

INTRODUCTION

High Voltage cable systems form an integral part of electricity transmission and distribution networks throughout the world. Sucj Systems, which have been traditionnaly installed in built-up areas in places with restricted space or in regions of natural beauty or ecological value where the use of overhead lines is no appropriate, are today becoming more widely adopted. JCC continues to maintain and provide the complete range of products and services required for all extruded High Voltage Cable Systems.

JCC produces extruded cables with XLPE insulation material, using design and process technologies, which ensure continued service reliability and long term performance. Such cables can operate at elevated temperatures and under considerable electrical stress. Internationally, extruded cable systems operate up to 525 KV. Extruded cables are usually lighter and easier to handle and extruded cable systems are generally designed maintenance-free. Dependent on the system requirements, these features present significant benefits in terms of total installed system cost.





EXAMPLE OF HIGH VOLTAGE CABLES

Single Core XLPE Cables with Copper Wire Screen and APL Sheath



Single Core XLPE Cable with Lead Sheath





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General Information



GENERAL INFORMATION

A wide variety of high voltage cable designs is offered by JCC to provide most economical solutions. Various types of conductors, metallic screening and sheathing, corrosion protective layers etc. are available.

Conductors

The cable conductors can be made of copper or aluminum. The choice is a matter of customer's preference or current carrying capacity.

Available conductor constructions:

- Circular stranded compacted conductors up to 1000mm²
- Segmental conductors up to 2000mm² (Milliken conductors)

High Voltage cables are constructed watertight by default. Water swellable materials are provided in the conductor interstices to prevent ingress of water along the conductor axis in case of cable failure due to any reason

Insulation

For manufacture of Super-Clean XLPE insulated high voltage cables, JCC disposes of latest extrusion lines. Highest quality standards together with sharpest process control equipment ensure manufacture of cables meeting the highest requirements and enabling development of most advanced power cable systems.

Metallic covering

At JCC both, extruded lead sheath as well as the aluminum sheath can be applied. While the lead sheath leads to smaller dimensions, the aluminum sheath provides high short circuit current carrying capability and lower weight.

As the XLPE insulated cables do not require an internal overpressure, they are usually equipped with a copper wire screen. For radial moisture barrier a coated aluminum foil is longitudinally applied. The combination with the polyethylene oversheath is called aluminum polyethylene laminated (APL) sheath. This solution provides high short circuit capability and water tightness combined with lowest weight and smallest dimensions.

A combination of the copper wire screen with a metal sheath is also possible. For all XLPE insulated high voltage cables, the space between cable core and water barrier is made longitudinally watertight.



Oversheath

An extruded polyethylene sheath is provided as the standard solution. With respect to its excellent mechanical strength it is the optimum for buried cables. If required, a conductive layer can be provided on the outside. For special applications different sheathing material may be used, optimized for the purpose.

Cabling and Armoring

JCC disposes of the appropriate machinery to carry out armoring of the cables when such reinforcements are required.



Technical data



SINGLE CORE CUIXLPEICUWIPE, 40/69 (72.5) KV

: Cu/AL conductor, XLPE insulation, copper wires screen, APL, PE sheath Type

Standard : IEC 60840

Watertight : Longitudinally and radially sealed

Packing : Non returnable wooden drums as per customer request



Laying Conditions:

: 40°C Soil temperature Ambient temperature : 25°C Cable formation Depth of Laying : 1.5m : Trefoil

Soil Thermal Resistivity : 1.0°C.m/W

P.S.: All cables are designed for an earth fault current of 40KA for 1sec. other designs are available

