	A/km	ohm/km	ohm/km
35	124	107	153	1.943	0.5190	0.0886 + j0.1420	4.7486 + j0.0880
50	146	127	183	1.442	0.5705	0.6541 + j0.1331	4.3135 + j0.0791
70	178	156	229	1.008	0.6443	0.4522 + j0.1254	3.8528 + j0.0721
95	211	186	278	0.741	0.7692	0.3269 + j0.1195	3.4940 + j0.0664
120	241	213	322	0.596	0.7827	0.2687 + j0.1143	3.2535 + j0.0617
150	270	240	366	0.497	0.8428	0.2109 + j0.1111	3.0562 + j0.0585
185	306	272	421	0.41	0.9172	0.1683 + j0.1072	2.8473 + j0.0551
240	354	317	499	0.332	1.0171	0.1289 + j0.1027	2.6118 + j0.0509
300	399	360	574	0.283	1.1097	0.1038 + j0.0997	2.4281 + j0.0480
400	456	414	549	0.243	1.2260	0.0818 + j0.0964	2.2326 + j0.0450
500	644	586	776	0.213	1.3554	0.0649 + j0.0934	2.0503 + j0.0422
630	750	682	904	0.191	1.5061	0.0520 + j0.0904	1.8734 + j0.0396

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED UNARMOURED SHEATHED CABLE
12.7/22 (24)kV

SINGLE CORE - AL / XLPE / CWS / PVC SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Metallic screening	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
			Nominal thickness of copper tape			
mm^2		mm	mm_2	mm	mm	m/drum
35	c.c	5.5	16	1.8	28.6	1000
50	c.c	5.5	16	1.8	29.8	1000
70	c.c	5.5	16	1.9	31.6	1000
95	c.c	5.5	16	1.9	33.3	1000
120	c.c	5.5	16	2.0	35.0	1000
150	c.c	5.5	25	2.0	36.4	1000
185	c.c	5.5	25	2.1	38.3	1000
240	c.c	5.5	25	2.2	40.8	1000
300	c.c	5.5	25	2.2	43.0	1000
400	c.c	5.5	35	2.3	45.9	1000
500	c.c	5.5	35	2.4	49.2	500
630	c.c	5.5	35	2.5	53.0	500

Note : c.c – circular stranded compacted

SINGLE CORE - AL / XLPE / CWS / MDPE SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per cable*			Maximum 3 phase voltage drop	Minimum charging current	Positive & negative sequence impedance at 25°C*	Zero sequence impedance at 25°C*
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Trefoil	Trefoil	Trefoil				
mm^2	A	A	A	mV/A/m	A/km	ohm/km	ohm/km
35	124	107	153	1.946	0.0260	0.8856 + j0.1522	1.7589 + j0.0962
50	146	127	183	1.445	0.0287	0.6541 + j0.1423	1.5224 + j0.0869
70	178	156	229	1.011	0.0324	0.4522 + j0.1345	1.3136 + j0.0794
95	211	186	278	0.745	0.0363	0.3268 + j0.1277	1.1812 + j0.0732
120	241	213	322	0.601	0.0396	0.2586 + j0.1224	1.1070 + j0.0681
150	270	240	366	0.502	0.0427	0.2108 + j0.1185	0.7877 + j0.0646
185	306	272	421	0.416	0.0465	0.1682 + j0.1146	0.7418 + j0.0609
240	354	317	499	0.338	0.0517	0.1287 + j0.1096	0.6978 + j0.0563
300	399	360	574	0.290	0.0565	0.1036 + j0.1059	0.6686 + j0.0530
400	456	414	549	0.249	0.0625	0.0815 + j0.1021	0.4959 + j0.0496
500	644	586	776	0.220	0.0692	0.0646 + j0.0987	0.4755 + j0.0466

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED UNARMOURED SHEATHED CABLE 19/33 (36)kV

SINGLE CORE - CU / XLPE / CTS / PVC SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Metallic screening	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
			Nominal thickness of copper tape			
mm^2		mm	mm	mm	mm	m/drum
50	c.c	8.0	0.1	2.0	31.1	1000
70	c.c	8.0	0.1	2.0	32.7	1000
95	c.c	8.0	0.1	2.1	34.7	1000
120	c.c	8.0	0.1	2.1	36.1	1000
150	c.c	8.0	0.1	2.2	37.7	1000
185	c.c	8.0	0.1	2.2	39.4	1000
240	c.c	8.0	0.1	2.3	42	1000
300	c.c	8.0	0.1	2.4	44.4	1000
400	c.c	8.0	0.1	2.5	47.3	1000
500	c.c	8.0	0.1	2.6	50.5	1000
630	c.c	8.0	0.1	2.7	54.3	500

Note : c.c – circular stranded compacted

SINGLE CORE - CU / XLPE / CTS / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per cable*			Maximum 3 phase voltage drop	Minimum charging current	Positive & negative sequence impedance at 25°C*	Zero sequence impedance at 25°C*
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Trefoil	Trefoil	Trefoil				
mm^2	A	A	A	mV/A/m	A/km	ohm/km	ohm/km
50	204	193	236	0.891	0.6999	0.3949 + j0.1454	2.2141 + j0.0924
70	249	236	293	0.638	0.7814	0.2737 + j0.1371	1.9884 + j0.0846
95	296	282	358	0.483	0.8667	0.1974 + j0.1304	1.8130 + j0.0780
120	336	320	413	0.402	0.9353	0.1568 + j0.1248	1.6996 + j0.0728
150	375	357	469	0.346	1.0028	0.1275 + j0.1210	1.6041 + j0.0690
185	422	402	538	0.299	1.0840	0.1024 + j0.1167	1.5061 + j0.0651
240	488	465	635	0.257	1.1946	0.0788 + j0.1116	1.3930 + j0.0602
300	547	524	728	0.231	1.2975	0.0638 + j0.1080	1.3039 + j0.0567
400	614	587	837	0.211	1.3889	0.5012 + j0.1042	1.2109 + j0.031
500	707	676	965	0.195	1.5630	0.0415 + j0.1007	1.1225 + j0.0498
630	815	780	1113	0.183	1.7291	0.0342 + j0.0972	1.0340 + j0.0466

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED UNARMOURED SHEATHED CABLE 19/33 (36)kV

SINGLE CORE - AL / XLPE / CTS / PVC SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Metallic screening	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
			Nominal thickness of copper tape			
mm^2		mm	mm	mm	mm	m/drum
50	c.c	8.0	0.1	2.0	31.2	1000
70	c.c	8.0	0.1	2.0	32.8	1000
95	c.c	8.0	0.1	2.1	34.8	1000
120	c.c	8.0	0.1	2.1	36.2	1000
150	c.c	8.0	0.1	2.2	37.8	1000
185	c.c	8.0	0.1	2.2	30.6	1000
240	c.c	8.0	0.1	2.3	42.1	1000
300	c.c	8.0	0.1	2.4	44.5	1000
400	c.c	8.0	0.1	2.5	47.5	1000
500	c.c	8.0	0.1	2.6	50.7	500
630	c.c	8.0	0.1	2.7	54.5	500

Note : c.c – circular stranded compacted

SINGLE CORE - AL / XLPE / CTS / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per cable*			Maximum 3 phase voltage drop	Minimum charging current	Positive & negative sequence impedance at 25°C*	Zero sequence impedance at 25°C*
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Trefoil	Trefoil	Trefoil				
mm^2	A	A	A	mV/A/m	A/km	ohm/km	ohm/km
50	146	127	183	1.146	0.7030	0.6541 + j0.1451	3.6312 + j0.0921
70	178	156	229	1.012	0.7859	0.4522 + j0.1367	3.2258 + j0.0842
95	211	186	278	0.746	0.8705	0.3268 + j0.1301	2.9698 + j0.0778
120	241	213	322	0.602	0.9406	0.2568 + j0.1245	2.7805 + j0.0725
150	270	240	366	0.504	1.0076	0.2108 + j0.1208	2.6258 + j0.0688
185	306	272	421	0.417	1.0901	0.1682 + j0.1164	2.4623 + j0.0648
240	354	317	499	0.339	1.2007	0.1287 + j0.1114	2.2775 + j0.0600
300	399	360	574	0.292	1.3031	0.1036 + j0.1078	2.1325 + j0.0565
400	456	414	549	0.252	1.4313	0.0815 + j0.1040	1.9770 + j0.0529
500	644	586	776	0.222	1.5736	0.0645 + j0.1004	1.8304 + j0.0496
630	750	682	904	0.201	1.7392	0.0515 + j0.0970	1.6864 + j0.0464

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED UNARMOURED SHEATHED CABLE 19/33 (36)kV

SINGLE CORE - AL / XLPE / CWS / MDPE SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Metallic screening	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
			Nominal thickness of copper tape			
mm^2		mm	mm_2	mm	mm	m/drum
50	c.c	8.0	16	2.0	35.8	1000
70	c.c	8.0	16	2.0	37.4	1000
95	c.c	8.0	16	2.1	39.3	1000
120	c.c	8.0	16	2.1	40.8	1000
150	c.c	8.0	25	2.2	42.4	1000
185	c.c	8.0	25	2.2	44.1	1000
240	c.c	8.0	25	2.3	46.6	1000
300	c.c	8.0	25	2.4	49.0	1000
400	c.c	8.0	35	2.5	51.9	1000
500	c.c	8.0	35	2.6	55.2	500
630	c.c	8.0	35	2.7	59.0	500
630 #TNB	c.c	9.0	312	5.0	69.4	500

Note : c.c – circular stranded compacted

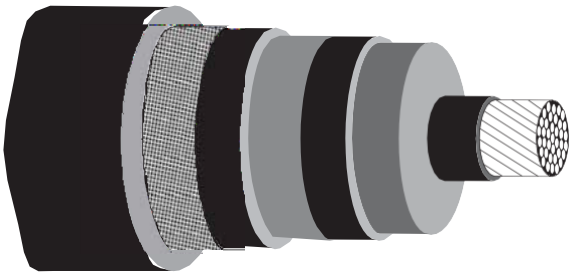
SINGLE CORE - AL / XLPE / CWS / MDPE SHEATHED CABLE ELECTRICAL PROPERTIES

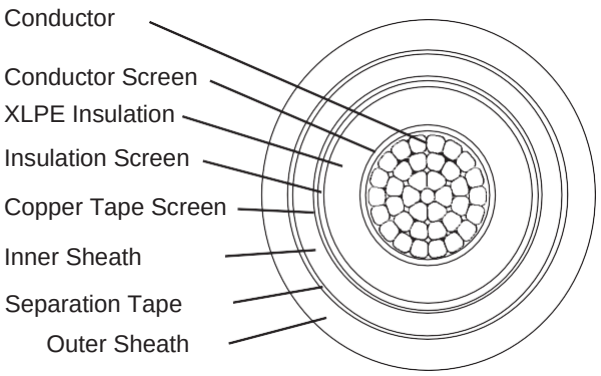
Nominal cross-sectional area of conductor	Maximum current rating per cable*			Maximum 3 phase voltage drop	Minimum charging current	Positive & negative sequence impedance at 25°C*	Zero sequence impedance at 25°C*
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Trefoil	Trefoil	Trefoil				
mm^2	A	A	A	mV/A/m	A/km	ohm/km	ohm/km
50	146	127	183	1.448	0.0226	0.6541 + j0.1538	1.4997 + j0.0998
70	178	156	229	1.102	0.0253	0.4522 + j0.1457	1.2912 + j0.0915
95	211	186	278	0.750	0.0281	0.3268 + j0.1380	1.1591 + j0.0846
120	241	213	322	0.607	0.0304	0.2586 + j0.1321	1.0852 + j0.0790
150	270	240	366	0.509	0.0325	0.2107 + j0.1281	0.7775 + j0.0751
185	306	272	421	0.423	0.0352	0.1681 + j0.1234	0.7317 + j0.0708
240	354	317	499	0.346	0.0388	0.1286 + j0.1180	0.6880 + j0.0656
300	399	360	574	0.299	0.0360	0.1034 + j0.1141	0.6589 + j0.0618
400	456	414	549	0.259	0.0464	0.0813 + j0.1098	0.4906 + j0.0579
500	644	586	776	0.230	0.0510	0.0643 + j0.1060	0.4703 + j0.0543
630	750	682	904	0.208	0.0612	0.0512 + j0.1021	0.4703 + j0.0507
630 #TNB	628	510	827	0.222	0.0610	0.0508 + j0.1112	0.1046 + j0.0572

*Note : Electrical properties are calculated base on conditions in Appendix B.

#Note-630_{TNB} : Refer to the TNB specification, earth fault rating 25kA in 3 second.

SINGLE CORE - XLPE INSULATED UNARMOURED DOUBLE SHEATHED CABLE FOR VOLTAGES 11kV AND 22kV TO IEC 60502-2





DESCRIPTION

Circular compacted stranded aluminium conductor, cross-linked polyethylene, with copper tape or copper wire or aluminium wire screen and extruded outer sheath made from PE. Complies with Tenaga Nasional Berhad (TNB) specification.

CONSTRUCTION

Conductor

Aluminium (Al) conductor conform to class 2 in IEC 60228.

Conductor screen

An extruded thin layer of semi-conductive compound as a 1st layer by triple extrusion process.

Insulation

An extruded layer of cross-linked polyethylene (XLPE) compound as a 2nd layer by triple extrusion process.

Insulation screen

An extruded thin layer of semi-conductive compound as a 3rd layer by triple extrusion process.

Metallic screen

Two layers of copper tape (CTS) helically wrap with overlap laid over insulation screen.

Non-conductive binder tape

Applied when necessary.

A layer of non-conductive tape helically wrap with overlap laid over metallic screen.

Inner Sheath

Extruded layer made from black PE compound.

Non-conductive binder tape

A layer of non-conductive tape helically wrap with overlap laid over inner sheath.

Outer sheath

Extruded layer made from PE (ST-7) compound. Additive like Anti-termite repellent, anti-rodent or different outer sheath colour are available upon request.

XLPE INSULATED UNARMOURED SHEATHED CABLE
6.35/11 (12)kV

SINGLE CORE - AL / XLPE / CTS / MDPE / MDPE SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Metallic screening	Nominal thickness of inner sheath	Nominal thickness of inner sheath	Approximate overall diameter
			Nominal thickness of copper tape			
mm^2	mm	mm	mm x n	mm	mm	mm
16	c.c	3.4	0.1 x 2	2.2	1.5	22.5
25	c.c	3.4	0.1 x 2	2.2	1.6	23.9
35	c.c	3.4	0.1 x 2	2.2	1.6	24.9
50	c.c	3.4	0.1 x 2	2.2	1.7	26.3
70#	c.c	3.4	0.1 x 2	2.2	1.7	28.0
95	c.c	3.4	0.1 x 2	2.2	1.8	29.9
120	c.c	3.4	0.1 x 2	2.2	1.8	31.3
150	c.c	3.4	0.1 x 2	2.2	1.9	32.9
185	c.c	3.4	0.1 x 2	2.2	1.9	34.7
240	c.c	3.4	0.1 x 2	2.2	2.0	37.2
300	c.c	3.4	0.1 x 2	2.2	2.1	39.6
400	c.c	3.4	0.1 x 2	2.2	2.2	42.6
500#	c.c	3.4	0.1 x 2	2.2	2.3	45.9
630	c.c	3.4	0.1 x 2	2.2	2.4	49.7

Note : c.c – circular stranded compacted

SINGLE CORE - AL / XLPE / CTS / MDPE / MDPE SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per cable*			Maximum 3 phase voltage drop	Minimum charging current	Positive & negative sequence impedance at 25°C*	Zero sequence impedance at 25°C*
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Trefoil	Trefoil	Trefoil				
mm^2	A	A	A	mV/A/m	A/km	ohm/km	ohm/km
16	81	70	96	4.908	0.2802	1.9485 + j0.1615	29.0001 + j0.0903
25	104	90	126	2.678	0.3255	1.2243 + j0.1509	26.1738 + j0.0810
35	124	107	153	1.944	0.3184	0.8856 + j0.1426	24.2571 + j0.0748
50	146	127	183	1.443	0.4059	0.6541 + j0.1344	22.5249 + j0.0667
70#	178	156	229	1.008	0.4653	0.4522 + j0.1266	20.4678 + j0.0607
95	211	186	278	0.741	0.5268	0.3269 + j0.1206	18.0558 + j0.0558
120	241	213	322	0.597	0.5781	0.2587 + j0.1154	17.4763 + j0.0517
150	270	240	366	0.498	0.6274	0.2109 + j0.1121	16.4303 + j0.0490
185	306	272	421	0.411	0.6886	0.1683 + j0.1081	15.2975 + j0.0462
240	354	317	499	0.332	0.7710	0.1289 + j0.1036	13.9988 + j0.0427
300	399	360	574	0.284	0.8476	0.1038 + j0.1005	12.9752 + j0.0404
400	456	414	549	0.244	0.9439	0.0817 + j0.0972	11.8824 + j0.0380
500#	644	586	776	0.214	1.0513	0.0649 + j0.0941	10.8628 + j0.0358
630	750	682	904	0.192	0.1112	0.0520 + j0.0911	9.8741 + j0.0337

*Note : Electrical properties are calculated base on conditions in Appendix B.
#Note : TNB specification.