upon request

Other constructions are available upon request



69 KV Single Core XLPE Cables with Copper Wire Screen and Al/PE Sheath

Dimensions/ Cross Sections		mm ²	400	630		800	1000
Conductor, Cu or Al, round,	stranded, D	mm	23.4	30.8		33.4	38.6
Conductor Screen	approx.	mm	0.8	0.8		1.0	1.0
Super Clean XLPE insulation	nom.	mm	16.50	16.50		16.50	16.50
Insulation Screen approx.		mm	1.8	1.8		1.8	1.8
Screen, Copper Wire, Dimension		No.xmm	81 × 2.1	81 x 2.:	1 8	31 × 2.1	81 x 2.1
Thickness of Jacket, PE		mm	4.0	4.0		4.0	4.0
Outer Diameter	approx.	mm	80.0	85.0		90.0	95.0
Cable Weight (Cu/Al)	approx.	Kg/m	9.6/7.2	12.4/8.	5 1	4.2/9.3	16.5/-
Mechanical Data							
Minimum Bending	During laying	m	1,545	1,695		1.755	1.86
Radius	At termination	m	1.160	1.27		1.315	1.395
Maximum Pulling Force		kN	22.24	22.24		22.24	22,24
Electrical Data		1314					
Maximum DC Resistance	Cu Conductor	Ω/km	0.047	0.0283		0.0221	0.0176
@ 20°C	Al Conductor	Ω/km	0.047	0.0283		0.0221	0.0176
							- 0200
AC Resistance @ 90°C	Cu Conductor Al Conductor	Ω /km Ω /km	0.0625 0.1014	0.0405 0.0631		0.0336	0.0289
	AT Conductor		<u> </u>				
Inductance		mH/km	0.4291	0.3924		0.3832	0.3657
Capacitance		μF/km	0.1704	0.2031	•	0.2161	0.2387
Current Carrying Capacity (contin	<u> </u>						
Directly	Cu Conductor	A	646	825		915	1002
buried	Al Conductor	A	508	662		744	-
in	Cu Conductor	Α	792	1050		1177	1317
<i>A</i> ir	Al Conductor	Α	623	842		957	-
		1	020				
Dimensions/ Cross Sections		mm²	1000	1200	1400	1600	2000
	Seamental. D	mm ²	1000	1200		1600	
Conductor, Cu or Al, round,		mm² mm	1000	1200 43.8	47.3	1600 50.4	56.4
Conductor, Cu or Al, round, Conductor Screen	approx.	mm² mm	1000 40.6 1.0	1200 43.8 1.0	47.3 1.0	1600 50.4 1.0	56.4 1.0
Conductor, Cu or Al, round, Conductor Screen Super Clean XLPE insulation	approx.	mm² mm mm	1000	1200 43.8	47.3	1600 50.4	56.4 1.0
Conductor, Cu or Al, round, Conductor Screen Super Clean XLPE insulation Insulation Screen	approx. nom. approx.	mm² mm mm mm	1000 40.6 1.0 16.50 1.8	1200 43.8 1.0 16.50 1.8	47.3 1.0 16.50 1.8	1600 50.4 1.0 16.50 1.8	56.4 1.0 16.50 1.8
Conductor, Cu or Al, round, Conductor Screen Super Clean XLPE insulation Insulation Screen Screen, Copper Wire, Dimer	approx. nom. approx.	mm² mm mm mm mm Mo.xmm	1000 40.6 1.0 16.50 1.8 81 x 2.1	1200 43.8 1.0 16.50 1.8 81 x 2.1	47.3 1.0 16.50 1.8 81 × 2.1	1600 50.4 1.0 16.50 1.8 81 x 2.1	56.4 1.0 16.50 1.8 81 x 2.
Conductor, Cu or Al, round, Conductor Screen Super Clean XLPE insulation Insulation Screen Screen, Copper Wire, Dimer Thickness of Jacket, PE	approx. nom. approx.	mm² mm mm mm mm Mo.xmm mm	1000 40.6 1.0 16.50 1.8 81 x 2.1 4.0	1200 43.8 1.0 16.50 1.8 81 x 2.1 4.0	47.3 1.0 16.50 1.8 81 × 2.1 4.0	1600 50.4 1.0 16.50 1.8 81 x 2.1 4.0	56.4 1.0 16.50 1.8 81 x 2. 4.0
Conductor, Cu or Al, round, Conductor Screen Super Clean XLPE insulation Insulation Screen Screen, Copper Wire, Dimer Thickness of Jacket, PE Outer Diameter	approx. nom. approx. nsion	mm² mm mm mm mm No.×mm mm	1000 40.6 1.0 16.50 1.8 81 x 2.1 4.0 95.0	1200 43.8 1.0 16.50 1.8 81 x 2.1 4.0	47.3 1.0 16.50 1.8 81 × 2.1 4.0 105.0	1600 50.4 1.0 16.50 1.8 81 x 2.1 4.0	56.4 1.0 16.50 1.8 81 × 2. 4.0
Conductor, Cu or Al, round, Conductor Screen Super Clean XLPE insulation Insulation Screen Screen, Copper Wire, Dimer Thickness of Jacket, PE Outer Diameter Cable Weight (Cu/Al)	approx. nom. approx.	mm² mm mm mm mm Mo.xmm mm	1000 40.6 1.0 16.50 1.8 81 x 2.1 4.0	1200 43.8 1.0 16.50 1.8 81 x 2.1 4.0	47.3 1.0 16.50 1.8 81 × 2.1 4.0	1600 50.4 1.0 16.50 1.8 81 x 2.1 4.0	56.4 1.0 16.50 1.8 81 × 2. 4.0
Conductor, Cu or Al, round, Conductor Screen Super Clean XLPE insulation Insulation Screen Screen, Copper Wire, Dimer Thickness of Jacket, PE Outer Diameter Cable Weight (Cu/Al)	approx. nom. approx. nsion approx. approx.	mm² mm mm mm mm No.×mm mm Kg/m	1000 40.6 1.0 16.50 1.8 81 × 2.1 4.0 95.0 16.8/10.4	1200 43.8 1.0 16.50 1.8 81 × 2.1 4.0 100.0 18.6/11.1	47.3 1.0 16.50 1.8 81 x 2.1 4.0 105.0 20.7/11.9	1600 50.4 1.0 16.50 1.8 81 × 2.1 4.0 105.0 22.6/12.7	56.4 1.0 16.50 1.8 81 x 2. 4.0 115.0 26.7/14
Conductor, Cu or Al, round, Conductor Screen Super Clean XLPE insulation Insulation Screen Screen, Copper Wire, Dimer Thickness of Jacket, PE Outer Diameter Cable Weight (Cu/Al) Mechanical Data Minimum Bending	approx. nom. approx. nsion approx. approx. approx. approx.	mm² mm mm mm Mo.×mm mm Kg/m	1000 40.6 1.0 16.50 1.8 81 × 2.1 4.0 95.0 16.8/10.4	1200 43.8 1.0 16.50 1.8 81 × 2.1 4.0 100.0 18.6/11.1	47.3 1.0 16.50 1.8 81 x 2.1 4.0 105.0 20.7/11.9	1600 50.4 1.0 16.50 1.8 81 × 2.1 4.0 105.0 22.6/12.7	56.4 1.0 16.50 1.8 81 x 2. 4.0 115.0 26.7/14
Conductor, Cu or Al, round, Conductor Screen Super Clean XLPE insulation Insulation Screen Screen, Copper Wire, Dimer Thickness of Jacket, PE Outer Diameter Cable Weight (Cu/Al) Mechanical Data Minimum Bending Radius	approx. nom. approx. nsion approx. approx.	mm² mm mm mm No.×mm mm Kg/m	1000 40.6 1.0 16.50 1.8 81 × 2.1 4.0 95.0 16.8/10.4 1.900 1.425	1200 43.8 1.0 16.50 1.8 81 × 2.1 4.0 100.0 18.6/11.1 1.960 1.470	47.3 1.0 16.50 1.8 81 x 2.1 4.0 105.0 20.7/11.9 2.030 1.525	1600 50.4 1.0 16.50 1.8 81 × 2.1 4.0 105.0 22.6/12.7 2.095 1.57	56.4 1.0 16.50 1.8 81 x 2. 4.0 115.0 26.7/14 2.215
Conductor, Cu or Al, round, Conductor Screen Super Clean XLPE insulation Insulation Screen Screen, Copper Wire, Dimer Thickness of Jacket, PE Outer Diameter Cable Weight (Cu/Al) Mechanical Data Minimum Bending Radius Maximum Pulling Force	approx. nom. approx. nsion approx. approx. approx. approx.	mm² mm mm mm mm No.×mm mm Kg/m	1000 40.6 1.0 16.50 1.8 81 × 2.1 4.0 95.0 16.8/10.4	1200 43.8 1.0 16.50 1.8 81 × 2.1 4.0 100.0 18.6/11.1	47.3 1.0 16.50 1.8 81 x 2.1 4.0 105.0 20.7/11.9	1600 50.4 1.0 16.50 1.8 81 × 2.1 4.0 105.0 22.6/12.7	56.4 1.0 16.50 1.8 81 x 2. 4.0 115.0 26.7/14 2.215
Conductor, Cu or Al, round, Conductor Screen Super Clean XLPE insulation Insulation Screen Screen, Copper Wire, Dimer Thickness of Jacket, PE Outer Diameter Cable Weight (Cu/Al) Mechanical Data Minimum Bending Radius Maximum Pulling Force Electrical Data	approx. nom. approx. nsion approx. approx. approx. Approx. Approx. Approx.	mm² mm mm mm No.×mm mm Kg/m m kN	1000 40.6 1.0 16.50 1.8 81 x 2.1 4.0 95.0 16.8/10.4 1.900 1.425 22.24	1200 43.8 1.0 16.50 1.8 81 × 2.1 4.0 100.0 18.6/11.1 1.960 1.470 22.24	47.3 1.0 16.50 1.8 81 × 2.1 4.0 105.0 20.7/11.9 2.030 1.525 22.24	1600 50.4 1.0 16.50 1.8 81 × 2.1 4.0 105.0 22.6/12.7 2.095 1.57 22.24	56.4 1.0 16.50 1.8 81 x 2. 4.0 115.0 26.7/14 2.215 1.66 22.24