XLPE INSULATED UNARMOURED SHEATHED CABLE
12.7/22 (24)kV

SINGLE CORE - AL / XLPE / CTS / MDPE /MDPE SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Maximum current rating per cable*			Maximum 3 phase voltage drop	Minimum charging current	Positive & negative sequence impedance at 25°C*	Zero sequence impedance at 25°C*
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Trefoil	Trefoil	Trefoil				
mm^2	A	A	A	mV/A/m	A/km	ohm/km	ohm/km
16	81	70	96	4.908	0.2802	1.9485 + j0.1615	29.0001 + j0.0903
25	104	90	126	2.678	0.3255	1.2243 + j0.1509	26.1738 + j0.0810
35	124	107	153	1.944	0.3184	0.8856 + j0.1426	24.2571 + j0.0748
50	146	127	183	1.443	0.4059	0.6541 + j0.1344	22.5249 + j0.0667
70#	178	156	229	1.008	0.4653	0.4522 + j0.1266	20.4678 + j0.0607
95	211	186	278	0.741	0.5268	0.3269 + j0.1206	18.0558 + j0.0558
120	241	213	322	0.597	0.5781	0.2587 + j0.1154	17.4763 + j0.0517
150	270	240	366	0.498	0.6274	0.2109 + j0.1121	16.4303 + j0.0490
185	306	272	421	0.411	0.6886	0.1683 + j0.1081	15.2975 + j0.0462
240	354	317	499	0.332	0.7710	0.1289 + j0.1036	13.9988 + j0.0427
300	399	360	574	0.284	0.8476	0.1038 + j0.1005	12.9752 + j0.0404
400	456	414	549	0.244	0.9439	0.0817 + j0.0972	11.8824 + j0.0380
500#	644	586	776	0.214	1.0513	0.0649 + j0.0941	10.8628 + j0.0358
630	750	682	904	0.192	0.1112	0.0520 + j0.0911	9.8741 + j0.0337

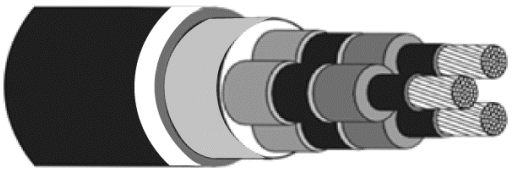
Note : c.c – circular stranded compacted

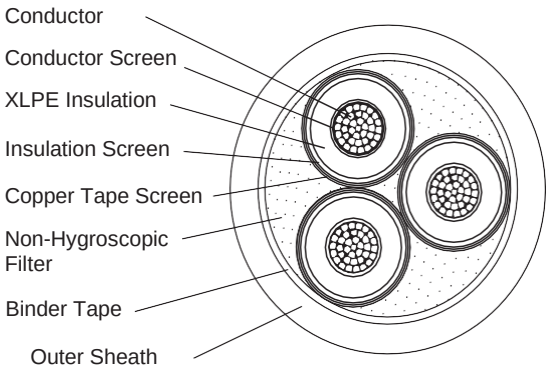
SINGLE CORE - AL / XLPE / CTS / MDPE / MDPE SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Metallic screening	Nominal thickness of inner sheath	Nominal thickness of inner sheath	Approximate overall diameter
			Nominal thickness of copper tape			
mm^2		mm	mm x n	mm	mm	mm
25	c.c	5.5	0.1 x 2	2.2	1.7	28.3
35	c.c	5.5	0.1 x 2	2.2	1.8	29.5
50	c.c	5.5	0.1 x 2	2.2	1.8	30.7
70#	c.c	5.5	0.1 x 2	2.2	1.9	32.6
95	c.c	5.5	0.1 x 2	2.2	1.9	34.3
120	c.c	5.5	0.1 x 2	2.2	2.0	35.9
150#	c.c	5.5	0.1 x 2	2.2	2.0	37.3
185	c.c	5.5	0.1 x 2	2.2	2.1	39.3
240#	c.c	5.5	0.1 x 2	2.2	2.2	41.8
300	c.c	5.5	0.1 x 2	2.2	2.2	44.0
400	c.c	5.5	0.1 x 2	2.2	2.3	47.0
500#	c.c	5.5	0.1 x 2	2.2	2.4	50.3
630	c.c	5.5	0.1 x 2	2.2	2.5	54.1

*Note : Electrical properties are calculated base on conditions in appendix B.
#Note : TNB specification.

THREE CORE - XLPE INSULATED UNARMOURED SHEATHED CABLE FOR VOLTAGES 6.6kV UP TO AND INCLUDING 33kV TO IEC 60502-2





DESCRIPTION

Circular compacted stranded copper or aluminium conductor, cross-linked polyethylene, with copper tape or copper wire or aluminium wire screen and extruded outer sheath made from PE or PVC.

CONSTRUCTION

Conductor
Plain circular compacted stranded copper (Cu) or aluminium (Al) conductor conform to class 2 in IEC 60228.

Conductor screen
An extruded thin layer of semi-conductive compound as a 1st layer by triple extrusion process.

Insulation
An extruded layer of cross-linked polyethylene (XLPE) compound as a 2nd layer by triple extrusion process.

Insulation screen
An extruded thin layer of semi-conductive compound as a 3rd layer by triple extrusion process.

Colour of core Identification
Red, yellow and blue shall be applied over insulation screen.

Semi-conductive tape
Applied under copper wire screen or aluminium wire screen when requested by purchaser
A layer of helically wrap semi-conductive water blocking tape with overlap laid over insulation screen.

Metallic screen
1 or 2 layer(s) of Copper tape (CTS) helically wrap with overlap laid over insulation screen or numbers of copper wires (CWS) or numbers of aluminium wires (AWS) laid over semi-conductive tape. An equalizing copper tape with open helically wrap and metallic screen construction base on customer's earth fault current requirement are available upon request.

Lay Up Cores
Three screened core are laid up together with non hygroscopic material.

THREE CORE - XLPE INSULATED UNARMOURED SHEATHED CABLE FOR VOLTAGES 6.6kV UP TO AND INCLUDING 33kV TO IEC 60502-2

Binder tape
Applied when necessary
A layer of non-conductive or semi-conductive tape helically wrap with overlap.

Outer sheath
Extruded layer made from black PVC(ST-2) or PE(ST-7) compound. Additive like Anti-termite repellent, anti-rodent or different outer sheath colour are available upon request.

XLPE INSULATED UNARMOURED SHEATHED CABLE 3.8/6.6 (7.2)kV

THREE CORE - CU / XLPE / CTS / PVC SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Metallic screening	Nominal thickness of sheath	Approximate overall diameter	Standard packing length
			Nominal thickness of copper tape			
mm^2		mm	mm	mm	mm	m/drum
16	c.c	2.5	0.1	1.5	15.7	1000
25	c.c	2.5	0.1	1.5	16.9	1000
35	c.c	2.5	0.1	1.5	18.0	1000
50	c.c	2.5	0.1	1.6	19.3	1000
70	c.c	2.5	0.1	1.6	20.9	1000
95	c.c	2.5	0.1	1.7	22.9	1000
120	c.c	2.5	0.1	1.7	24.3	1000
150	c.c	2.5	0.1	1.8	25.9	1000
185	c.c	2.5	0.1	1.8	27.6	500
240	c.c	2.6	0.1	1.9	30.4	500
300	c.c	2.8	0.1	2.0	33.2	500
400	c.c	3.0	0.1	2.1	36.7	250

Note : c.c – circular stranded compacted

THREE CORE - CU / XLPE / CTS / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per cable*			Maximum 3 phase voltage drop	Minimum charging current	Positive & negative sequence impedance at 25°C*	Zero sequence impedance at 25°C*
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Single Cable	Single Cable	Single Cable				
mm^2	A	A	A	mV/A/m	A/km	ohm/km	ohm/km
16	105	90	109	2.549	0.1768	1.7271 + j0.1241	2.4824 + j0.0805
25	134	116	142	1.618	0.2050	0.7415 + j0.1158	1.9373 + j0.0723
35	159	138	170	1.173	0.2298	0.5346 + j0.1103	1.6444 + j0.0667
50	188	164	204	0.877	0.5050	0.4000 + j0.1120	3.2300 + j0.0570
70	230	201	253	0.616	0.2941	0.2740 + j0.0974	1.2067 + j0.0538
95	272	240	304	0.457	0.3342	0.1979 + j0.0930	1.0455 + j0.0495
120	310	275	351	0.374	0.3667	0.1375 + j0.0894	0.9462 + j0.0458
150	347	309	398	0.315	0.3988	0.1283 + j0.0870	0.8661 + j0.0435
185	392	349	455	0.266	0.4378	0.1035 + j0.0847	0.7874 + j0.0411
240	451	406	531	0.223	0.4802	0.0802 + j0.0821	0.6969 + j0.0385
300	509	459	606	0.197	0.5060	0.0654 + j0.0809	0.6257 + j0.0373
400	575	521	696	0.177	0.5394	0.0532 + j0.0796	0.5580 + j0.0360

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED UNARMOURED SHEATHED CABLE 3.8/6.6 (7.2)kV

THREE CORE - AL / XLPE / CTS / PVC SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Metallic screening	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
			Nominal thickness of copper tape			
mm^2		mm	mm	mm	mm	m/drum
16	c.c	2.5	0.1	2.0	31.1	1000
25	c.c	2.5	0.1	2.1	34.0	1000
35	c.c	2.5	0.1	2.1	36.3	1000
50	c.c	2.5	0.1	2.2	38.9	1000
70	c.c	2.5	0.1	2.4	41.9	1000
95	c.c	2.5	0.1	2.5	46.8	1000
120	c.c	2.5	0.1	2.6	50.2	1000
150	c.c	2.5	0.1	2.7	53.5	500
185	c.c	2.5	0.1	2.8	57.5	500
240	c.c	2.5	0.1	3.0	63.4	500
300	c.c	2.5	0.1	3.2	69.4	500
400	c.c	2.5	0.1	3.4	76.6	250

Note : c.c – circular stranded compacted

THREE CORE - AL / XLPE / CTS / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per cable*			Maximum 3 phase voltage drop	Minimum charging current	Positive & negative sequence impedance at 25°C*	Zero sequence impedance at 25°C*
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Single Cable	Single Cable	Single Cable				
mm^2	A	A	A	mV/A/m	A/km	ohm/km	ohm/km
16	81	70	84	4.247	0.1768	1.9486 + j0.1241	4.0967 + j0.0805
25	104	90	110	2.673	0.2060	1.2234 + j0.1156	3.1799 + j0.0721
35	124	107	132	1.937	0.2309	0.8857 + j0.1100	2.6999 + j0.0665
50	146	127	158	1.435	0.2518	0.6542 + j0.1025	2.3365 + j0.0589
70	178	156	196	0.999	0.2962	0.4524 + j0.0971	1.9748 + j0.0536
95	211	186	236	0.730	0.3360	0.3271 + j0.0929	1.7122 + j0.0493
120	241	213	273	0.584	0.3692	0.2590 + j0.0892	1.5467 + j0.0456
150	270	240	309	0.483	0.4011	0.2113 + j0.0869	1.4171 + j0.0433
185	306	272	355	0.394	0.4407	0.1688 + j0.0845	1.2861 + j0.0410
240	354	317	415	0.314	0.4830	0.1296 + j0.0819	1.1383 + j0.0384
300	399	360	475	0.266	0.5085	0.0828 + j0.0794	1.0225 + j0.0372
400	456	414	552	0.225	0.5430	0.0828 + j0.0794	0.9096 + j0.0359

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED UNARMOURED SHEATHED CABLE 6.35/11 (12)kV

THREE CORE - CU / XLPE / CTS / PVC SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Metallic screening	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
			Nominal thickness of copper tape			
mm^2	mm	mm	mm	mm	mm	m/drum
16	c.c	3.4	0.1	2.1	35.1	1000
25	c.c	3.4	0.1	2.2	38.0	1000
35	c.c	3.4	0.1	2.3	40.4	1000
50	c.c	3.4	0.1	2.4	43.1	1000
70	c.c	3.4	0.1	2.5	46.8	1000
95	c.c	3.4	0.1	2.6	50.8	1000
120	c.c	3.4	0.1	2.7	54.0	1000
150	c.c	3.4	0.1	2.8	57.4	1000
185	c.c	3.4	0.1	2.9	61.3	500
240	c.c	3.4	0.1	3.1	66.7	500
300	c.c	3.4	0.1	3.3	71.9	500
400	c.c	3.4	0.1	3.5	78.1	250

Note : c.c – circular stranded compacted

THREE CORE - CU / XLPE / CTS / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per cable*			Maximum 3 phase voltage drop	Minimum charging current	Positive & negative sequence impedance at 25°C*	Zero sequence impedance at 25°C*
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Single Cable	Single Cable	Single Cable				
mm^2	A	A	A	mV/A/m	A/km	ohm/km	ohm/km
16	119	92	116	2.550	0.2555	1.1727 + j0.1330	2.3195 + j0.0894
25	152	119	151	1.620	0.2955	0.7415 + j0.1237	1.7972 + j0.0801
35	182	142	180	1.175	0.2955	0.5346 + j0.1176	1.5227 + j0.0740
50	213	167	215	0.876	0.3654	0.3950 + j0.1095	1.3190 + j0.0659
70	260	205	249	0.619	0.4166	0.2739 + j0.1036	1.1192 + j0.0600
95	311	246	325	0.461	0.4708	0.1978 + j0.0987	0.9726 + j0.0551
120	352	279	373	0.377	0.5147	0.1573 + j0.0947	0.0826 + j0.0511
150	390	313	417	0.319	0.5581	0.1281 + j0.0920	0.8101 + j0.0484
185	442	352	473	0.271	0.6106	0.1033 + j0.0893	0.7390 + j0.0457
240	504	408	553	0.226	0.6824	0.0799 + j0.0858	0.6613 + j0.0422
300	564	460	640	0.200	0.7495	0.0652 + j0.0835	0.6032 + j0.0399
400	628	516	721	0.179	0.8317	0.0530 + j0.0811	0.5456 + j0.0376

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED UNARMOURED SHEATHED CABLE 6.35/11 (12)kV

THREE CORE - AL / XLPE / CTS / PVC SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Metallic screening	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
			Nominal thickness of copper tape			
mm^2		mm	mm	mm	mm	m/drum
16	c.c	3.4	0.1	2.1	35.2	1000
25	c.c	3.4	0.1	2.2	38.0	1000
35	c.c	3.4	0.1	2.3	40.4	1000
50	c.c	3.4	0.1	2.4	43.2	1000
70	c.c	3.4	0.1	2.5	47.0	1000
95	c.c	3.4	0.1	2.6	50.9	1000
120	c.c	3.4	0.1	2.7	54.2	1000
150	c.c	3.4	0.1	2.8	57.6	1000
185	c.c	3.4	0.1	2.9	61.6	1000
240	c.c	3.4	0.1	3.1	67.0	500
300	c.c	3.4	0.1	3.3	72.1	500
400	c.c	3.4	0.1	3.5	78.5	500

Note : c.c – circular stranded compacted

THREE CORE - AL / XLPE / CTS / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per cable*			Maximum 3 phase voltage drop	Minimum charging current	Positive & negative sequence impedance at 25°C*	Zero sequence impedance at 25°C*
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Single Cable	Single Cable	Single Cable				
mm^2	A	A	A	mV/A/m	A/km	ohm/km	ohm/km
16	81	70	84	4.248	0.2569	1.9485 + j0.1326	3.8242 + j0.0981
25	104	90	110	2.674	0.2968	1.2243 + j0.1234	2.9514 + j0.0799
35	124	107	132	1.938	0.3308	0.8857 + j0.1173	2.5016 + j0.0738
50	146	127	158	1.436	0.3673	0.6542 + j0.1092	2.1646 + j0.0657
70	178	156	196	1.000	0.4194	0.4523 + j0.1033	1.8326 + j0.0597
95	211	186	236	0.732	0.4732	0.3230 + j0.0985	1.5935 + j0.0549
120	241	213	273	0.586	0.5181	0.2589 + j0.0944	1.4435 + j0.0509
150	270	240	309	0.486	0.5612	0.2112 +j0.0918	1.3261 + j0.0483
185	306	272	355	0.397	0.6145	0.1687 + j0.0861	1.2075 + j0.0455
240	354	317	415	0.317	0.6864	0.1294 + j0.0856	1.0804 + j0.0421
300	399	360	475	0.268	0.7532	0.1045 + j0.0833	0.9859 + j0.0398
400	456	414	552	0.226	0.8371	0.0826 + j0.0810	0.8894 + j0.0374

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED UNARMOURED SHEATHED CABLE 8.7/15 (17.5)kV

THREE CORE - CU / XLPE / CTS / PVC SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Metallic screening	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
			Nominal thickness of copper tape			
mm^2		mm	mm	mm	mm	m/drum
16	c.c	4.5	0.1	2.3	40.4	1000
25	c.c	4.5	0.1	2.4	43.1	1000
35	c.c	4.5	0.1	2.5	45.5	1000
50	c.c	4.5	0.1	2.6	48.2	1000
70	c.c	4.5	0.1	2.7	51.9	1000
95	c.c	4.5	0.1	2.8	55.9	1000
120	c.c	4.5	0.1	2.9	59.2	1000
150	c.c	4.5	0.1	3.0	62.5	500
185	c.c	4.5	0.1	3.1	66.4	500
240	c.c	4.5	0.1	3.3	71.9	500
300	c.c	4.5	0.1	3.4	76.7	500
400	c.c	4.5	0.1	3.7	83.3	250

Note : c.c – circular stranded compacted

THREE CORE - CU / XLPE / CTS / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per cable*			Maximum 3 phase voltage drop	Minimum charging current	Positive & negative sequence impedance at 25°C*	Zero sequence impedance at 25°C*
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Single Cable	Single Cable	Single Cable				
mm^2	A	A	A	mV/A/m	A/km	ohm/km	ohm/km
16	105	90	109	2.552	0.3077	1.7270 + j0.1422	2.1628 + j0.0987
25	134	116	142	1.622	0.3536	0.7415 + j0.1321	1.6650 + j0.0885
35	159	138	170	1.178	0.3917	0.5345 + j0.1255	1.4060 + j0.0819
50	188	164	204	0.879	0.4324	0.3950 + j0.1166	1.2161 + j0.0734
70	230	201	253	0.623	0.4899	0.2738 + j0.1104	1.0322 + j0.0668
95	272	240	304	0.465	0.5504	0.1977 + j0.1050	0.8988 + j0.0614
120	310	275	351	0.382	0.5995	0.1572 + j0.1006	0.8175 + j0.0570
150	347	309	398	0.324	0.6479	0.1279 + j0.0976	0.7522 + j0.0540
185	392	349	455	0.276	0.7063	0.1030 + j0.0945	0.6883 + j0.0509
240	451	406	531	0.232	0.7863	0.0796 + j0.0906	0.6185 + j0.0470
300	509	459	606	0.205	0.8609	0.0648 + j0.0879	0.5663 + j0.0443
400	575	521	696	0.184	0.9459	0.0526 + j0.0852	0.5143 + j0.0417

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED UNARMOURED SHEATHED CABLE
8.7/15 (17.5)kV

THREE CORE - AL / XLPE / CTS / PVC SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Metallic screening	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
			Nominal thickness of copper tape			
mm^2		mm	mm	mm	mm	m/drum
16	c.c	4.5	0.1	2.3	40.4	1000
25	c.c	4.5	0.1	2.4	43.2	1000
35	c.c	4.5	0.1	2.5	45.7	1000
50	c.c	4.5	0.1	2.6	48.4	1000
70	c.c	4.5	0.1	2.7	52.1	1000
95	c.c	4.5	0.1	2.8	56.1	1000
120	c.c	4.5	0.1	2.9	59.4	1000
150	c.c	4.5	0.1	3.0	62.8	1000
185	c.c	4.5	0.1	3.1	66.7	500
240	c.c	4.5	0.1	3.3	72.2	500
300	c.c	4.5	0.1	3.4	77.1	500
400	c.c	4.5	0.1	3.7	83.6	500

Note : c.c – circular stranded compacted

THREE CORE - AL / XLPE / CTS / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per cable*			Maximum 3 phase voltage drop	Minimum charging current	Positive & negative sequence impedance at 25°C*	Zero sequence impedance at 25°C*
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Single Cable	Single Cable	Single Cable				
mm^2	A	A	A	mV/A/m	A/km	ohm/km	ohm/km
16	81	70	84	4.249	0.3098	1.9485 + j0.1417	3.5725 + j0.0981
25	104	90	110	2.675	0.3551	1.2243 + j0.1318	2.7357 + j0.0882
35	124	107	132	1.94	0.3935	0.8856 + j0.1252	2.3112 + j0.0816
50	146	127	158	1.438	0.4346	0.6541 + j0.1166	1.9969 + j0.0731
70	178	156	196	1.003	0.493	0.4523 + j0.1101	1.6912 + j0.0665
95	211	186	236	0.734	0.5532	0.3270 + j0.1048	1.4735 + j0.0612
120	241	213	273	0.589	0.6032	0.2588 + j0.1003	1.3377 + j0.0568
150	270	240	309	0.489	0.6114	0.2111 + j0.0974	1.2319 + j0.0507
185	306	272	355	0.401	0.7108	0.1685 + j0.0943	1.1252 + j0.0507
240	354	317	415	0.321	0.7907	0.1292 + j0.0904	1.0110 + j0.0468
300	399	360	475	0.272	0.8649	0.1043 + j0.0876	0.9258 + j0.0442
400	456	414	552	0.23	0.9582	0.0824 + j0.0850	0.8387 + j0.0415

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED UNARMOURED SHEATHED CABLE 12.7/22 (24)kV

THREE CORE - CU / XLPE / CTS / PVC SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Metallic screening	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
			Nominal thickness of copper tape			
mm^2		mm	mm	mm	mm	m/drum
35	c.c	5.5	0.1	2.6	50.1	1000
50	c.c	5.5	0.1	2.7	52.7	1000
70	c.c	5.5	0.1	2.8	56.5	1000
95	c.c	5.5	0.1	2.9	60.4	1000
120	c.c	5.5	0.1	3.0	63.7	1000
150	c.c	5.5	0.1	3.1	67.0	500
185	c.c	5.5	0.1	3.3	71.1	500
240	c.c	5.5	0.1	3.4	76.4	500
300	c.c	5.5	0.1	3.6	81.5	250
400	c.c	5.5	0.1	3.8	87.8	250

Note : c.c – circular stranded compacted

THREE CORE - CU / XLPE / CTS / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per cable*			Maximum 3 phase voltage drop	Minimum charging current	Positive & negative sequence impedance at 25°C*	Zero sequence impedance at 25°C*
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Single Cable	Single Cable	Single Cable				
mm^2	A	A	A	mV/A/m	A/km	ohm/km	ohm/km
35	159	138	170	1.18	0.5167	0.5345 + j0.1319	1.3214 + j0.0883
50	188	164	204	0.881	0.5681	0.3949 + j0.1230	1.1406 + j0.0794
70	230	201	253	0.626	0.6406	0.2738 + j0.1157	0.9674 + j0.0724
95	272	240	304	0.468	0.7164	0.1976 + j0.1102	0.8430 + j0.0666
120	310	275	351	0.386	0.7779	0.1571 + j0.1055	0.7678 + j0.0619
150	347	309	398	0.328	0.8385	0.1278 + j0.1022	0.7075 + j0.0587
185	392	349	455	0.28	0.9117	0.1029 + j0.0989	0.6488 + j0.0552
240	451	406	531	0.236	1.0116	0.0794 + j0.0946	0.5847 + j0.0511
300	509	459	606	0.21	1.1047	0.0646 + j0.0917	0.5368 + j0.0481
400	575	521	696	0.189	1.2184	0.0522 + j0.0887	0.4891 + j0.0452

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED UNARMOURED SHEATHED CABLE
12.7/22 (24)kV

THREE CORE - AL / XLPE / CTS / PVC SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Metallic screening	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
			Nominal thickness of copper tape			
mm^2		mm	mm	mm	mm	m/drum
35	c.c	5.5	0.1	2.6	50.2	1000
50	c.c	5.5	0.1	2.7	52.9	1000
70	c.c	5.5	0.1	2.8	56.6	1000
95	c.c	5.5	0.1	2.9	70.4	1000
120	c.c	5.5	0.1	3.0	63.9	1000
150	c.c	5.5	0.1	3.1	67.3	500
185	c.c	5.5	0.1	3.3	71.4	500
240	c.c	5.5	0.1	3.4	76.9	500
300	c.c	5.5	0.1	3.6	81.8	500
400	c.c	5.5	0.1	3.8	88.2	500

Note : c.c – circular stranded compacted

THREE CORE - AL / XLPE / CTS / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per cable*			Maximum 3 phase voltage drop	Minimum charging current	Positive & negative sequence impedance at 25°C*	Zero sequence impedance at 25°C*
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Single Cable	Single Cable	Single Cable				
mm^2	A	A	A	mV/A/m	A/km	ohm/km	ohm/km
35	124	107	132	1.941	0.5190	0.8856 + j0.1316	2.1733 + j0.0880
50	146	127	158	1.939	0.5708	0.8868 + j0.1227	12.1054 + j0.0791
70	178	156	196	1.004	0.6443	0.4522 + j0.1157	1.5857 + j0.0721
95	211	186	236	0.470	0.7164	0.1977 + j0.1102	1.2564 + j0.0666
120	241	213	273	0.592	0.7827	0.2588 + j0.1052	1.2568 + j0.0617
150	270	240	309	0.492	0.8428	0.2110 + j0.1020	1.1591 + j0.0585
185	306	272	355	0.404	0.9172	0.1648 + j0.0986	1.0610 + j0.0551
240	354	317	415	0.324	1.0171	0.1291 + j0.0944	0.9560 + j0.0509
300	399	360	475	0.275	1.1097	0.1041 + j0.0915	0.8779 + j0.0480
400	456	414	552	0.234	1.2260	0.0822 + j0.0885	0.7978 + j0.0450

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED UNARMOURED SHEATHED CABLE 19/33 (36)kV

THREE CORE - CU / XLPE / CTS / PVC SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Metallic screening	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
			Nominal thickness of copper tape			
mm^2		mm	mm	mm	mm	m/drum
50	c.c	8	0.1	3.1	64.3	1000
70	c.c	8	0.1	3.2	68.0	1000
95	c.c	8	0.1	3.3	72.0	1000
120	c.c	8	0.1	3.4	75.2	500
150	c.c	8	0.1	3.5	78.6	500
185	c.c	8	0.1	3.6	82.5	500
240	c.c	8	0.1	3.8	88.0	500
300	c.c	8	0.1	3.9	92.9	250
400	c.c	8	0.1	4.2	99.3	250

Note : c.c – circular stranded compacted

THREE CORE - CU / XLPE / CTS / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per cable*			Maximum 3 phase voltage drop	Minimum charging current	Positive & negative sequence impedance at 25°C*	Zero sequence impedance at 25°C*
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Single Cable	Single Cable	Single Cable				
mm^2	A	A	A	mV/A/m	A/km	ohm/km	ohm/km
50	188	164	204	0.887	0.6999	0.3949 + j0.1360	1.0012 + j0.0924
70	230	201	253	0.633	0.7814	0.2737 + j0.1282	0.8452 + j0.0846
95	272	240	304	0.476	0.8667	0.1975 + j0.1216	0.7358 + j0.0780
120	310	275	351	0.395	0.9353	0.1569 + j0.1163	0.6709 + j0.0728
150	347	309	398	0.338	1.0028	0.1276 + j0.1126	0.6194 + j0.0690
185	392	349	455	0.291	1.0840	0.1026 + j0.1088	0.5699 + j0.0651
240	451	406	531	0.248	1.1946	0.0790 + j0.1042	0.5163 + j0.0606
300	509	459	606	0.222	1.2975	0.0641 + j0.1007	0.4764 + j0.0571
400	575	521	696	0.201	1.4299	0.0516 + j0.0971	0.4376 + j0.0536

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED UNARMOURED SHEATHED CABLE
19/33 (36)kV

THREE CORE - AL / XLPE / CTS / PVC SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Metallic screening	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
			Nominal thickness of copper tape			
mm^2		mm	mm	mm	mm	m/drum
50	c.c	8	0.1	3.1	64.4	1000
70	c.c	8	0.1	3.2	68.2	1000
95	c.c	8	0.1	3.3	72.2	500
120	c.c	8	0.1	3.4	75.5	500
150	c.c	8	0.1	3.5	78.8	500
185	c.c	8	0.1	3.6	82.8	500
240	c.c	8	0.1	3.8	88.3	500
300	c.c	8	0.1	3.9	93.2	250
400	c.c	8	0.1	4.2	99.7	250

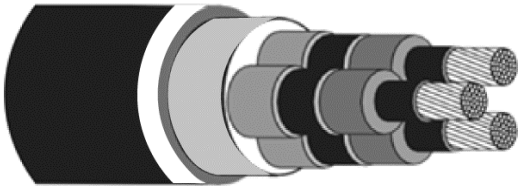
Note : c.c – circular stranded compacted

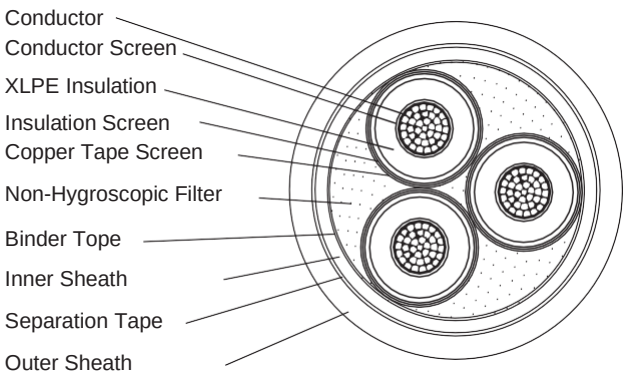
THREE CORE - AL / XLPE / CTS / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per cable*			Maximum 3 phase voltage drop	Minimum charging current	Positive & negative sequence impedance at 25°C*	Zero sequence impedance at 25°C*
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Single Cable	Single Cable	Single Cable				
mm^2	A	A	A	mV/A/m	A/km	ohm/km	ohm/km
50	146	127	158	1.443	0.703	0.6541 + j0.1356	1.6464 + j0.0921
70	178	156	196	1.009	0.7856	0.4522 + j0.1286	1.3750 + j0.0805
95	211	186	236	0.742	0.8705	0.3269 + j0.1213	1.2077 + j0.0778
120	241	213	273	0.597	0.9406	0.2587 + j0.1160	1.0991 + j0.0725
150	270	240	309	0.498	1.0076	0.2109 + j0.1123	1.0156 + j0.0688
185	306	272	355	0.411	1.0901	0.1683 + j0.1048	0.9326 + j0.0648
240	354	317	415	0.332	1.2007	0.1289 + j0.1035	0.8446 + j0.0600
300	399	360	475	0.284	1.3031	0.1038 + j0.1001	0.7794 + j0.0565
400	456	414	552	0.244	1.4313	0.1020 + j0.0965	0.7331 + j0.0529

*Note : Electrical properties are calculated base on conditions in Appendix B.

THREE CORE – XLPE INSULATED UNARMOURED SHEATHED FOR VOLTAGES 11Kv TO IEC 60502-2





DESCRIPTION

Circular compacted stranded aluminium conductor, cross-linked polyethylene, copper tape screened, lay up core together non-hygroscopic polypropylene fillers, extruded with MDPE sheath and extruded outer sheath made from MDPE. Complies with Tenaga Nasional Berhad (TNB) specification.

CONSTRUCTION

Conductor
Aluminium (Al) conductor conform to class 2 in IEC 60228.

Conductor screen
An extruded thin layer of semi-conductive compound as a 1st layer by triple extrusion process.

Insulation
An extruded layer of cross-linked polyethylene (XLPE) compound as a 2nd layer by triple extrusion process.

Insulation screen
An extruded thin layer of semi-conductive compound as a 3rd layer by triple extrusion process.

Metallic screen
Two layers of copper tape (CTS) helically wrap with overlap laid over insulation screen.

Colour of core Identification
Red, yellow and blue shall be applied over insulation screen.

Lay Up Cores
Three screened core are laid up together, if necessary filled with non hygroscopic material compatible with insulation and covered with a layer of inner sheath.

Inner Sheath
Extruded layer made from black PE compound.

Non-Conductor Binder Tape
A layer of non-conductive tape helically wrap with overlap laid over inner sheath.

Outer sheath
Extruded layer made from black PE (ST-7) compound. Additive like Anti-termite repellent, anti-rodent or different outer sheath colour are available upon request.

XLPE INSULATED UNARMOURED SHEATHED CABLE 6.35/11 (12)kV

THREE CORE - AL / XLPE / CTS / MDPE /MDPE SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Metallic screening	Nominal thickness of inner sheath	Nominal thickness of sheath	Approximate overall diameter
			Nominal thickness of copper tape			
mm^2		mm	mm x n	mm	mm	mm
16	c.c	3.4	0.1 x 2	2.2	2.2	41.3
25	c.c	3.4	0.1 x 2	2.2	2.2	43.9
35	c.c	3.4	0.1 x 2	2.2	2.3	46.4
50	c.c	3.4	0.1 x 2	2.2	2.4	49.1
70	c.c	3.4	0.1 x 2	2.2	2.5	52.9
95#	c.c	3.4	0.1 x 2	2.2	2.7	57.0
120	c.c	3.4	0.1 x 2	2.2	2.8	60.3
150#	c.c	3.4	0.1 x 2	2.2	2.9	63.8
185	c.c	3.4	0.1 x 2	2.2	3.0	67.5
240#	c.c	3.4	0.1 x 2	2.2	3.2	73.2
300	c.c	3.4	0.1 x 2	2.2	3.3	77.9
400	c.c	3.4	0.1 x 2	2.2	3.5	84.2

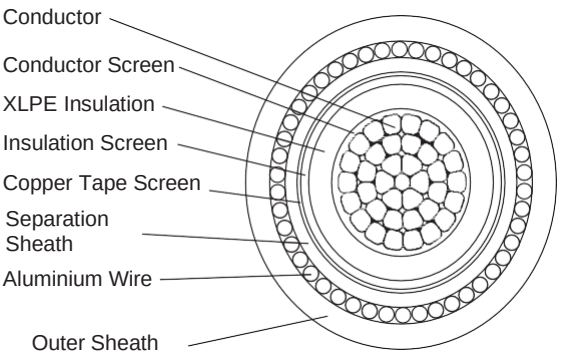
Note : c.c – circular stranded compacted

THREE CORE - AL / XLPE / CTS / MDPE / MDPE SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per cable*			Maximum 3 phase voltage drop	Minimum charging current	Positive & negative sequence impedance at 25°C*	Zero sequence impedance at 25°C*
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Single Cable	Single Cable	Single Cable				
mm^2	A	A	A	mV/A/m	A/km	ohm/km	ohm/km
16	81	70	84	4.248	0.2802	1.9485 + j0.1339	10.9657 + j0.5580
25	104	90	110	2.673	0.3255	1.2243 + j0.1246	9.5408 + j0.5732
35	124	107	132	1.953	0.3184	0.8857 + j0.1184	8.6761 + j0.5856
50	146	127	158	1.435	0.4059	0.6542 + j0.1103	7.9443 + j0.5981
70	178	156	196	1.000	0.4653	0.4524 + j0.1042	7.1240 + j0.6148
95#	211	186	236	0.732	0.5268	0.3270 + j0.0944	6.4567 + j0.6307
120	241	213	273	0.584	0.5866	0.2589 + j0.0953	5.9977 + j0.0517
150#	270	240	309	0.486	0.6274	0.2113 + j0.6544	5.6171 + j0.6544
185	306	272	355	0.398	0.6886	0.1686 + j0.0898	5.2110 + j0.0462
240#	354	317	415	0.318	0.771	0.1294 + j0.0863	4.7517 + j0.6839
300	399	360	475	0.268	0.8476	0.1044 + j0.0839	4.3936 + j0.6980
400	456	414	552	0.227	0.9439	0.0829 + j0.0781	4.0144 + j0.7143

*Note : Electrical properties are calculated base on conditions in Appendix B.
#Note : TNB specification.

SINGLE CORE – XLPE INSULATED ARMOURED SHEATHED CABLE FOR VOLTAGES 6.6kV UP TO AND INCLUDING 33kV TO IEC 60502-2



DESCRIPTION

Circular compacted stranded copper or aluminium conductor, cross-linked polyethylene, with copper tape or copper wire or aluminium wire screen, covered with extruded separation sheath, armored and extruded outer sheath made from PE or PVC.

CONSTRUCTION

Conductor
Plain circular compacted stranded copper (Cu) or aluminium (Al) conductor conform to class 2 in IEC 60228.

Conductor screen
An extruded thin layer of semi-conductive compound as a 1st layer by triple extrusion process.

Insulation
An extruded layer of cross-linked polyethylene (XLPE) compound as a 2nd layer by triple extrusion process.

Insulation screen
An extruded thin layer of semi-conductive compound as a 3rd layer by triple extrusion process.

Semi-conductive tape
Applied under copper wire screen or aluminium wire screen when requested by purchaser
A layer of helically wrap semi-conductive water blocking tape with overlap laid over insulation screen.

Metallic screen
1 or 2 layer(s) of Copper tape (CTS) helically wrap with overlap laid over insulation screen or numbers of copper wires (CWS) or numbers of aluminium wires (AWS) laid over semi-conductive tape. An equalizing copper tape with open helically wrap and metallic screen construction base on customer's earth fault current requirement are available upon request.

Binder tape
Applied when necessary
A layer of non-conductive or semi-conductive tape helically wrap with overlap laid over metallic screen.