Conductor, Cu or Al, round, Conductor Screen Super Clean XLPE insulation Insulation Screen Screen, Copper Wire, Dimer Thickness of Jacket, PE Outer Diameter Cable Weight (Cu/Al) Mechanical Data Minimum Bending Radius Maximum Pulling Force Electrical Data Maximum DC Resistance	approx. nom. approx. nsion approx. approx. approx. Approx. Cu Conductor	mm² mm mm mm mm No.×mm mm Kg/m m kN Ω/km Ω/km	1000 40.6 1.0 16.50 1.8 81 × 2.1 4.0 95.0 16.8/10.4 1.900 1.425 22.24	1200 43.8 1.0 16.50 1.8 81 × 2.1 4.0 100.0 18.6/11.1 1.960 1.470 22.24	47.3 1.0 16.50 1.8 81 × 2.1 4.0 105.0 20.7/11.9 2.030 1.525 22.24	1600 50.4 1.0 16.50 1.8 81 × 2.1 4.0 105.0 22.6/12.7 2.095 1.57 22.24	56.4 1.0 16.50 1.8 81 x 2. 4.0 115.0 26.7/14 2.215 1.66 22.24
Conductor, Cu or Al, round, Conductor Screen Super Clean XLPE insulation Insulation Screen Screen, Copper Wire, Dimer Thickness of Jacket, PE Outer Diameter Cable Weight (Cu/Al) Mechanical Data Minimum Bending Radius Maximum Pulling Force Electrical Data Maximum DC Resistance © 20°C	approx. nom. approx. nsion approx. approx. approx. During laying At termination Cu Conductor Al Conductor	mm² mm mm mm mm No.xmm mm Kg/m m kN Ω/km	1000 40.6 1.0 16.50 1.8 81 x 2.1 4.0 95.0 16.8/10.4 1.900 1.425 22.24 0.0176 0.0291	1200 43.8 1.0 16.50 1.8 81 × 2.1 4.0 100.0 18.6/11.1 1.960 1.470 22.24 0.0151 0.0247	47.3 1.0 16.50 1.8 81 × 2.1 4.0 105.0 20.7/11.9 2.030 1.525 22.24 0.0129 0.0212	1600 50.4 1.0 16.50 1.8 81 × 2.1 4.0 105.0 22.6/12.7 2.095 1.57 22.24	56.4 1.0 16.50 1.8 81 x 2. 4.0 115.0 26.7/14 2.215 1.66 22.24 0.009 0.0145
Conductor, Cu or Al, round, Conductor Screen Super Clean XLPE insulation Insulation Screen Screen, Copper Wire, Dimer Thickness of Jacket, PE Outer Diameter Cable Weight (Cu/Al) Mechanical Data Minimum Bending Radius Maximum Pulling Force Electrical Data Maximum DC Resistance @ 20°C AC Resistance	approx. nom. approx. approx. approx. approx. approx. Approx. During laying At termination Cu Conductor Al Conductor Cu Conductor	mm² mm mm mm mm No.xmm mm Kg/m m kN Ω/km	1000 40.6 1.0 16.50 1.8 81 x 2.1 4.0 95.0 16.8/10.4 1.900 1.425 22.24 0.0176 0.0291 0.0239	1200 43.8 1.0 16.50 1.8 81 × 2.1 4.0 100.0 18.6/11.1 1.960 1.470 22.24 0.0151 0.0247 0.0210	47.3 1.0 16.50 1.8 81 × 2.1 4.0 105.0 20.7/11.9 2.030 1.525 22.24 0.0129 0.0212 0.0185	1600 50.4 1.0 16.50 1.8 81 × 2.1 4.0 105.0 22.6/12.7 2.095 1.57 22.24 0.0113 0.0186 0.0167	56.4 1.0 16.50 1.8 81 x 2. 4.0 115.0 26.7/14 2.215 1.66 22.24 0.009 0.0145 0.0145
Conductor, Cu or Al, round, Conductor Screen Super Clean XLPE insulation Insulation Screen Screen, Copper Wire, Dimer Thickness of Jacket, PE Outer Diameter Cable Weight (Cu/Al) Mechanical Data Minimum Bending Radius Maximum Pulling Force Electrical Data Maximum DC Resistance © 20°C AC Resistance	approx. nom. approx. nsion approx. approx. approx. During laying At termination Cu Conductor Al Conductor	mm² mm mm mm mm mm No.xmm mm Kg/m m kN Ω/km Ω	1000 40.6 1.0 16.50 1.8 81 x 2.1 4.0 95.0 16.8/10.4 1.900 1.425 22.24 0.0176 0.0291 0.0239 0.0382	1200 43.8 1.0 16.50 1.8 81 × 2.1 4.0 100.0 18.6/11.1 1.960 1.470 22.24 0.0151 0.0247 0.0210 0.0328	47.3 1.0 16.50 1.8 81 x 2.1 4.0 105.0 20.7/11.9 2.030 1.525 22.24 0.0129 0.0212 0.0185 0.0285	1600 50.4 1.0 16.50 1.8 81 × 2.1 4.0 105.0 22.6/12.7 2.095 1.57 22.24 0.0113 0.0186 0.0167 0.0254	56.4 1.0 16.50 1.8 81 x 2. 4.0 115.0 26.7/14 2.215 1.66 22.24 0.009 0.0145 0.0210