Separation Sheath
Extruded layer made from black PVC or PE compound. Additive like Anti-termite repellent, anti-rodent or different separation sheath colour are available upon request.

SINGLE CORE – XLPE INSULATED ARMOURED SHEATHED CABLE FOR VOLTAGES 6.6kV UP TO AND INCLUDING 33kV TO IEC 60502-2

Armour
Aluminium Wires shall be applied helically over the separation sheath

Non-conductive binder tape
A layer of non-conductive tape helically wrap with overlap laid over armour when necessary.

Outer sheath
Extruded layer made from black PVC (ST-2) or PE (ST-7) compound. Additive like Anti-termite repellent, anti-rodent or different outer sheath colour are available upon request.

XLPE INSULATED ARMOURED SHEATHED CABLE
3.8/6.6 (7.2)kV

SINGLE CORE - AL / XLPE / CTS / PVC / AWA / PVC SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Metallic screening	Nominal thickness of separation sheath	Armouring wire diameter	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
			Nominal thickness of copper tape					
mm^2	mm	mm	mm	mm	mm	mm	mm	m/drum
16	c.c	2.5	0.1	1.2	1.6	1.8	22.3	1000
25	c.c	2.5	0.1	1.2	1.6	1.8	23.5	1000
35	c.c	2.5	0.1	1.2	1.6	1.8	24.6	1000
50	c.c	2.5	0.1	1.2	1.6	1.8	25.8	1000
70	c.c	2.5	0.1	1.2	1.6	1.8	27.4	1000
95	c.c	2.5	0.1	1.2	1.6	1.9	29.4	1000
120	c.c	2.5	0.1	1.2	1.6	1.9	30.8	1000
150	c.c	2.5	0.1	1.2	1.6	2.0	32.4	1000
185	c.c	2.5	0.1	1.2	2.0	2.1	35.0	1000
240	c.c	2.6	0.1	1.2	2.0	2.1	37.7	1000
300	c.c	2.8	0.1	1.2	2.0	2.2	40.5	1000
400	c.c	3	0.1	1.2	2.0	2.3	43.9	1000
500	c.c	3.2	0.1	1.3	2.5	2.5	49	1000
630	c.c	3.2	0.1	1.4	2.5	2.6	53	1000

Note : c.c – circular stranded compacted

SINGLE CORE - AL / XLPE / CTS / PVC / AWA / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per cable*			Maximum 3 phase voltage drop	Minimum charging current	Positive & negative sequence impedance at 25°C*	Zero sequence impedance at 25°C*
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Trefoil	Trefoil	Trefoil				
mm^2	A	A	A	mV/A/m	A/km	ohm/km	ohm/km
16	81	70	83	4.251	0.1768	1.9485 + j0.1612	8.3900 + j0.0805
25	104	90	109	2.678	0.2060	1.2243 + j0.1501	7.0912 + j0.0721
35	124	107	131	1.944	0.2309	0.8856 + j0.1426	6.3286 + j0.0665
50	146	127	157	1.443	0.2578	0.6541 + j0.1359	5.7014 + j0.0617
70	178	156	195	1.008	0.2962	0.4522 + j0.1255	5.0201 + j0.0536
95	211	186	235	0.741	0.336	0.3269 + j0.1196	4.4833 + j0.0493
120	241	213	271	0.597	0.3292	0.2587 + j0.1143	4.1233 + j0.0456
150	270	240	307	0.497	0.4011	0.2109 + j0.1111	3.8301 + j0.0433
185	306	272	353	0.411	0.4407	0.1682 + j0.1090	3.5228 + j0.0410
240	354	317	413	0.333	0.483	0.1288 + j0.1045	3.1585 + j0.0384
300	399	360	472	0.286	0.5093	0.1033 + j0.1019	2.8619 + j0.0372
400	456	414	549	0.246	0.543	0.0816 + j0.0991	2.5679 + j0.0359
500	529	481	637	0.219	0.5803	0.0646 + j0.0982	2.3072 + j0.0346
630	616	559	742	0.198	0.6488	0.0517 + j0.0951	2.0875 + j0.0327

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED ARMOURED SHEATHED CABLE
3.8/6.6 (7.2)kV

SINGLE CORE - CU / XLPE / CTS / PVC / AWA / PVC SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Metallic screening	Nominal thickness of separation sheath	Armouring wire diameter	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
			Nominal thickness of copper tape					
mm^2		mm	mm	mm	mm	mm	mm	m/drum
16	c.c	2.5	0.1	1.2	1.6	1.8	22.3	1000
25	c.c	2.5	0.1	1.2	1.6	1.8	23.5	1000
35	c.c	2.5	0.1	1.2	1.6	1.8	24.6	1000
50	c.c	2.5	0.1	1.2	1.6	1.8	25.7	1000
70	c.c	2.5	0.1	1.2	1.6	1.8	27.4	1000
95	c.c	2.5	0.1	1.2	1.6	1.9	29.3	1000
120	c.c	2.5	0.1	1.2	1.6	1.9	30.7	1000
150	c.c	2.5	0.1	1.2	1.6	2.0	32.3	1000
185	c.c	2.5	0.1	1.2	2.0	2.1	35.0	1000
240	c.c	2.5	0.1	1.2	2.0	2.1	37.6	1000
300	c.c	2.5	0.1	1.2	2.0	2.2	40.8	1000
400	c.c	2.5	0.1	1.2	2.0	2.3	43.7	1000
500	c.c	2.5	0.1	1.3	2.5	2.5	48.7	500
630	c.c	2.5	0.1	1.4	2.5	2.6	52.7	500

Note : c.c – circular stranded compacted

SINGLE CORE - CU / XLPE / CTS / PVC / AWA / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per cable*			Maximum 3 phase voltage drop	Minimum charging current	Positive & negative sequence impedance at 25°C*	Zero sequence impedance at 25°C*
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Trefoil	Trefoil	Trefoil				
mm^2	A	A	A	mV/A/m	A/km	ohm/km	ohm/km
16	113	107	124	2.555	0.1774	1.1727 + j0.1611	5.1147 + j0.0803
25	146	137	162	1.627	0.2050	0.7414 + j0.1505	4.3290 + j0.0723
35	173	163	196	1.184	0.2298	0.5345 + j0.1429	3.8644 + j0.0667
50	204	193	236	0.886	0.2564	0.3949 + j0.1335	3.4839 + j0.0591
70	249	236	293	0.631	0.2941	0.2737 + j0.1259	3.0731 + j0.0538
95	296	282	358	0.475	0.3342	0.1975 + j0.1198	2.7421 + j0.0495
120	336	320	413	0.393	0.3667	0.1569 + j0.1147	2.5256 + j0.0458
150	375	357	469	0.336	0.3988	0.1276 + j0.1113	2.3440 + j0.0435
185	422	402	538	0.291	0.4378	0.1026 + j0.1093	2.1586 + j0.0411
240	488	465	635	0.248	0.4802	0.0790 + j0.1047	1.9347 + j0.0385
300	547	524	728	0.224	0.4855	0.0640 + j0.1027	1.7287 + j0.0382
400	614	587	837	0.204	0.5394	0.0515 + j0.0993	1.5748 + j0.0360
500	707	676	965	0.192	0.5760	0.0417 + j0.0984	1.4166 + j0.0347
630	815	780	1113	0.180	0.6446	0.0344 + j0.0953	1.2811 + j0.0328

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED ARMOURED SHEATHED CABLE
6.35/11 (12)kV

SINGLE CORE - AL / XLPE / CTS / PVC / AWA / PVC SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Metallic screening	Nominal thickness of separation sheath	Armouring wire diameter	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
			Nominal thickness of copper tape					
mm^2		mm	mm	mm	mm	mm	mm	m/drum
16	c.c	3.4	0.1	1.2	1.6	1.8	24.2	1000
25	c.c	3.4	0.1	1.2	1.6	1.8	25.4	1000
35	c.c	3.4	0.1	1.2	1.6	1.8	26.4	1000
50	c.c	3.4	0.1	1.2	1.6	1.8	27.6	1000
70	c.c	3.4	0.1	1.2	1.6	1.9	29.5	1000
95	c.c	3.4	0.1	1.2	1.6	1.9	31.2	1000
120	c.c	3.4	0.1	1.2	2.0	2.0	33.6	1000
150	c.c	3.4	0.1	1.2	2.0	2.1	35.2	1000
185	c.c	3.4	0.1	1.2	2.0	2.1	37.0	1000
240	c.c	3.4	0.1	1.2	2.0	2.2	39.5	1000
300	c.c	3.4	0.1	1.2	2.0	2.3	41.9	1000
400	c.c	3.4	0.1	1.3	2.5	2.4	46.1	1000
500	c.c	3.4	0.1	1.3	2.5	2.5	49.4	1000
630	c.c	3.4	0.1	1.4	2.5	2.6	53.4	1000

Note : c.c – circular stranded compacted

SINGLE CORE - AL / XLPE / CTS / PVC / AWA / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per cable*			Maximum 3 phase voltage drop	Minimum charging current	Positive & negative sequence impedance at 25°C*	Zero sequence impedance at 25°C*
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Trefoil	Trefoil	Trefoil				
mm^2	A	A	A	mV/A/m	A/km	ohm/km	ohm/km
16	81	70	83	4.257	0.2659	1.9485 + j0.1661	7.5756 + j0.0891
25	104	90	109	2.678	0.2968	1.2243 + j0.1548	6.4059 + j0.0799
35	124	107	131	1.945	0.3308	0.8856 + j0.1470	5.7337 + j0.0738
50	146	127	157	1.443	0.3673	0.6541 + j0.1374	5.1857 + j0.0657
70	178	156	195	1.010	0.4194	0.4522 + j0.1299	4.5936 + j0.0597
95	211	186	235	0.743	0.4732	0.3269 + j0.1233	4.1272 + j0.0549
120	241	213	271	0.600	0.5181	0.2586 + j0.1198	3.1836 + j0.0509
150	270	240	307	0.501	0.5612	0.2108 + j0.1163	3.5571 + j0.0483
185	306	272	353	0.419	0.6145	0.1682 + j0.1122	3.2869 + j0.0455
240	354	317	413	0.344	0.5136	0.1286 + j0.1159	2.9850 + j0.0506
300	399	360	472	0.288	0.8476	0.1037 + j0.1041	2.7521 + j0.0398
400	456	414	549	0.249	0.8371	0.0815 + j0.1021	2.5074 + j0.0374
500	529	481	637	0.220	0.9307	0.0646 + j0.0987	2.2823 + j0.0353
630	616	559	742	0.199	1.0398	0.0516 + j0.0956	2.0669 + j0.0333

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED ARMOURED SHEATHED CABLE
6.35/11 (12)kV

SINGLE CORE - CU / XLPE / CTS / PVC / AWA / PVC SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Metallic screening	Nominal thickness of separation sheath	Armouring wire diameter	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
			Nominal thickness of copper tape					
mm^2		mm	mm	mm	mm	mm	mm	m/drum
16	c.c	3.4	0.1	1.2	1.6	1.8	24.1	1000
25	c.c	3.4	0.1	1.2	1.6	1.8	25.3	1000
35	c.c	3.4	0.1	1.2	1.6	1.8	26.4	1000
50	c.c	3.4	0.1	1.2	1.6	1.8	27.5	1000
70	c.c	3.4	0.1	1.2	1.6	1.9	29.4	1000
95	c.c	3.4	0.1	1.2	1.6	1.9	31.1	1000
120	c.c	3.4	0.1	1.2	2.0	2.0	33.5	1000
150	c.c	3.4	0.1	1.2	2.0	2.1	35.1	1000
185	c.c	3.4	0.1	1.2	2.0	2.1	36.8	1000
240	c.c	3.4	0.1	1.2	2.0	2.2	39.4	1000
300	c.c	3.4	0.1	1.2	2.0	2.3	41.8	1000
400	c.c	3.4	0.1	1.3	2.5	2.4	45.9	1000
500	c.c	3.4	0.1	1.3	2.5	2.5	49.1	500
630	c.c	3.4	0.1	1.4	2.5	2.6	53.1	500

Note : c.c – circular stranded compacted

SINGLE CORE - CU / XLPE / CTS / PVC / AWA / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per cable*			Maximum 3 phase voltage drop	Minimum charging current	Positive & negative sequence impedance at 25°C*	Zero sequence impedance at 25°C*
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Trefoil	Trefoil	Trefoil				
mm^2	A	A	A	mV/A/m	A/km	ohm/km	ohm/km
16	113	107	124	2.556	0.256	1.1727 + j0.1665	4.6132 + j0.0894
25	146	137	162	1.628	0.296	0.7414 + j0.1551	3.9088 + j0.0801
35	173	163	196	1.185	0.329	0.5345 + j0.1474	3.4493 + j0.0740
50	204	193	236	0.887	0.365	0.3949 + j0.1377	3.1672 + j0.0659
70	249	236	293	0.634	0.417	0.2737 + j0.1303	2.8105 + j0.0600
95	296	282	358	0.478	0.471	0.1975 + j0.1236	2.5232 + j0.0551
120	336	320	413	0.398	0.515	0.1569 + j0.1201	2.3348 + j0.0511
150	375	357	469	0.342	0.552	0.1276 + j0.1166	2.1761 + j0.0484
185	422	402	538	0.295	0.611	0.1025 + j0.1125	2.0133 + j0.0457
240	488	465	635	0.252	0.682	0.0789 + j0.1076	1.8279 + j0.0422
300	547	524	728	0.226	0.750	0.0639 + j0.1042	1.6843 + j0.0399
400	614	587	837	0.208	0.832	0.0513 + j0.1024	1.5375 + j0.0376
500	707	676	965	0.192	0.929	0.0417 + j0.0990	1.4012 + j0.0354
630	815	780	1113	0.180	1.033	0.0343 + j0.0958	1.2684 + j0.0334

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED ARMOURED SHEATHED CABLE
8.7/15 (17.5)kV

SINGLE CORE - AL / XLPE / CTS / PVC / AWA / PVC SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Metallic screening	Nominal thickness of separation sheath	Armouring wire diameter	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
			Nominal thickness of copper tape					
mm^2		mm	mm	mm	mm	mm	mm	m/drum
25	c.c	4.5	0.1	1.2	1.6	1.8	27.6	1000
35	c.c	4.5	0.1	1.2	1.6	1.9	28.8	1000
50	c.c	4.5	0.1	1.2	1.6	1.9	30.0	1000
70	c.c	4.5	0.1	1.2	1.6	2.0	31.9	1000
95	c.c	4.5	0.1	1.2	2.0	2.0	34.4	1000
120	c.c	4.5	0.1	1.2	2.0	2.1	36.0	1000
150	c.c	4.5	0.1	1.2	2.0	2.1	37.4	1000
185	c.c	4.5	0.1	1.2	2.0	2.2	39.4	1000
240	c.c	4.5	0.1	1.2	2.0	2.3	41.9	1000
300	c.c	4.5	0.1	1.2	2.0	2.3	44.1	1000
400	c.c	4.5	0.1	1.3	2.5	2.5	48.5	1000
500	c.c	4.5	0.1	1.4	2.5	2.6	52.0	1000
630	c.c	4.5	0.1	1.4	2.5	2.7	55.8	1000

Note : c.c – circular stranded compacted

SINGLE CORE - AL / XLPE / CTS / PVC / AWA / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per cable*			Maximum 3 phase voltage drop	Minimum charging current	Positive & negative sequence impedance at 25°C*	Zero sequence impedance at 25°C*
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Trefoil	Trefoil	Trefoil				
mm^2	A	A	A	mV/A/m	A/km	ohm/km	ohm/km
25	104	90	109	2.679	0.3551	1.2243 + j0.1600	5.7585 + j0.0882
35	124	107	131	1.946	0.3935	0.8856 + j0.1525	5.1624 + j0.0816
50	146	127	157	0.528	0.4346	0.2147 + j0.1427	4.2433 + j0.0731
70	178	156	195	1.011	0.4930	0.4522 + j0.1348	4.1695 + j0.0665
95	211	186	235	0.746	0.5532	0.3268 + j0.1294	3.7670 + j0.0612
120	241	213	271	0.602	0.6029	0.2586 + j0.1241	3.4964 + j0.0568
150	270	240	307	0.053	0.6513	0.2108 + j0.1201	3.2746 + j0.0538
185	306	272	353	0.417	0.7108	0.1682 + j0.1161	3.0400 + j0.0507
240	354	317	413	0.339	0.7907	0.1278 + j0.1111	2.7765 + j0.0468
300	399	360	472	0.291	0.8649	0.1036 + j0.1073	2.5718 + j0.0442
400	456	414	549	0.253	0.9582	0.0814 + j0.1053	2.3553 + j0.0415
500	529	481	637	0.224	1.0619	0.0644 + j0.1019	2.1544 + j0.0390
630	616	559	742	0.202	1.1830	0.0514 + j0.0984	1.9607 + j0.0367

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED ARMOURED SHEATHED CABLE
8.7/15 (17.5)kV

SINGLE CORE - CU / XLPE / CTS / PVC / AWA / PVC SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Metallic screening	Nominal thickness of separation sheath	Armouring wire diameter	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
			Nominal thickness of copper tape					
mm^2		mm	mm	mm	mm	mm	mm	m/drum
25	c.c	4.5	0.1	1.2	1.6	1.8	27.5	1000
35	c.c	4.5	0.1	1.2	1.6	1.9	28.8	1000
50	c.c	4.5	0.1	1.2	1.6	1.9	29.9	1000
70	c.c	4.5	0.1	1.2	1.6	2.0	31.8	1000
95	c.c	4.5	0.1	1.2	2.0	2.0	34.3	1000
120	c.c	4.5	0.1	1.2	2.0	2.1	35.9	1000
150	c.c	4.5	0.1	1.2	2.0	2.1	37.3	1000
185	c.c	4.5	0.1	1.2	2.0	2.2	39.2	1000
240	c.c	4.5	0.1	1.2	2.0	2.3	41.8	1000
300	c.c	4.5	0.1	1.2	2.0	2.3	44.0	1000
400	c.c	4.5	0.1	1.3	2.5	2.5	48.3	1000
500	c.c	4.5	0.1	1.4	2.5	2.6	51.7	500
630	c.c	4.5	0.1	1.4	2.5	2.7	55.5	500

Note : c.c – circular stranded compacted

SINGLE CORE - CU / XLPE / CTS / PVC / AWA / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per cable*			Maximum 3 phase voltage drop	Minimum charging current	Positive & negative sequence impedance at 25°C*	Zero sequence impedance at 25°C*
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Trefoil	Trefoil	Trefoil				
mm^2	A	A	A	mV/A/m	A/km	ohm/km	ohm/km
25	146	137	162	1.630	0.3536	0.7414 + j0.1603	3.5122 + j0.0885
35	173	163	196	1.187	0.3197	0.5345 + j0.5128	3.1490 + j0.0819
50	204	193	236	0.890	0.4324	0.3949 + j0.1430	2.8586 + j0.0734
70	249	236	293	0.637	0.4899	0.2737 + j0.1532	2.5496 + j0.0668
95	296	282	358	0.483	0.5504	0.1974 + j0.1297	2.3020 + j0.0614
120	336	320	413	0.402	0.5995	0.1568 + j0.1245	2.1396 + j0.0570
150	375	357	469	0.345	0.6479	0.1275 + j0.1204	2.0024 + j0.0540
185	422	402	538	0.299	0.7063	0.1024 + j0.1164	1.8613 + j0.0509
240	488	465	635	0.257	0.7863	0.0788 + j0.1113	1.6996 + j0.0470
300	547	524	728	0.231	0.8609	0.0638 + j0.1075	1.5763 + j0.0443
400	614	587	837	0.213	0.9521	0.0511 + j0.1056	1.4437 + j0.0417
500	707	676	965	0.197	1.0542	0.0414 + j0.1022	1.3223 + j0.0392
630	815	780	1113	0.185	1.1756	0.0341 + j0.0986	1.2029 + j0.0368

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED ARMOURED SHEATHED CABLE
12.7/22 (24)kV

SINGLE CORE - AL / XLPE / CTS / PVC / AWA / PVC SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Metallic screening	Nominal thickness of separation sheath	Armouring wire diameter	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
			Nominal thickness of copper tape					
mm^2		mm	mm	mm	mm	mm	mm	m/drum
35	c.c	5.5	0.1	1.2	1.6	1.9	30.8	1000
50	c.c	5.5	0.1	1.2	1.6	2.0	32.2	1000
70	c.c	5.5	0.1	1.2	2.0	2.1	34.9	1000
95	c.c	5.5	0.1	1.2	2.0	2.1	36.6	1000
120	c.c	5.5	0.1	1.2	2.0	2.2	38.2	1000
150	c.c	5.5	0.1	1.2	2.0	2.2	39.6	1000
185	c.c	5.5	0.1	1.2	2.0	2.3	41.6	1000
240	c.c	5.5	0.1	1.2	2.0	2.3	43.9	1000
300	c.c	5.5	0.1	1.3	2.5	2.5	47.7	1000
400	c.c	5.5	0.1	1.3	2.5	2.6	50.7	1000
500	c.c	5.5	0.1	1.4	2.5	2.7	54.2	1000
630	c.c	5.5	0.1	1.5	2.5	2.8	58.2	1000

Note : c.c – circular stranded compacted

SINGLE CORE - AL / XLPE / CTS / PVC / AWA / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per cable*			Maximum 3 phase voltage drop	Minimum charging current	Positive & negative sequence impedance at 25°C*	Zero sequence impedance at 25°C*
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Trefoil	Trefoil	Trefoil				
mm^2	A	A	A	mV/A/m	A/km	ohm/km	ohm/km
35	124	107	131	1.947	0.5190	0.8856 + j0.1567	4.7486 + j0.0880
50	146	127	157	1.446	0.5708	0.6541 + j0.1471	4.3135 + j0.0791
70	178	156	195	1.014	0.6443	0.4522 + j0.1405	3.8528 + j0.0721
95	211	186	235	0.748	0.7199	0.3268 + j0.1333	3.4940 + j0.0664
120	241	213	271	0.065	0.7827	0.2586 + j0.1279	3.2535 + j0.0617
150	270	240	307	0.506	0.8428	0.2108 + j0.1237	3.0562 + j0.0585
185	306	272	353	0.420	0.9172	0.1681 + j0.1195	2.8473 + j0.0551
240	354	317	413	0.342	1.0171	0.1287 + j0.1140	2.6118 + j0.0509
300	399	360	472	0.297	1.1097	0.1035 + j0.1122	2.4281 + j0.0480
400	456	414	549	0.257	1.2260	0.0813 + j0.1081	2.2326 + j0.0450
500	529	481	637	0.228	1.3554	0.0643 + j0.1045	2.0503 + j0.0422
630	616	559	742	0.206	1.630	0.0513 + j0.1010	1.1621 + j0.0396

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED ARMOURED SHEATHED CABLE
12.7/22 (24)kV

SINGLE CORE - CU / XLPE / CTS / PVC / AWA / PVC SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Metallic screening: Nominal thickness of copper tape	Nominal thickness of separation sheath	Armouring wire diameter	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
mm^2		mm	mm	mm	mm	mm	mm	m/drum
35	c.c	5.5	0.1	1.2	1.6	1.9	30.8	1000
50	c.c	5.5	0.1	1.2	1.6	2	32.1	1000
70	c.c	5.5	0.1	1.2	2	2.1	34.8	1000
95	c.c	5.5	0.1	1.2	2	2.1	36.5	1000
120	c.c	5.5	0.1	1.2	2	2.2	38.1	1000
150	c.c	5.5	0.1	1.2	2	2.2	39.5	1000
185	c.c	5.5	0.1	1.2	2	2.3	41.4	1000
240	c.c	5.5	0.1	1.2	2	2.3	43.8	1000
300	c.c	5.5	0.1	1.3	2.5	2.5	47.6	1000
400	c.c	5.5	0.1	1.3	2.5	2.6	50.5	1000
500	c.c	5.5	0.1	1.4	2.5	2.7	53.9	500
630	c.c	5.5	0.1	1.5	2.5	2.8	57.9	500

Note : c.c – circular stranded compacted

SINGLE CORE - CU / XLPE / CTS / PVC / AWA / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per cable*			Maximum 3 phase voltage drop	Minimum charging current	Positive & negative sequence impedance at 25°C*	Zero sequence impedance at 25°C*
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Trefoil	Trefoil	Trefoil				
mm^2	A	A	A	mV/A/m	A/km	ohm/km	ohm/km
35	173	163	196	1.189	0.5167	0.5345 + j0.1571	2.8954 + j0.0883
50	204	193	236	0.892	0.5681	0.3949 + j0.1475	2.6321 + j0.0794
70	249	236	293	0.647	0.6404	0.2737 + j0.1409	2.3550 + j0.0724
95	296	282	358	0.486	0.7164	0.1974 + j0.1336	2.1345 + j0.0666
120	336	320	413	0.405	0.7779	0.1568 + j0.1282	1.9902 + j0.0619
150	375	357	469	0.349	0.8385	0.1275 + j0.1240	1.8683 + j0.0578
185	422	402	538	0.303	0.9117	0.1024 + j0.1199	1.7427 + j0.0553
240	488	465	635	0.260	1.0116	0.0787 + j0.1143	1.4853 + j0.0481
300	547	524	728	0.238	1.1047	0.0636 + j0.1124	1.4835 + j0.0481
400	614	587	837	0.217	1.2184	0.0510 + j0.1084	1.3682 + j0.0452
500	707	676	965	0.201	1.3457	0.0413 + j0.1048	1.2580 + j0.0424
630	815	780	1113	0.189	1.4969	0.0339 + j0.1012	1.1491 + j0.0398

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED ARMOURED SHEATHED CABLE
19/33 (36)kV

SINGLE CORE - AL / XLPE / CTS / PVC / AWA / PVC SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Metallic screening	Nominal thickness of separation sheath	Armouring wire diameter	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
			Nominal thickness of copper tape					
mm^2		mm	mm	mm	mm	mm	mm	m/drum
50	c.c	8.0	0.1	1.2	2.0	2.2	38.4	1000
70	c.c	8.0	0.1	1.2	2.0	2.2	40.1	1000
95	c.c	8.0	0.1	1.2	2.0	2.3	42.0	1000
120	c.c	8.0	0.1	1.2	2.0	2.3	43.4	1000
150	c.c	8.0	0.1	1.3	2.5	2.4	46.2	1000
185	c.c	8.0	0.1	1.3	2.5	2.5	48.2	1000
240	c.c	8.0	0.1	1.3	2.5	2.6	50.7	1000
300	c.c	8.0	0.1	1.4	2.5	2.5	53.1	1000
400	c.c	8.0	0.1	1.4	2.5	2.7	56.1	1000
500	c.c	8.0	0.1	1.5	2.5	2.8	59.6	1000
630	c.c	8.0	0.1	1.6	2.5	3.0	63.8	500

Note : c.c – circular stranded compacted

SINGLE CORE - AL / XLPE / CTS / PVC / AWA / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per cable*			Maximum 3 phase voltage drop	Minimum charging current	Positive & negative sequence impedance at 25°C*	Zero sequence impedance at 25°C*
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Trefoil	Trefoil	Trefoil				
mm^2	A	A	A	mV/A/m	A/km	ohm/km	ohm/km
50	146	127	157	1.451	0.7030	0.6541 + j0.1609	3.6312 + j0.0949
70	178	156	195	1.017	0.7859	0.4522 + j0.1492	3.2258 + j0.0842
95	211	186	235	0.752	0.8705	0.3268 + j0.1420	2.9698 + j0.0778
120	241	213	271	0.610	0.9841	0.2585 + j0.1359	2.7805 + j0.0725
150	270	240	307	0.513	1.0076	0.2107 + j0.1334	2.6258 + j0.0688
185	306	272	353	0.428	1.0901	0.1680 + j0.1288	2.4623 + j0.0648
240	354	317	413	0.351	1.2007	0.1285 + j0.1231	2.2775 + j0.0600
300	399	360	472	0.304	1.3031	0.1033 + j0.1189	2.1325 + j0.0565
400	456	414	549	0.265	1.4313	0.0812 + j0.1145	1.9770 + j0.0529
500	529	481	637	0.236	1.5736	0.0641 + j0.1105	1.8304 + j0.0496
630	616	559	742	0.215	1.7392	0.0510 + j0.1068	1.6864 + j0.0464

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED ARMOURED SHEATHED CABLE
19/33 (36)kV

SINGLE CORE - CU / XLPE / CTS / PVC / AWA / PVC SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Metallic screening	Nominal thickness of separation sheath	Armouring wire diameter	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
			Nominal thickness of copper tape					
mm^2		mm	mm	mm	mm	mm	mm	m/drum
50	c.c	8	0.1	1.2	2.0	2.2	38.3	1000
70	c.c	8	0.1	1.2	2.0	2.2	40.0	1000
95	c.c	8	0.1	1.2	2.0	2.3	41.9	1000
120	c.c	8	0.1	1.2	2.0	2.3	43.3	1000
150	c.c	8	0.1	1.3	2.5	2.4	46.1	1000
185	c.c	8	0.1	1.3	2.5	2.5	48.0	1000
240	c.c	8	0.1	1.3	2.5	2.6	50.6	1000
300	c.c	8	0.1	1.4	2.5	2.6	53.0	1000
400	c.c	8	0.1	1.4	2.5	2.7	55.9	500
500	c.c	8	0.1	1.5	2.5	2.8	59.3	500
630	c.c	8	0.1	1.6	2.5	3.0	63.5	500

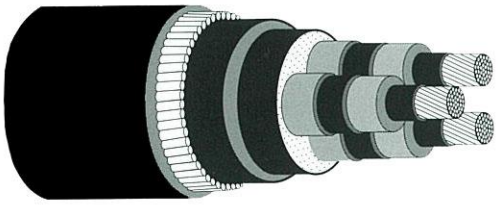
Note : c.c – circular stranded compacted

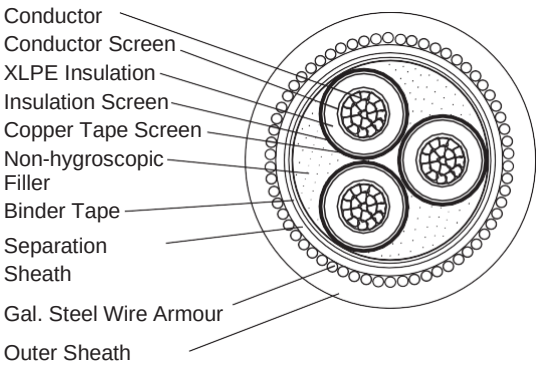
SINGLE CORE - CU / XLPE / CTS / PVC / AWA / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per cabler*			Maximum 3 phase voltage drop	Minimum charging current	Positive & negative sequence impedance at 25°C*	Zero sequence impedance at 25°C*
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Trefoil	Trefoil	Trefoil				
mm^2	A	A	A	mV/A/m	A/km	ohm/km	ohm/km
50	204	193	236	0.898	0.6999	0.3949 + j0.1585	2.2141 + j0.0924
70	249	236	293	0.647	0.7814	0.2736 + j0.1497	1.9884 + j0.0846
95	296	282	358	0.493	0.8667	0.1973 + j0.1423	1.8130 + j0.0780
120	336	320	413	0.413	0.9353	0.1567 + j0.1363	1.6996 + j0.0728
150	375	357	469	0.36	1.0028	0.1274 + j0.1337	1.6041 + j0.0690
185	422	402	538	0.314	1.0804	0.1022 + j0.1921	1.5024 + j0.0653
240	488	465	635	0.272	1.1946	0.0785 + j0.1284	1.3930 + j0.0602
300	547	524	728	0.247	1.2975	0.0634 + j0.1192	1.3039 + j0.0567
400	614	587	837	0.226	1.4429	0.0507 + j0.1148	1.2109 + j0.0531
500	707	676	965	0.21	1.563	0.0409 + j0.1108	1.1225 + j0.0498
630	815	780	1113	0.198	1.7291	0.0334 + j0.1070	1.0340 + j0.0466

*Note : Electrical properties are calculated base on conditions in Appendix B.

THREE CORE – XLPE INSULATED ARMOURED SHEATHED CABLE FOR VOLTAGES 6.6kV UP TO AND INCLUDING 33kV TO IEC 60502-2





DESCRIPTION

Circular compacted stranded copper or aluminium conductor, cross-linked polyethylene, with copper tape or copper wire or aluminium wire screened, laid up cores together with non-hygroscopic fillers, covered with extruded separation sheath, armored and extruded outer sheath made from PE or PVC.

CONSTRUCTION

Conductor
Plain circular compacted stranded copper (Cu) or aluminium (Al) conductor conform to class 2 in IEC 60228.

Conductor screen
An extruded thin layer of semi-conductive compound as a 1st layer by triple extrusion process.

Insulation
An extruded layer of cross-linked polyethylene (XLPE) compound as a 2nd layer by triple extrusion process.

Insulation screen
An extruded thin layer of semi-conductive compound as a 3rd layer by triple extrusion process.

Colour of core Identification
Red, yellow and blue shall be applied over insulation screen.

Semi-conductive tape
Applied under copper wire screen or aluminium wire screen when requested by purchaser
A layer of helically wrap semi-conductive water blocking tape with overlap laid over insulation screen.

Metallic screen
1 or 2 layer(s) of Copper tape (CTS) helically wrap with overlap laid over insulation screen or numbers of copper wires (CWS) or numbers of aluminium wires (AWS) laid over semi-conductive tape. An equalizing copper tape with open helically wrap and metallic screen construction base on customer's earth fault current requirement are available upon request.

Lay Up Cores
Three screened core are laid up together with non hygroscopic material.

THREE CORE – XLPE INSULATED ARMOURED SHEATHED CABLE FOR VOLTAGES 6.6kV UP TO AND INCLUDING 33kV TO IEC 60502-2

Non-conductive binder tape
A layer of non-conductive tape helically wrap with overlap laid over lay up cores

Separation Sheath
Extruded layer made from black PVC or PE compound.

Armour
Galvanized Steel Wires shall be applied helically over the separation sheath

Binder tape
A layer of non-conductive tape helically wrap with overlap laid over armour when necessary.

Outer sheath
Extruded layer made from black PVC (ST-2) or PE (ST-7) compound. Additive like Anti-termite repellent, anti-rodent or different outer sheath colour are available upon request.