Conductor, Cu or Al, round, Conductor Screen Super Clean XLPE insulation Insulation Screen Screen, Copper Wire, Dimer Thickness of Jacket, PE Outer Diameter Cable Weight (Cu/Al) Mechanical Data Minimum Bending Radius Maximum Pulling Force Electrical Data Maximum DC Resistance © 20°C AC Resistance © 90°C Inductance	approx. nom. approx. approx. approx. approx. approx. Approx. During laying At termination Cu Conductor Al Conductor Cu Conductor	mm² mm mm mm mm mm mm m	1000 40.6 1.0 16.50 1.8 81 x 2.1 4.0 95.0 16.8/10.4 1.900 1.425 22.24 0.0176 0.0291 0.0239 0.0382 0.3613	1200 43.8 1.0 16.50 1.8 81 × 2.1 4.0 100.0 18.6/11.1 1.960 1.470 22.24 0.0151 0.0247 0.0210 0.0328 0.3514	47.3 1.0 16.50 1.8 81 x 2.1 4.0 105.0 20.7/11.9 2.030 1.525 22.24 0.0129 0.0212 0.0185 0.0285 0.343	1600 50.4 1.0 16.50 1.8 81 x 2.1 4.0 105.0 22.6/12.7 2.095 1.57 22.24 0.0113 0.0186 0.0167 0.0254 0.3363	56.4 1.0 16.50 1.8 81 x 2. 4.0 115.0 26.7/14 2.215 1.66 22.24 0.009 0.0149 0.0141 0.0210 0.325
Conductor, Cu or Al, round, Conductor Screen Super Clean XLPE insulation Insulation Screen Screen, Copper Wire, Dimer Thickness of Jacket, PE Outer Diameter Cable Weight (Cu/Al) Mechanical Data Minimum Bending Radius Maximum Pulling Force Electrical Data Maximum DC Resistance @ 20°C AC Resistance @ 90°C Inductance Capacitance	approx. nom. approx. approx. approx. approx. approx. approx. During laying At termination Cu Conductor Al Conductor Cu Conductor Al Conductor Al Conductor	mm² mm mm mm mm mm No.xmm mm Kg/m m kN Ω/km Ω	1000 40.6 1.0 16.50 1.8 81 x 2.1 4.0 95.0 16.8/10.4 1.900 1.425 22.24 0.0176 0.0291 0.0239 0.0382	1200 43.8 1.0 16.50 1.8 81 × 2.1 4.0 100.0 18.6/11.1 1.960 1.470 22.24 0.0151 0.0247 0.0210 0.0328	47.3 1.0 16.50 1.8 81 x 2.1 4.0 105.0 20.7/11.9 2.030 1.525 22.24 0.0129 0.0212 0.0185 0.0285	1600 50.4 1.0 16.50 1.8 81 × 2.1 4.0 105.0 22.6/12.7 2.095 1.57 22.24 0.0113 0.0186 0.0167 0.0254	56.4 1.0 16.50 1.8 81 x 2. 4.0 115.0 26.7/14 2.215 1.66 22.24 0.009 0.0149 0.0140 0.0210 0.325
Conductor, Cu or Al, round, Conductor Screen Super Clean XLPE insulation Insulation Screen Screen, Copper Wire, Dimer Thickness of Jacket, PE Outer Diameter Cable Weight (Cu/Al) Mechanical Data Minimum Bending Radius Maximum Pulling Force Electrical Data Maximum DC Resistance © 20°C AC Resistance © 90°C Inductance Capacitance Current Carrying Capacity (conti	approx. nom. approx. approx. approx. approx. approx. approx. During laying At termination Cu Conductor Al Conductor Al Conductor Al Conductor Al Conductor	mm² mm mm mm mm mm No.xmm mm Kg/m M Kg/m M Kg/m M M M M M M M M M	1000 40.6 1.0 16.50 1.8 81 x 2.1 4.0 95.0 16.8/10.4 1.900 1.425 22.24 0.0176 0.0291 0.0239 0.0382 0.3613 0.2474	1200 43.8 1.0 16.50 1.8 81 × 2.1 4.0 100.0 18.6/11.1 1.960 1.470 22.24 0.0151 0.0247 0.0210 0.0328 0.3514 0.2612	47.3 1.0 16.50 1.8 81 x 2.1 4.0 105.0 20.7/11.9 2.030 1.525 22.24 0.0129 0.0212 0.0185 0.0285 0.343 0.2762	1600 50.4 1.0 16.50 1.8 81 x 2.1 4.0 105.0 22.6/12.7 2.095 1.57 22.24 0.0113 0.0186 0.0167 0.0254 0.3363 0.2896	56.4 1.0 16.50 1.8 81 x 2. 4.0 115.0 26.7/14 2.215 1.66 22.24 0.009 0.0149 0.0143 0.0210 0.325 0.3153
Conductor, Cu or Al, round, Conductor Screen Super Clean XLPE insulation Insulation Screen Screen, Copper Wire, Dimer Thickness of Jacket, PE Outer Diameter Cable Weight (Cu/Al) Mechanical Data Minimum Bending Radius Maximum Pulling Force Electrical Data Maximum DC Resistance © 20°C AC Resistance © 90°C Inductance Capacitance Current Carrying Capacity (conti	approx. nom. approx. a	mm² mm mm mm mm mm No.xmm mm Kg/m m kN Ω/km Ω/km Ω/km Ω/km Ω/km Ω/km μF/km μF/km Δ	1000 40.6 1.0 16.50 1.8 81 x 2.1 4.0 95.0 16.8/10.4 1.900 1.425 22.24 0.0176 0.0291 0.0239 0.0382 0.3613 0.2474	1200 43.8 1.0 16.50 1.8 81 x 2.1 4.0 100.0 18.6/11.1 1.960 1.470 22.24 0.0151 0.0247 0.0210 0.0328 0.3514 0.2612	47.3 1.0 16.50 1.8 81 x 2.1 4.0 105.0 20.7/11.9 2.030 1.525 22.24 0.0129 0.0212 0.0185 0.0285 0.343 0.2762	1600 50.4 1.0 16.50 1.8 81 x 2.1 4.0 105.0 22.6/12.7 2.095 1.57 22.24 0.0113 0.0186 0.0167 0.0254 0.3363 0.2896	56.4 1.0 16.50 1.8 81 x 2. 4.0 115.0 26.7/14 2.215 1.66 22.24 0.009 0.0149 0.0143 0.0210 0.325 0.3153
Conductor, Cu or Al, round, Conductor Screen Super Clean XLPE insulation Insulation Screen Screen, Copper Wire, Dimer Thickness of Jacket, PE Outer Diameter Cable Weight (Cu/Al) Mechanical Data Minimum Bending Radius Maximum Pulling Force Electrical Data Maximum DC Resistance © 20°C AC Resistance © 90°C Inductance Capacitance Current Carrying Capacity (conti	approx. nom. approx. approx. approx. approx. approx. approx. During laying At termination Cu Conductor Al Conductor Al Conductor Al Conductor Al Conductor Al Conductor Al Conductor	mm² mm mm mm mm mm No.xmm mm Kg/m m kN Ω/km Ω/km Ω/km Ω/km Ω/km Ω/km μF/km μF/km A A	1000 40.6 1.0 16.50 1.8 81 x 2.1 4.0 95.0 16.8/10.4 1.900 1.425 22.24 0.0176 0.0291 0.0239 0.0382 0.3613 0.2474	1200 43.8 1.0 16.50 1.8 81 x 2.1 4.0 100.0 18.6/11.1 1.960 1.470 22.24 0.0151 0.0247 0.0210 0.0328 0.3514 0.2612	47.3 1.0 16.50 1.8 81 x 2.1 4.0 105.0 20.7/11.9 2.030 1.525 22.24 0.0129 0.0212 0.0185 0.0285 0.343 0.2762	1600 50.4 1.0 16.50 1.8 81 x 2.1 4.0 105.0 22.6/12.7 2.095 1.57 22.24 0.0113 0.0186 0.0167 0.0254 0.3363 0.2896	56.4 1.0 16.50 1.8 81 × 2. 4.0 115.0 26.7/14 2.215 1.66 22.24 0.009 0.0149 0.0143 0.0210 0.325 0.3153
Conductor, Cu or Al, round, Conductor Screen Super Clean XLPE insulation Insulation Screen Screen, Copper Wire, Dimer Thickness of Jacket, PE Outer Diameter Cable Weight (Cu/Al) Mechanical Data Minimum Bending Radius Maximum Pulling Force Electrical Data Maximum DC Resistance © 20°C AC Resistance © 90°C Inductance Capacitance Current Carrying Capacity (conti	approx. nom. approx. a	mm² mm mm mm mm mm No.xmm mm Kg/m m kN Ω/km Ω/km Ω/km Ω/km Ω/km Ω/km μF/km μF/km Δ	1000 40.6 1.0 16.50 1.8 81 x 2.1 4.0 95.0 16.8/10.4 1.900 1.425 22.24 0.0176 0.0291 0.0239 0.0382 0.3613 0.2474	1200 43.8 1.0 16.50 1.8 81 x 2.1 4.0 100.0 18.6/11.1 1.960 1.470 22.24 0.0151 0.0247 0.0210 0.0328 0.3514 0.2612	47.3 1.0 16.50 1.8 81 x 2.1 4.0 105.0 20.7/11.9 2.030 1.525 22.24 0.0129 0.0212 0.0185 0.0285 0.343 0.2762	1600 50.4 1.0 16.50 1.8 81 x 2.1 4.0 105.0 22.6/12.7 2.095 1.57 22.24 0.0113 0.0186 0.0167 0.0254 0.3363 0.2896	56.4 1.0 16.50 1.8 81 x 2. 4.0 115.0 26.7/14 2.215 1.66 22.24 0.009 0.0149 0.0143 0.0210 0.325 0.3153