XLPE INSULATED ARMOURED SHEATHED CABLE
3.8/6.6 (7.2)kV

THREE CORE - AL / XLPE / CTS / PVC / SWA / PVC SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Metallic screening	Nominal thickness of separation sheath	Armouring wire diameter	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
			Nominal thickness of copper tape					
mm^2	mm	mm	mm	mm	mm	mm	mm	m/drum
16	c.c	2.5	0.1	1.2	2.0	2.2	38.4	1000
25	c.c	2.5	0.1	1.2	2.0	2.3	41.2	1000
35	c.c	2.5	0.1	1.3	2.5	2.4	45.3	1000
50	c.c	2.5	0.1	1.3	2.5	2.5	48.0	1000
70	c.c	2.5	0.1	1.4	2.5	2.6	52.0	1000
95	c.c	2.5	0.1	1.4	2.5	2.7	55.9	1000
120	c.c	2.5	0.1	1.5	2.5	2.9	59.6	500
150	c.c	2.5	0.1	1.6	2.5	3.0	63.2	500
185	c.c	2.5	0.1	1.6	2.5	3.1	67.1	500
240	c.c	2.6	0.1	1.7	2.5	3.3	73.2	500
300	c.c	2.8	0.1	1.8	3.15	3.5	80.7	500
400	c.c	3.0	0.1	2.0	3.15	3.8	88.5	250

Note : c.c – circular stranded compacted

THREE CORE - AL / XLPE / CTS / PVC / SWA / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per conductor*			Maximum 3 phase voltage drop	Minimum charging current	Positive & negative sequence impedance at 25°C*	Zero sequence impedance at 25°C*
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Single Cable	Single Cable	Single Cable				
mm^2	A	A	A	mV/A/m	A/km	ohm/km	ohm/km
16	81	71	84	4.247	0.1768	1.9486 + j0.1241	4.0967 + j0.0805
25	104	90	110	2.673	0.2060	1.2234 + j0.1156	3.1799 + j0.0721
35	124	108	132	1.937	0.2309	0.8857 + j0.1100	2.6999 + j0.0665
50	146	128	158	1.435	0.2578	0.6542 + j0.1025	2.3365 + j0.0589
70	178	156	195	0.999	0.2962	0.4524 + j0.0971	1.9748 + j0.0536
95	212	187	237	0.730	0.3360	0.3271 + j0.0929	1.7122 + j0.0493
120	241	214	272	0.584	0.3692	0.2590 + j0.0892	0.5461 + j0.0456
150	269	240	307	0.483	0.4011	0.2113 + j0.0869	1.4171 + j0.0433
185	305	272	352	0.394	0.4407	0.1688 + j0.0845	1.2861 + j0.0410
240	352	316	413	0.314	0.4830	0.1296 + j0.0819	1.1383 + j0.0384
300	395	357	469	0.266	0.5850	0.1046 + j0.0808	1.0225 + j0.0372
400	449	409	542	0.225	0.5430	0.0828 + j0.0794	0.9096 + j0.0359

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED ARMOURED SHEATHED CABLE
3.8/6.6 (7.2)kV

THREE CORE - CU / XLPE / CTS / PVC / SWA / PVC SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Metallic screening: Nominal thickness of copper tape	Nominal thickness of separation sheath	Armouring wire diameter	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
mm^2		mm	mm	mm	mm	mm	mm	m/drum
16	c.c	2.5	0.1	1.2	2.0	2.2	38.3	1000
25	c.c	2.5	0.1	1.3	2.0	2.3	41.1	1000
35	c.c	2.5	0.1	1.3	2.5	2.4	45.2	1000
50	c.c	2.5	0.1	1.3	2.5	2.5	47.8	1000
70	c.c	2.5	0.1	1.4	2.5	2.6	51.8	500
95	c.c	2.5	0.1	1.5	2.5	2.7	55.7	500
120	c.c	2.5	0.1	1.5	2.5	2.9	59.4	500
150	c.c	2.5	0.1	1.6	2.5	3.0	63.0	500
185	c.c	2.5	0.1	1.6	2.5	3.1	66.8	500
240	c.c	2.5	0.1	1.7	2.5	3.3	72.9	250
300	c.c	2.5	0.1	1.8	3.15	3.5	80.4	250
400	c.c	2.5	0.1	2.0	3.15	3.8	88.1	250

Note : c.c – circular stranded compacted

THREE CORE - CU / XLPE / CTS / PVC / SWA / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per conductor*: Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)	Maximum 3 phase voltage drop	Minimum charging current	Positive & negative sequence impedance at 25°C*	Zero sequence impedance at 25°C*
	Single Cable	Single Cable	Single Cable				
mm^2	A	A	A	mV/A/m	A/km	ohm/km	ohm/km
16	105	92	109	2.549	0.1758	1.1727 + j0.1244	2.4867 + j0.0809
25	134	116	142	1.618	0.2050	0.7415 + j0.1158	1.9373 + j0.0723
35	160	139	170	1.173	0.2298	0.5346 + j0.1103	1.6444 + j0.0667
50	188	164	203	0.874	0.2564	0.3951 + j0.1027	1.4245 + j0.0591
70	229	202	251	0.616	0.2941	0.2740 + j0.0974	1.2067 + j0.0538
95	274	241	304	0.457	0.3342	0.1979 + j0.0930	1.0455 + j0.0495
120	310	275	349	0.374	0.3667	0.1575 + j0.0894	0.9462 + j0.0458
150	345	308	393	0.315	0.3988	0.1283 + j0.0870	0.8661 + j0.0435
185	389	348	449	0.266	0.4378	0.1035 + j0.0847	0.7874 + j0.0410
240	448	402	524	0.223	0.4802	0.0802 + j0.0821	0.6909 + j0.0385
300	501	452	594	0.197	0.5060	0.0654 + j0.0809	0.6257 + j0.0373
400	563	512	677	0.177	0.5394	0.0532 + j0.0796	0.5580 + j0.0360

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED ARMOURED SHEATHED CABLE 6.35/11 (12)kV

THREE CORE - AL / XLPE / CTS / PVC / SWA / PVC SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Metallic screening: Nominal thickness of copper tape	Nominal thickness of separation sheath	Armouring wire diameter	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
mm^2	mm	mm	mm	mm	mm	mm	mm	m/drum
16	c.c	3.4	0.1	1.2	2	2.3	42.4	1000
25	c.c	3.4	0.1	1.3	2.5	2.5	47.0	1000
35	c.c	3.4	0.1	1.3	2.5	2.6	49.5	1000
50	c.c	3.4	0.1	1.4	2.5	2.7	52.5	1000
70	c.c	3.4	0.1	1.5	2.5	2.8	56.4	1000
95	c.c	3.4	0.1	1.5	2.5	2.9	60.4	500
120	c.c	3.4	0.1	1.6	2.5	3.0	63.9	500
150	c.c	3.4	0.1	1.6	2.5	3.1	67.2	500
185	c.c	3.4	0.1	1.7	2.5	3.2	71.4	500
240	c.c	3.4	0.1	1.8	3.15	3.4	78.4	500
300	c.c	3.4	0.1	1.9	3.15	3.6	83.7	500
400	c.c	3.4	0.1	2.0	3.15	3.8	90.2	250

Note : c.c – circular stranded compacted

THREE CORE - AL / XLPE / CTS / PVC / SWA / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per conductor*: Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)	Maximum 3 phase voltage drop	Minimum charging current	Positive & negative sequence impedance at 25°C*	Zero sequence impedance at 25°C*
	Single Cable	Single Cable	Single Cable				
mm^2	A	A	A	mV/A/m	A/km	ohm/km	ohm/km
16	81	71	84	4.248	0.2802	1.9485 + j0.1326	3.8242 + j0.0981
25	104	90	110	2.635	0.2968	1.2243 + j0.1234	2.9514 + j0.0799
35	124	108	132	1.938	0.3308	0.8857 + j0.1173	2.5016 + j0.0738
50	146	128	158	1.436	0.3673	0.6542 + j0.1092	2.1646 + j0.0657
70	178	156	195	1.000	0.4149	0.4523 + j0.1033	1.8326 + j0.0597
95	212	187	237	0.732	0.4732	0.3230 + j0.0985	1.5935 + j0.0549
120	241	214	272	0.587	0.5181	0.2589 + j0.0953	1.4435 + j0.0517
150	269	240	307	0.486	0.5612	0.2112 + j0.0926	1.3261 + j0.0491
185	305	272	352	0.398	0.6145	0.1687 + j0.0899	1.2075 + j0.0463
240	352	316	413	0.317	0.6864	0.1294 + j0.0856	1.0804 + j0.0421
300	395	357	469	0.268	0.7532	0.1045 + j0.6833	0.9859 + j0.0398
400	449	409	542	0.226	0.8371	0.0826 + j0.0810	0.8894 + j0.0374

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED ARMOURED SHEATHED CABLE
6.35/11 (12)kV

THREE CORE - CU / XLPE / CTS / PVC / SWA / PVC SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Metallic screening	Nominal thickness of separation sheath	Armouring wire diameter	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
			Nominal thickness of copper tape					
mm^2	mm	mm	mm	mm	mm	mm	mm	m/drum
16	c.c	3.4	0.1	1.2	2.0	2.3	42.4	1000
25	c.c	3.4	0.1	1.3	2.5	2.5	47	1000
35	c.c	3.4	0.1	1.3	2.5	2.6	49.5	1000
50	c.c	3.4	0.1	1.4	2.5	2.7	52.3	1000
70	c.c	3.4	0.1	1.5	2.5	2.8	56.2	500
95	c.c	3.4	0.1	1.5	2.5	2.9	60.2	500
120	c.c	3.4	0.1	1.6	2.5	3.0	63.7	500
150	c.c	3.4	0.1	1.6	2.5	3.1	67	500
185	c.c	3.4	0.1	1.7	2.5	3.2	71.1	500
240	c.c	3.4	0.1	1.8	3.15	3.4	78.1	250
300	c.c	3.4	0.1	1.9	3.15	3.6	83.4	250
400	c.c	3.4	0.1	2.0	3.15	3.8	89.8	250

Note : c.c – circular stranded compacted

THREE CORE - CU / XLPE / CTS / PVC / SWA / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per conductor*			Maximum 3 phase voltage drop	Minimum charging current	Positive & negative sequence impedance at 25°C*	Zero sequence impedance at 25°C*
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Single Cable	Single Cable	Single Cable				
mm^2	A	A	A	mV/A/m	A/km	ohm/km	ohm/km
16	105	92	109	2.55	0.2555	1.1727 + j0.1330	2.3195 + j0.0894
25	134	116	142	1.62	0.2955	0.7415 + j0.1237	1.7972 + j0.0801
35	160	139	170	1.175	0.3292	0.5346 + j0.1176	1.5227 + j0.0740
50	188	164	203	0.876	0.3654	0.3950 + j0.1095	1.3190 + j0.0659
70	229	202	251	0.619	0.4166	0.2736 + j0.1036	1.1192 + j0.600
95	274	241	304	0.464	0.4708	0.1978 + j0.0987	0.9276 + j0.0551
120	310	275	349	0.377	0.5147	0.1573 + j0.0947	0.8826 + j0.0511
150	345	308	393	0.32	0.5581	0.1281 + j0.0920	0.8101 + j0.4840
185	389	348	449	0.271	0.6106	0.1033 + j0.0893	0.7390 + j0.0457
240	448	402	524	0.226	0.6824	0.0799 + j0.0858	0.6613 + j0.0422
300	501	452	594	0.2	0.7495	0.0652 + j0.0835	0.6032 + j0.0399
400	563	512	677	0.179	0.8317	0.0530 + j0.0811	0.5456 + j0.0376

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED ARMOURED SHEATHED CABLE
8.7/15 (17.5)kV

THREE CORE - AL / XLPE / CTS / PVC / SWA / PVC SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Metallic screening	Nominal thickness of separation sheath	Armouring wire diameter	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
			Nominal thickness of copper tape					
mm^2		mm	mm	mm	mm	mm	mm	m/drum
16	c.c	4.5	0.1	1.3	2.5	2.6	49.5	1000
25	c.c	4.5	0.1	1.4	2.5	2.6	52.2	1000
35	c.c	4.5	0.1	1.4	2.5	2.7	54.7	1000
50	c.c	4.5	0.1	1.5	2.5	2.8	57.6	1000
70	c.c	4.5	0.1	1.5	2.5	2.9	61.4	500
95	c.c	4.5	0.1	1.6	2.5	3.1	65.7	500
120	c.c	4.5	0.1	1.7	2.5	3.2	69.2	500
150	c.c	4.5	0.1	1.7	3.15	3.3	73.9	500
185	c.c	4.5	0.1	1.8	3.15	3.4	78.0	500
240	c.c	4.5	0.1	1.9	3.15	3.6	83.7	500
300	c.c	4.5	0.1	2.0	3.15	3.8	89.0	250
400	c.c	4.5	0.1	2.1	3.15	4.0	95.6	250

Note : c.c – circular stranded compacted

THREE CORE - AL / XLPE / CTS / PVC / SWA / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per conductor*			Maximum 3 phase voltage drop	Minimum charging current	Positive & negative sequence impedance at 25°C*	Zero sequence impedance at 25°C*
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Single Cable	Single Cable	Single Cable				
mm^2	A	A	A	mV/A/m	A/km	ohm/km	ohm/km
16	81	71	84	4.249	0.3098	1.9485 + j0.1417	3.5725 + j0.0981
25	104	90	110	2.675	0.3551	1.2243 + j0.1318	2.7357 + j0.0882
35	124	108	132	1.94	0.3935	0.8856 + j0.1252	2.3112 + j0.0816
50	146	128	158	1.438	0.4346	0.6541 + j0.1166	1.9969 + j0.0731
70	178	156	195	1.003	0.493	0.4523 + j0.1101	1.6912 + j0.0665
95	212	187	237	0.734	0.5532	0.3270 + j0.1048	1.4735 + j0.0612
120	241	214	272	0.71	0.6032	0.2588 + j0.2496	1.3377 + j0.2061
150	269	240	307	0.627	0.6513	0.2111 + j0.2467	1.2319 + j0.2031
185	305	272	352	0.558	0.7108	0.1685 + j0.2436	1.1252 + j0.2000
240	352	316	413	0.321	0.7907	0.1292 + j0.0904	1.0110 + j0.0468
300	395	357	469	0.272	0.8649	0.1043 + j0.0878	0.9258 + j0.0441
400	449	409	542	0.23	0.7519	0.0824 + j0.0850	0.8387 + j0.0415

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED ARMOURED SHEATHED CABLE
8.7/15 (17.5)kV

THREE CORE - CU / XLPE / CTS / PVC / SWA / PVC SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Metallic screening	Nominal thickness of separation sheath	Armouring wire diameter	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
			Nominal thickness of copper tape					
mm^2		mm	mm	mm	mm	mm	mm	m/drum
25	c.c	4.5	0.1	1.4	2.5	2.6	52.1	1000
35	c.c	4.5	0.1	1.4	2.5	2.7	54.6	1000
50	c.c	4.5	0.1	1.5	2.5	2.8	57.0	1000
70	c.c	4.5	0.1	1.5	2.5	2.9	61.2	500
95	c.c	4.5	0.1	1.6	2.5	3.1	65.5	500
120	c.c	4.5	0.1	1.7	2.5	3.2	69.0	500
150	c.c	4.5	0.1	1.7	3.15	3.3	73.7	500
185	c.c	4.5	0.1	1.8	3.15	3.4	77.8	250
240	c.c	4.5	0.1	1.9	3.15	3.6	83.4	250
300	c.c	4.5	0.1	2.0	3.15	3.8	88.8	250
400	c.c	4.5	0.1	2.1	3.15	4.0	95.2	250

Note : c.c – circular stranded compacted

THREE CORE - CU / XLPE / CTS / PVC / SWA / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per conductor*			Maximum 3 phase voltage drop	Minimum charging current	Positive & negative sequence impedance at 25°C*	Zero sequence impedance at 25°C*
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Single Cable	Single Cable	Single Cable				
mm^2	A	A	A	mV/A/m	A/km	ohm/km	ohm/km
25	134	116	142	1.622	0.3536	0.7415 + j0.1321	1.6650 + j0.0885
35	160	139	170	1.178	0.3917	0.5345 + j0.1255	1.4060 + j0.0819
50	188	164	203	0.879	0.4324	0.3950 + j0.1169	1.2161 + j0.0734
70	229	202	251	0.392	0.4899	0.1941 + j0.1104	0.9523 + j0.0668
95	274	241	304	0.465	0.5504	0.1977 + j0.1050	0.8988 + j0.0614
120	310	275	349	0.382	0.5995	0.1572 + j0.1006	0.8175 + j0.0570
150	345	308	393	0.324	0.6479	0.1279 + j0.0976	0.7552 + j0.0540
185	389	348	449	0.276	0.7063	0.1030 + j0.0945	0.6833 + j0.0509
240	448	402	524	0.232	0.7863	0.0796 + j0.0906	0.6185 + j0.0470
300	501	452	594	0.205	0.8609	0.0648 + j0.0879	0.5645 + j0.0446
400	563	512	677	0.184	0.9521	0.0526 + j0.0852	0.5143 + j0.0417

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED ARMOURED SHEATHED CABLE 12.7/22 (24)kV

THREE CORE - AL / XLPE / CTS / PVC / SWA / PVC SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Metallic screening	Nominal thickness of separation sheath	Armouring wire diameter	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
			Nominal thickness of copper tape					
mm^2		mm	mm	mm	mm	mm	mm	m/drum
35	c.c	5.5	0.1	1.5	2.5	2.9	59.6	1000
50	c.c	5.5	0.1	1.6	2.5	3	63	500
70	c.c	5.5	0.1	1.6	2.5	3.1	66.3	500
95	c.c	5.5	0.1	1.7	2.5	3.2	70.4	500
120	c.c	5.5	0.1	1.8	3.15	3.4	75.4	500
150	c.c	5.5	0.1	1.8	3.15	3.5	78.1	500
185	c.c	5.5	0.1	1.9	3.15	3.6	83	250
240	c.c	5.5	0.1	2	3.15	3.8	88.6	250
300	c.c	5.5	0.1	2.1	3.15	3.9	93.7	250
400	c.c	5.5	0.1	2.2	3.15	4.2	100.5	250

Note : c.c – circular stranded compacted

THREE CORE - AL / XLPE / CTS / PVC / SWA / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per conductor*			Maximum 3 phase voltage drop	Minimum charging current	Positive & negative sequence impedance at 25°C*	Zero sequence impedance at 25°C*
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Single Cable	Single Cable	Single Cable				
mm^2	A	A	A	mV/A/m	A/km	ohm/km	ohm/km
35	124	108	132	1.941	0.519	0.8856 + j0.1316	2.1733 + j0.0880
50	146	128	158	1.44	0.5708	0.6541 + j0.1227	1.8738 + j0.0791
70	178	156	195	1.004	0.6443	0.4522 + j0.1157	1.5857 + j0.0721
95	212	187	237	0.736	0.7363	0.3269 + j0.1099	1.3825 + j0.0664
120	241	214	272	0.715	0.7827	0.2588 + j0.2545	1.2568 + j0.2110
150	269	240	307	0.492	0.8428	0.2110 + j0.1020	1.1591 + j0.0585
185	305	272	352	0.404	0.9172	0.1648 + j0.0986	1.0610 + j0.0551
240	352	316	413	0.324	1.0171	0.1291 + j0.0944	0.9560 + j0.0509
300	395	357	469	0.275	1.1097	0.1041 + j0.0915	0.8779 + j0.0480
400	449	409	542	0.234	1.226	0.0822 + j0.0885	0.7978 + j0.0450

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED ARMOURED SHEATHED CABLE
12.7/22 (24)kV

THREE CORE - CU / XLPE / CTS / PVC / SWA / PVC SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Metallic screening	Nominal thickness of separation sheath	Armouring wire diameter	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
			Nominal thickness of copper tape					
mm^2		mm	mm	mm	mm	mm	mm	m/drum
35	c.c	5.5	0.1	1.5	2.5	2.9	59.5	1000
50	c.c	5.5	0.1	1.6	2.5	3.0	62.4	500
70	c.c	5.5	0.1	1.6	2.5	3.1	66.1	500
95	c.c	5.5	0.1	1.7	2.5	3.2	70.2	500
120	c.c	5.5	0.1	1.8	3.15	3.4	75.2	500
150	c.c	5.5	0.1	1.8	3.15	3.5	78.6	500
185	c.c	5.5	0.1	1.9	3.15	3.6	82.7	250
240	c.c	5.5	0.1	2.0	3.15	3.8	88.3	250
300	c.c	5.5	0.1	2.1	3.15	3.9	93.5	250
400	c.c	5.5	0.1	2.2	3.15	4.2	100.1	250