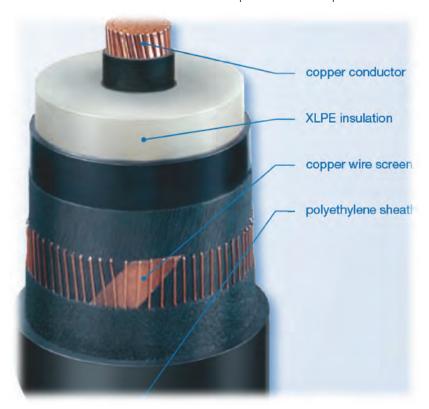
SINGLE CORE CUIXLPEICUWIPE, 63.5/110 (123) KV

Type : Cu/AL conductor, XLPE insulation, copper wires screen, PE sheath

Standard : IEC 60840

Watertight : Longitudinally and radially sealed

Packing : Non returnable wooden drums as per customer request



Laying Conditions:

Soil temperature : 25°C Ambient temperature : 40°C

Depth of Laying : 1.5m Cable formation : Trefoil

Soil Thermal Resistivity : 1.0°C.m/W

P.S.: All cables are designed for an earth fault current of 40KA for 1sec. other designs are available

upon request

Other constructions are available upon request



110 KV SINGLE CORE XLPE CABLES WITH COPPER WIRE SCREEN

Dimensions/ Cross Sections		mm ²	400	630	800	1000
Conductor, Cu or Al, round, s	tranded, D	mm	23.4	30.8	33.4	38.6
Conductor Screen	approx.	mm	0.8	0.8	1.0	1.0
Super Clean XLPE insulation	nom.	mm	20.32	20.32	20.32	20.32
Insulation Screen	approx.	mm	1.8	1.8	1.8	1.8
Screen, Copper Wire, Dimensi	ion	No.xmm	81 x 2.1	81 x 2.1	81 x 2.1	81 x 2.1
Thickness of Jacket, PE		mm	4.0	4.0	4.0	4.0
Outer Diameter	approx.	mm	85.0	95.0	100.0	100.0
Cable Weight (Cu/Al)	approx.	Kg/m	10.3/8	13.2/9.3	15/10.1	17.4/-
Mechanical Data	.,					
Minimum Bendina	During laying	m	1.685	1.835	1.915	2
Radius	At termination	m	1.265	1.375	1.435	1.5
Maximum Pulling Force		kN	22.24	22,24	22,24	22,24
Electrical Data						
Maximum DC Resistance	Cu Conductor	Ω /km	0.047	0.0283	0.0221	0.0176
@ 20°C	Al Conductor	Ω/km	0.0778	0.0469	0.0367	-
AC Resistance	Cu Conductor	Ω/km	0.0625	0.0405	0.0336	0.0289
@ 90°C	Al Conductor	Ω/km	0.1014	0.0631	0.0508	
Enductance	7.1 OUNGUETOI	mH/km	0.4291	0.3924	0.3832	0.3657
Capacitance		μF/km	0.1704	0.2031	0.2161	0.3037
Current Carrying Capacity (continu	ious load)	pir 7 rent	0.2701	0.2001	0:2101	0.2007
Directly	Cu Conductor	Α	645	826	916	1005
ouried	Al Conductor	A	507	661	744	-
Cu Conductor	711 0011000101	A	788	1045	1171	1311
ou conductor			700	10.10		
Al Conductor		A	619	837	951	-
Al Conductor		Α	619	837	951	-
		A mm²	1000	1200	951	2000
Dimensions/ Cross Sections	Seamental, D	mm²		· I	7	-
Dimensions/ Cross Sections Conductor, Cu or Al, round, S	· ·	mm ²	1000	1200	1600	2000
Dimensions/ Cross Sections Conductor, Cu or Al, round, S Conductor Screen	approx.	mm² mm mm	1000	1200 43.8	1600 50.4	2000 56.4
Dimensions/ Cross Sections Conductor, Cu or Al, round, S Conductor Screen Super Clean XLPE insulation	approx.	mm² mm mm	1000 40.6 1.0 20.32	1200 43.8 1.0 20.32	1600 50.4 1.0	2000 56.4 1.0
Dimensions/ Cross Sections Conductor, Cu or Al, round, S Conductor Screen Super Clean XLPE insulation Insulation Screen	approx. nom. approx.	mm² mm mm mm mm	1000 40.6 1.0 20.32 1.8	1200 43.8 1.0 20.32 1.8	1600 50.4 1.0 20.32 1.8	2000 56.4 1.0 20.32 1.8
Al Conductor Dimensions/ Cross Sections Conductor, Cu or Al, round, S Conductor Screen Super Clean XLPE insulation Insulation Screen Screen, Copper Wire, Dimensi Thickness of Jacket, PE	approx. nom. approx.	mm² mm mm mm mm No.xmm	1000 40.6 1.0 20.32 1.8 81 x 2.1	1200 43.8 1.0 20.32	1600 50.4 1.0 20.32	2000 56.4 1.0 20.32 1.8