Note : c.c – circular stranded compacted

THREE CORE - CU / XLPE / CTS / PVC / SWA / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per conductor*			Maximum 3 phase voltage drop	Minimum charging current	Positive & negative sequence impedance at 25°C*	Zero sequence impedance at 25°C*
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Single Cable	Single Cable	Single Cable				
mm^2	A	A	A	mV/A/m	A/km	ohm/km	ohm/km
35	160	139	170	1.18	0.5167	0.5345 + j0.1319	1.3214 + j0.0883
50	188	164	203	0.881	0.5681	0.3949 + j0.1230	1.1406 + j0.0794
70	229	202	251	0.653	0.6404	0.2738 + j0.1160	0.9764 + j0.0724
95	274	241	304	0.468	0.7164	0.1976 + j0.1102	0.8430 + j0.0666
120	310	275	349	0.386	0.7779	0.1571 + j0.1055	0.7678 + j0.0619
150	345	308	393	0.328	0.8385	0.1278 + j0.1022	0.7075 + j0.0587
185	389	348	449	0.28	0.9117	0.1029 + j0.0989	0.6488 + j0.0553
240	448	402	524	0.236	1.0116	0.0794 + j0.0946	0.5847 + j0.0511
300	501	452	594	0.21	1.1047	0.0646 + j0.0917	0.5368 + j0.0481
400	563	512	677	0.189	1.2148	0.0522 + j0.0887	0.4891 + j0.0452

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED ARMOURED SHEATHED CABLE
19/33 (36)kV

THREE CORE - CU / XLPE / CTS / PVC / SWA / PVC SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Metallic screening	Nominal thickness of separation sheath	Armouring wire diameter	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
			Nominal thickness of copper tape					
mm^2		mm	mm	mm	mm	mm	mm	m/drum
50	c.c	8	0.1	1.8	3.15	3.4	75.8	500
70	c.c	8	0.1	1.8	3.15	3.5	79.6	500
95	c.c	8	0.1	1.9	3.15	3.7	83.9	500
120	c.c	8	0.1	2.0	3.15	3.8	87.4	250
150	c.c	8	0.1	2.0	3.15	3.9	90.8	250
185	c.c	8	0.1	2.1	3.15	4.0	94.9	250
240	c.c	8	0.1	2.2	3.15	4.2	100.6	250
300	c.c	8	0.1	2.3	3.15	4.3	105.7	250

Note : c.c – circular stranded compacted

THREE CORE - CU / XLPE / CTS / PVC / SWA / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per conductor*			Maximum 3 phase voltage drop	Minimum charging current	Positive & negative sequence impedance at 25°C*	Zero sequence impedance at 25°C*
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Single Cable	Single Cable	Single Cable				
mm^2	A	A	A	mV/A/m	A/km	ohm/km	ohm/km
50	188	164	203	0.887	0.6999	0.3949 + j0.1360	1.0012 + j0.0924
70	229	202	251	0.633	0.7814	0.2737 + j0.1282	0.0852 + j0.0846
95	274	241	304	0.476	0.8667	0.1975 + j0.1216	0.7358 + j0.0780
120	310	275	349	0.395	0.9353	0.1569 + j0.1163	0.6709 + j0.0728
150	345	308	393	0.338	1.0028	0.1276 + j0.1126	0.6194 + j0.0690
185	389	348	449	2.903	1.0840	0.1026 + j0.1086	0.5699 + j0.0651
240	448	402	524	0.247	1.1946	0.0790 + j0.1037	0.5163 + j0.0662
300	501	452	594	0.221	1.2975	0.0641 + j0.1002	0.4764 + j0.0562

*Note : Electrical properties are calculated base on conditions in Appendix B.

XLPE INSULATED ARMOURED SHEATHED CABLE 19/33 (36)kV

THREE CORE - AL / XLPE / CTS / PVC / SWA / PVC SHEATHED CABLE DIMENSION

Nominal cross-sectional area of conductor	Conductor shape	Nominal insulation thickness	Metallic screening	Nominal thickness of separation sheath	Armouring wire diameter	Nominal thickness of outer sheath	Approximate overall diameter	Standard packing length
			Nominal thickness of copper tape					
mm^2		mm	mm	mm	mm	mm	mm	m/drum
50	c.c	8	0.1	1.8	3.15	3.4	75.8	500
70	c.c	8	0.1	1.8	3.15	3.5	79.6	500
95	c.c	8	0.1	1.9	3.15	3.7	83.9	500
120	c.c	8	0.1	2.0	3.15	3.8	87.4	250
150	c.c	8	0.1	2.0	3.15	3.9	90.8	250
185	c.c	8	0.1	2.1	3.15	4.0	94.9	250
240	c.c	8	0.1	2.2	3.15	4.2	100.6	250
300	c.c	8	0.1	2.3	3.15	4.3	105.7	250

Note : c.c – circular stranded compacted

THREE CORE - AL / XLPE / CTS / PVC / SWA / PVC SHEATHED CABLE ELECTRICAL PROPERTIES

Nominal cross-sectional area of conductor	Maximum current rating per conductor*			Maximum 3 phase voltage drop	Minimum charging current	Positive & negative sequence impedance at 25°C*	Zero sequence impedance at 25°C*
	Buried direct in ground	In single-way PE duct in ground	In tray in air (indoor)				
	Single Cable	Single Cable	Single Cable				
mm^2	A	A	A	mV/A/m	A/km	ohm/km	ohm/km
50	146	128	158	1.443	0.7030	0.6541 + j0.1356	1.6464 + j0.0921
70	178	156	195	1.009	0.7793	0.4522 + j0.1278	1.4445 + j0.0808
95	212	187	237	0.742	0.8705	0.3269 + j0.1213	1.2077 + j0.0778
120	241	214	272	0.597	0.9406	0.2587 + j0.1160	1.0991 + j0.0725
150	269	240	307	0.498	1.0076	0.2109 + j0.1123	1.0156 + j0.0688
185	305	272	352	0.411	1.0901	0.1683 + j0.1048	0.9326 + j0.0648
240	352	316	413	0.332	1.2007	0.1289 + j0.1035	0.8446 + j0.0600
300	395	357	469	0.284	1.3031	0.1038 + j0.1001	0.7794 + j0.0565

*Note : Electrical properties are calculated base on conditions in Appendix B.

APPENDIX A
TECHNICAL DATA

(A) SHORT CIRCUIT AND EARTH FAULT CURRENT RATING

Nominal cross-sectional area of conductor or metallic screen	Short Circuit Current Rating				Earth Fault Current Rating			
	Copper Conductor K = 142.9 Initial temp. : 90°C Final temp. : 250°C		Aluminium Conductor K = 94.5 Initial temp. : 90°C Final temp. : 250°C		Copper Screen K = 148.4 Initial temp. : 80°C Final temp. : 250°C		Aluminium Screen K = 98.1 Initial temp. : 80°C Final temp. : 250°C	
	1 second	3 second	1 second	3 second	1 second	3 second	1 second	3 second
mm^2	kA		kA		kA		kA	
1.5	0.214	0.124	-	-	0.22	0.13	-	-
2.5	0.357	0.206	-	-	0.37	0.21	-	-
4	0.572	0.33	-	-	0.59	0.34	-	-
6	0.857	0.495	-	-	0.89	0.51	-	-
10	1.43	0.825	-	-	1.49	0.86	-	-
16	2.29	1.32	1.51	0.873	2.38	1.37	-	-
25	3.57	2.06	2.36	1.36	3.71	2.14	2.45	1.42
35	5	2.89	3.31	1.91	5.2	3	3.43	1.98
50	7.15	4.13	4.73	2.73	7.43	4.29	4.91	2.83
70	10	5.78	6.62	3.82	10.4	6	6.87	3.97
95	13.6	7.84	8.98	5.18	14.1	8.15	9.32	5.38
120	17.1	9.9	11.3	6.55	17.8	10.3	11.8	6.8
150	21.4	12.4	14.2	8.18	22.3	12.9	14.7	8.5
185	26.4	15.3	17.5	10.1	27.5	15.9	18.2	10.5
240	34.3	19.8	22.7	13.1	35.7	20.6	23.5	13.6
300	42.9	24.8	28.4	16.4	44.6	25.7	29.4	17
400	57.2	33	37.8	21.8	59.4	34.3	39.2	22.7
500	71.5	41.3	47.3	27.3	74.3	42.9	49.1	28.3
630	90	52	59.5	34.4	93.6	54	61.8	35.7

Formula :-

$$I = \frac{K \times A}{\sqrt{t}}$$

I is the current rating in ampere (A)
K is the constant value of the conductive material at reference temperature
A is the cross-sectional area of conductor (mm^2)
t is the short circuit duration in second

Example:-

Given earth fault rating at 25kA in 3 second. Therefore, the screen area shall be at least:-

For copper screen:-

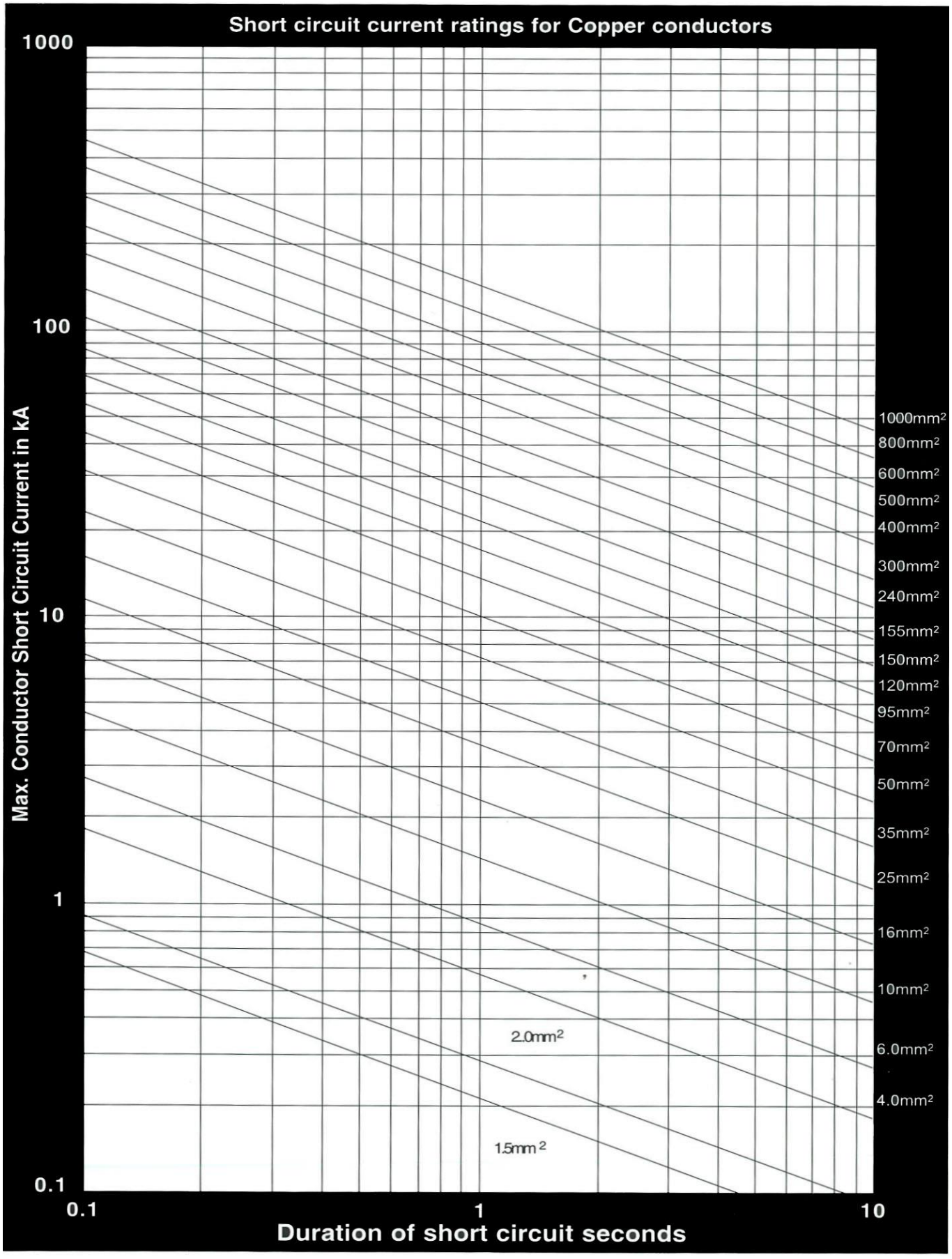
$$\frac{25 \times 1000 \times \sqrt{3}}{148.4} = 291.79mm^2$$

For aluminium screen:-

$$\frac{25 \times 1000 \times \sqrt{3}}{98.1} = 441.40mm^2$$

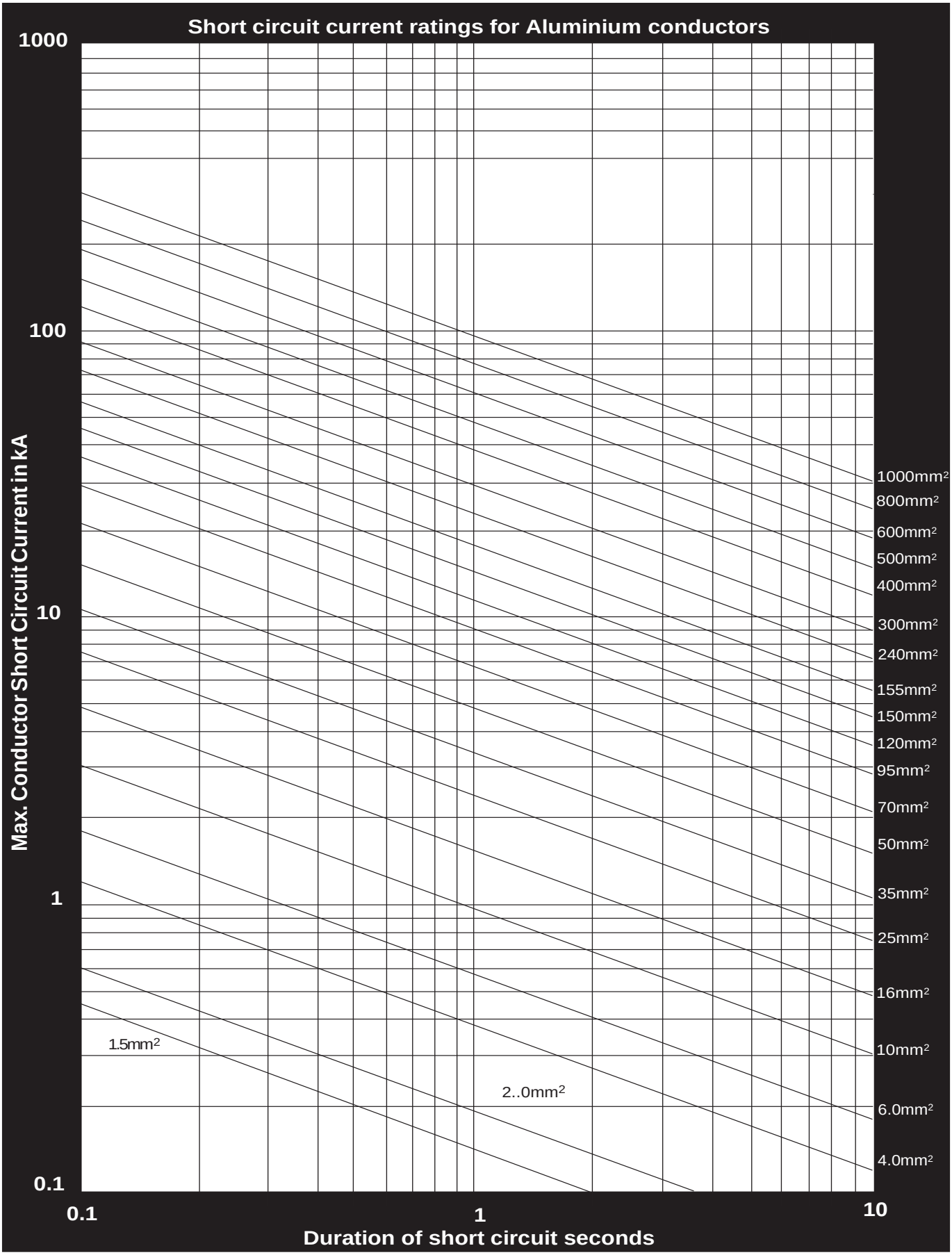
APPENDIX A
TECHNICAL DATA

(A) SHORT CIRCUIT CURRENT RATINGS FOR COPPER CONDUCTORS



APPENDIX A
TECHNICAL DATA

(A) SHORT CIRCUIT CURRENT RATINGS FOR ALUMINIUM CONDUCTORS



APPENDIX B
TECHNICAL DATA

(B) CURRENT RATING INFORMATIONS.

The Current rating of the cables given in the tables are based on the assumption shown below :

1) Maximum conductor temperature : ---------- 90°C

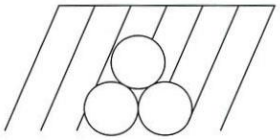
2) Ambient temperature : Ground ---------- 15°C
Air ---------- 30°C

3) Soil thermal resistivity : ---------- 1.2 K.m/W

4) Laying depth in ground : ---------- 800mm

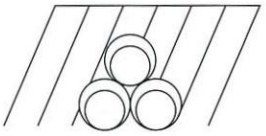
5) Screen bonding : Single core cables ---------- Bonded at both ends
Three core cables ---------- Single point or Cross-bonded

6) Installation method : 1 core cables in ground



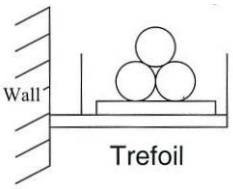
Trefoil

1 core cables in duct



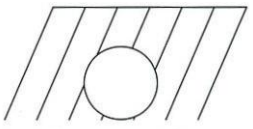
Trefoil

: 1 core cables in tray in air



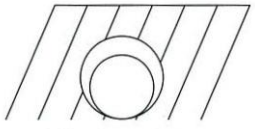
Trefoil

Multi-core cable in ground



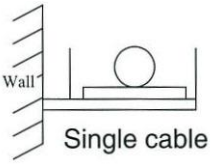
Single cable

: Multi-core cable in duct



Single cable

Multi-core cable in tray in air



Single cable

All the ratings for cables install in duct in ground are assumed to be polyethylene (PE) duct type having an inside diameter of 1.5 times the outside diameter of the cable and a wall thickness equal to 6% of the duct inside diameter. The ratings are based on the assumption that the ducts are air filled.

All the ratings for cables install in tray in air are calculated for indoor use only without any solar radiation taken into account. The cables are assumed to be spaced at least 0.5 times the cable diameter for single core cables and 0.3 times the cable diameter for three-core cables from any vertical surface such as wall and installed in non-magnetic cable tray.

All the rating shown in the tables are calculated base on single circuit and maximum current flowing in one conductor.

APPENDIX C
TECHNICAL DATA

(C) CURRENT RATING CORRECTION FACTORS.

Table 1 Correction factors for ambient air temperatures.

Maximum conductor temperature °C	Ambient air temperature °C							
	20	25	30	35	40	45	50	55
90	1.08	1.04	1.00	0.96	0.91	0.87	0.82	0.76

Table 2 Correction factors for ambient ground temperatures.

Maximum conductor temperature °C	Ambient ground temperature °C							
	10	15	20	25	30	35	40	45
90	1.03	1.00	0.97	0.93	0.89	0.86	0.82	0.77

Table 3 Correction factors for depth laying for direct buried cables.

Depth laying m	Single-core cables Nominal conductor size mm²		Three-core cables
	≤ 185 mm2	> 185 mm²	
0.50	1.04	1.06	1.04
0.60	1.02	1.04	1.03
0.80	1.00	1.00	1.00
1.00	0.98	0.97	0.98
1.25	0.96	0.95	0.96
1.50	0.95	0.93	0.95
1.75	0.94	0.91	0.94
2.00	0.93	0.90	0.93
2.50	0.91	0.88	0.91
3.00	0.90	0.86	0.90

Table 4 Correction factors for depth laying for cables in duct in ground.

Depth laying m	Single-core cables Nominal conductor size mm²		Three-core cables
	≤ 185 mm2	> 185 mm²	
0.50	1.04	1.05	1.03
0.60	1.02	1.03	1.02
0.80	1.00	1.00	1.00
1.00	0.98	0.97	0.99
1.25	0.96	0.95	0.97
1.50	0.95	0.93	0.96
1.75	0.94	0.92	0.95
2.00	0.93	0.91	0.94
2.50	0.91	0.89	0.93
3.00	0.90	0.88	0.92

APPENDIX C
TECHNICAL DATA

(C) CURRENT RATING CORRECTION FACTORS.

Table 5 Correction factors for soil thermal resistivities for direct buried single-core cables.

Nominal area of conductor mm²	Values of soil thermal resistivity K.m/W Moist ◄ ► Dry								
	0.7	0.8	0.9	1.0	1.2	1.5	2.0	2.5	3.0
≤ 16	1.23	1.17	1.12	1.07	1.00	0.91	0.80	0.73	0.67
25	1.24	1.18	1.12	1.07	1.00	0.91	0.80	0.73	0.67
35	1.24	1.18	1.12	1.07	1.00	0.91	0.80	0.72	0.66
50	1.25	1.18	1.13	1.08	1.00	0.91	0.80	0.72	0.66
70	1.25	1.19	1.13	1.08	1.00	0.91	0.80	0.72	0.66
95	1.25	1.19	1.13	1.08	1.00	0.91	0.79	0.72	0.66
120	1.26	1.19	1.13	1.08	1.00	0.91	0.79	0.72	0.66
150	1.26	1.19	1.13	1.08	1.00	0.91	0.79	0.71	0.66
185	1.26	1.19	1.13	1.08	1.00	0.90	0.79	0.71	0.65
240	1.26	1.20	1.13	1.08	1.00	0.90	0.79	0.71	0.65
300	1.27	1.20	1.14	1.08	1.00	0.90	0.79	0.71	0.65
400	1.27	1.20	1.14	1.09	1.00	0.90	0.79	0.71	0.65
500	1.27	1.20	1.14	1.09	1.00	0.90	0.79	0.71	0.65
630	1.27	1.20	1.14	1.09	1.00	0.90	0.79	0.71	0.65

Table 6 Correction factors for soil thermal resistivities single-core cables in buried ducts.

Nominal area of conductor mm²	Values of soil thermal resistivity K.m/W Moist ◄ ► Dry								
	0.7	0.8	0.9	1.0	1.2	1.5	2.0	2.5	3.0
≤ 16	1.14	1.10	1.08	1.04	1.00	0.92	0.82	0.76	0.70
25	1.15	1.11	1.08	1.04	1.00	0.92	0.82	0.76	0.70
35	1.15	1.11	1.08	1.04	1.00	0.92	0.82	0.75	0.69
50	1.16	1.11	1.08	1.05	1.00	0.92	0.82	0.75	0.69
70	1.16	1.12	1.08	1.05	1.00	0.92	0.82	0.75	0.69
95	1.16	1.12	1.08	1.05	1.00	0.92	0.81	0.75	0.69
120	1.17	1.12	1.08	1.05	1.00	0.92	0.81	0.75	0.69
150	1.17	1.12	1.08	1.05	1.00	0.92	0.81	0.74	0.69
185	1.17	1.12	1.08	1.05	1.00	0.91	0.81	0.74	0.68
240	1.17	1.13	1.08	1.05	1.00	0.91	0.81	0.74	0.68
300	1.18	1.13	1.09	1.05	1.00	0.91	0.81	0.74	0.68
400	1.18	1.13	1.09	1.06	1.00	0.91	0.81	0.74	0.68
500	1.18	1.13	1.09	1.06	1.00	0.91	0.81	0.74	0.68
630	1.18	1.13	1.09	1.06	1.00	0.91	0.81	0.74	0.68

Recommended value of soil thermal resistivities are as follows:

Peat / Clay / Chalk soil	1.2 K.m/W	Very dry soil	3.0 K.m/W
Very stony soil	1.5 K.m/W	Dry soil	2.0 K.m/W
Sandy soil	2.5 K.m/W	Moist soil	1.0 K.m/W

The value for the all soils category may be reduced to 1.2 K.m/W if the soil is under impermeable cover such as asphalt or concrete.

APPENDIX C
TECHNICAL DATA

(C) CURRENT RATING CORRECTION FACTORS.

Table 7 Correction factors for soil thermal resistivities for direct buried three-core cables.

Nominal area of conductor mm²	Values of soil thermal resistivity K.m/W Moist ◄ ► Dry								
	0.7	0.8	0.9	1.0	1.2	1.5	2.0	2.5	3.0
≤ 16	1.21	1.17	1.11	1.07	1.00	0.92	0.82	0.74	0.69
25	1.21	1.17	1.11	1.07	1.00	0.92	0.81	0.74	0.68
35	1.22	1.17	1.11	1.07	1.00	0.91	0.81	0.74	0.68
50	1.22	1.17	1.11	1.07	1.00	0.91	0.81	0.74	0.68
70	1.23	1.17	1.12	1.07	1.00	0.91	0.81	0.73	0.68
95	1.23	1.17	1.12	1.07	1.00	0.91	0.80	0.73	0.67
120	1.23	1.17	1.12	1.07	1.00	0.91	0.81	0.73	0.67
150	1.23	1.17	1.12	1.07	1.00	0.91	0.81	0.73	0.67
185	1.23	1.17	1.12	1.07	1.00	0.91	0.81	0.73	0.67
240	1.23	1.17	1.12	1.08	1.00	0.91	0.80	0.73	0.67
300	1.23	1.17	1.12	1.08	1.00	0.91	0.80	0.73	0.67
400	1.23	1.17	1.12	1.08	1.00	0.91	0.80	0.73	0.67
500	1.23	1.17	1.12	1.08	1.00	0.91	0.80	0.73	0.67
630	1.24	1.18	1.12	1.08	1.00	0.91	0.80	0.72	0.67

Table 8 Correction factors for soil thermal resistivities three-core cables in buried ducts.

Nominal area of conductor mm²	Values of soil thermal resistivity K.m/W Moist ◄ ► Dry								
	0.7	0.8	0.9	1.0	1.2	1.5	2.0	2.5	3.0
≤ 16	1.10	1.09	1.04	1.03	1.00	0.93	0.84	0.78	0.75
25	1.10	1.09	1.04	1.03	1.00	0.93	0.83	0.78	0.73
35	1.11	1.09	1.04	1.03	1.00	0.92	0.83	0.78	0.73
50	1.11	1.09	1.04	1.03	1.00	0.92	0.83	0.78	0.73
70	1.12	1.09	1.05	1.03	1.00	0.92	0.83	0.77	0.73
95	1.12	1.09	1.05	1.03	1.00	0.92	0.82	0.77	0.72
120	1.12	1.09	1.05	1.03	1.00	0.92	0.83	0.77	0.72
150	1.12	1.09	1.05	1.03	1.00	0.92	0.83	0.77	0.72
185	1.12	1.09	1.05	1.03	1.00	0.92	0.83	0.77	0.72
240	1.12	1.09	1.05	1.04	1.00	0.92	0.82	0.77	0.72
300	1.12	1.09	1.05	1.04	1.00	0.92	0.82	0.77	0.72
400	1.12	1.09	1.05	1.04	1.00	0.92	0.82	0.77	0.72
500	1.12	1.09	1.05	1.04	1.00	0.92	0.82	0.77	0.72
630	1.13	1.10	1.05	1.04	1.00	0.92	0.82	0.76	0.72

Recommended value of soil thermal resistivities are as follows:

Peat / Clay / Chalk soil	1.2 K.m/W	Very dry soil	3.0 K.m/W
Very stony soil	1.5 K.m/W	Dry soil	2.0 K.m/W
Sandy soil	2.5 K.m/W	Moist soil	1.0 K.m/W

The value for the all soils category may be reduced to 1.2 K.m/W if the soil is under impermeable cover such as asphalt or concrete.

APPENDIX C
TECHNICAL DATA

(C) CURRENT RATING CORRECTION FACTORS.

Table 9 Correction factors for groups of three-core cables in horizontal formation laid direct in ground.

Number of circuits	Spacing between cable centres (mm)				
	Touching	200	400	600	800
1	1.00	1.00	1.00	1.00	1.00
2	0.80	0.86	0.90	0.92	0.94
3	0.69	0.77	0.82	0.86	0.89
4	0.62	0.72	0.79	0.83	0.87
5	0.57	0.68	0.76	0.81	0.85
6	0.54	0.65	0.74	0.80	0.84

Table 10 Correction factors for groups of three-phase circuits of single-core cables laid direct in the ground.

Number of circuits	Spacing between cable centres (mm)				
	Touching	200	400	600	800
1	1.00	1.00	1.00	1.00	1.00
2	0.73	0.83	0.88	0.90	0.92
3	0.60	0.73	0.79	0.83	0.86
4	0.54	0.68	0.75	0.80	0.84
5	0.49	0.63	0.72	0.78	0.82
6	0.46	0.61	0.70	0.76	0.81

Table 11 Correction factors for groups of three-core cables in single way ducts in horizontal formation.

Number of circuits	Spacing between cable centres (mm)				
	Touching	200	400	600	800
1	1.00	1.00	1.00	1.00	1.00
2	0.85	0.88	0.92	0.94	0.95
3	0.75	0.80	0.85	0.88	0.91
4	0.69	0.75	0.82	0.86	0.89
5	0.65	0.72	0.79	0.84	0.87
6	0.62	0.69	0.77	0.83	0.87

Table 12 Correction factors for groups of three-phase circuits of single-core cables in single-way ducts.

Number of circuits	Spacing between cable centres (mm)				
	Touching	200	400	600	800
1	1.00	1.00	1.00	1.00	1.00
2	0.78	0.85	0.89	0.91	0.93
3	0.66	0.75	0.81	0.85	0.88
4	0.59	0.70	0.77	0.82	0.86
5	0.55	0.66	0.74	0.80	0.84
6	0.51	0.64	0.72	0.78	0.83

APPENDIX D
TECHNICAL DATA

(D) XLPE CABLE INSTALLATION GUIDE

Table 13 XLPE cable minimum bending radius

FOR VOLTAGE 1 kV UP TO AND INCLUDING 3.3 kV		
	During installation	Fixed installation
Unarmoured cable		
- Circular conductor	6D	6D
- Shaped conductor	8D	8D
Armoured cable		
- Circular conductor	6D	6D
- Shaped conductor	8D	8D
FOR VOLTAGE 6.6 kV UP TO AND INCLUDING 33 kV		
Unarmoured cable		
- Single core	20D	15D
- Three core	15D	12D
Armoured cable		
- Single core	15D	12D
- Three core	12D	10D

Note : D is overall diameter of the cable.

Table 14 Side wall pressure

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

$$\text{Side wall pressure to cable} = \frac{\text{Pulling tension (kg)}}{\text{Bending radius (m)}} = \frac{T}{R}$$

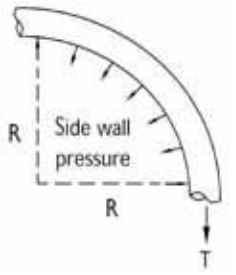


Table 15 Permissible maximum pulling force

Means of pulling	Type of cable	Formula	Factor, σ
With pulling eye on conductor	All type of cables	P = σ x A	Cu conductor = 70 N/mm²
			Al conductor = 50 N/mm²
With pulling eye on armour	Armoured cables		Steel wire armour = 100 N/mm²
			Al wire armour = 50 N/mm²
With stocking grip*	Unarmoured cables	P = 120D	

P = Permissable maximum pulling force in N
A = Total cross sectional area in mm² of the conductor or armour
D = Overall diameter of the cable

*Note : When P = 120D more than P = σ x A, than the permissible pulling force shall be refered to P = σ x A.

PUBLICATIONS REFERRED TO

IEC 60038 IEC Standard Voltages

IEC 60060 High Voltage Test Techniques

IEC 60183 Guide to the Selection of High Voltage Cable

IEC 60228 Conductors of Insulated Cable

IEC 60230 Impulse Test on Cables and Their Accessories

IEC 60287 Electric Cable - Calculation of The Current Rating

IEC 60332 Test on Electric Cable Under Fire Conditions

IEC 60502 Power Cable With Extruded Insulation and Their Accessories for Rated Voltages From 1 kV (Um = 1.2 kV) Up To 30 kV (Um = 36 kV)

IEC 60724 Short Circuit Temperature Limits Of Electric Cable with Rated Voltage of 1 kV (Um = 1.2 kV) and 3 kV (Um = 3.6 kV)

IEC 60811 Common Test Methods for Insulating and Sheathing Materials of Electric Cables and Optical Cable.

IEC 60885 Electrical Test Methods for Electric Cable

IEC 60986 Short Circuit Temperature Limits of Electric Cable with Rated Voltage from 6 kV (Um = 7.2 kV) and 30 kV (Um = 36 kV)

BS 5467 Electric Cables - Thermosetting Insulated, Armoured Cables for Voltages of 600/1000 V and 1900/3300 V.

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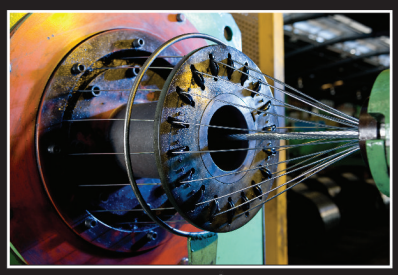
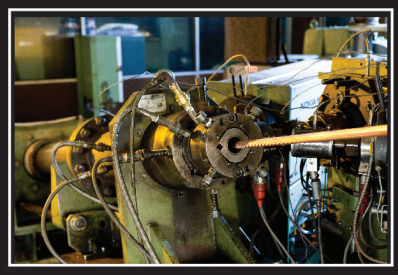
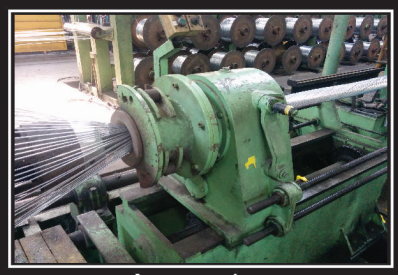
Drawing



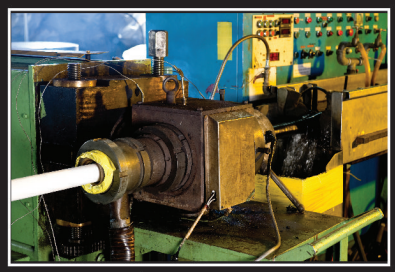
Stranding



Triple Extrusion (MV Cable)



Armouring



Outer Sheating Process

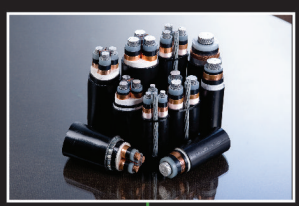
Testing

Overhead Bare Conductors
Up to 500kV

Product Standards:
BS, ASTM, TNB Specs

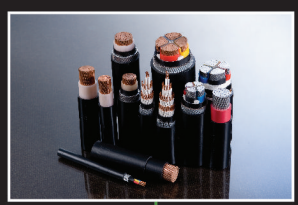
Aerial Bundled XLPE & PE
Cables 1kV, 11kV, 22kV, 33kV

Product Standards:
IEC 60502-1, IEC 60502-2, TNB Specs



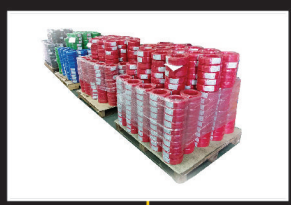
Low Voltage Power & Control XLPE & PVC Cables
1, 2, 3, 4-cores, Multicores

Product Standards:
IEC 60502-1, BS 6346



Underground Medium Voltage XLPE Cables
11kV, 22kV, 33kV
1-core, 3-cores

Product Standards:
IEC 60502-2, TNB Specs



Housing Wires

Product Standards:
MS 2112-3, MS 2112-4

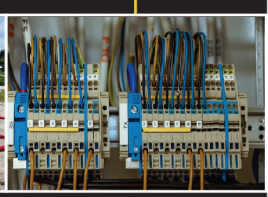
Power Plant

Transmission

Substation

Distribution (ABC)

Distribution (UG)



Housing Wire

End To End Power Connection

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XLPE

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