Dimensions/ Cross Sections Conductor, Cu or Al, round, S Conductor Screen Super Clean XLPE insulation Insulation Screen Screen, Copper Wire, Dimensi Thickness of Jacket, PE	approx. nom. approx.	mm² mm mm mm mm No.×mm	1000 40.6 1.0 20.32 1.8	1200 43.8 1.0 20.32 1.8 81 x 2.1	1600 50.4 1.0 20.32 1.8 81 x 2.1	2000 56.4 1.0 20.32 1.8 81 x 2.1
Dimensions/ Cross Sections Conductor, Cu or Al, round, S Conductor Screen Super Clean XLPE insulation Insulation Screen Screen, Copper Wire, Dimensi Thickness of Jacket, PE Outer Diameter	approx. nom. approx. ion	mm² mm mm mm mm No.×mm mm	1000 40.6 1.0 20.32 1.8 81 × 2.1 4.0	1200 43.8 1.0 20.32 1.8 81 x 2.1 4.0	1600 50.4 1.0 20.32 1.8 81 x 2.1 4.0	2000 56.4 1.0 20.32 1.8 81 × 2.1 4.0 120.0
Dimensions/ Cross Sections Conductor, Cu or Al, round, S Conductor Screen Super Clean XLPE insulation Insulation Screen Screen, Copper Wire, Dimensi Thickness of Jacket, PE Duter Diameter Cable Weight (Cu/Al)	approx. nom. approx.	mm² mm mm mm mm No.×mm	1000 40.6 1.0 20.32 1.8 81 × 2.1 4.0 105.0	1200 43.8 1.0 20.32 1.8 81 x 2.1 4.0 110.0	1600 50.4 1.0 20.32 1.8 81 × 2.1 4.0 115.0	2000 56.4 1.0 20.32 1.8 81 × 2.1 4.0 120.0
Dimensions/ Cross Sections Conductor, Cu or Al, round, S Conductor Screen Super Clean XLPE insulation Insulation Screen Screen, Copper Wire, Dimensi Thickness of Jacket, PE Outer Diameter Cable Weight (Cu/Al) Mechanical Data	approx. nom. approx. ion approx. approx.	mm² mm mm mm mm No.×mm mm	1000 40.6 1.0 20.32 1.8 81 × 2.1 4.0 105.0	1200 43.8 1.0 20.32 1.8 81 x 2.1 4.0 110.0	1600 50.4 1.0 20.32 1.8 81 × 2.1 4.0 115.0	2000 56.4 1.0 20.32 1.8 81 × 2.1 4.0 120.0
Dimensions/ Cross Sections Conductor, Cu or Al, round, S Conductor Screen Super Clean XLPE insulation Insulation Screen Screen, Copper Wire, Dimensi Thickness of Jacket, PE Duter Diameter Cable Weight (Cu/Al) Mechanical Data Winimum Bending	approx. nom. approx. ion	mm² mm mm mm mm No.×mm mm Kg/m	1000 40.6 1.0 20.32 1.8 81 × 2.1 4.0 105.0 17.7/11.3	1200 43.8 1.0 20.32 1.8 81 × 2.1 4.0 110.0 19.5/12.1	1600 50.4 1.0 20.32 1.8 81 × 2.1 4.0 115.0 23.6/13.7	2000 56.4 1.0 20.32 1.8 81 x 2.1 4.0 120.0 27.8/15.
Dimensions/ Cross Sections Conductor, Cu or Al, round, S Conductor Screen Super Clean XLPE insulation Insulation Screen Screen, Copper Wire, Dimensi Thickness of Jacket, PE Outer Diameter Cable Weight (Cu/Al) Mechanical Data Winimum Bending Radius	approx. nom. approx. ion approx. approx. approx.	mm² mm mm mm mm No.×mm mm Kg/m	1000 40.6 1.0 20.32 1.8 81 × 2.1 4.0 105.0 17.7/11.3	1200 43.8 1.0 20.32 1.8 81 × 2.1 4.0 110.0 19.5/12.1	1600 50.4 1.0 20.32 1.8 81 × 2.1 4.0 115.0 23.6/13.7	2000 56.4 1.0 20.32 1.8 81 × 2.: 4.0 120.0 27.8/15.
Dimensions/ Cross Sections Conductor, Cu or Al, round, S Conductor Screen Super Clean XLPE insulation Insulation Screen Screen, Copper Wire, Dimensi Thickness of Jacket, PE Outer Diameter Cable Weight (Cu/Al) Mechanical Data Minimum Bending Radius Maximum Pulling Force	approx. nom. approx. ion approx. approx. approx.	mm² mm mm mm mm No.xmm mm kg/m	1000 40.6 1.0 20.32 1.8 81 × 2.1 4.0 105.0 17.7/11.3	1200 43.8 1.0 20.32 1.8 81 × 2.1 4.0 110.0 19.5/12.1 2.100 1.575	1600 50.4 1.0 20.32 1.8 81 × 2.1 4.0 115.0 23.6/13.7	2000 56.4 1.0 20.32 1.8 81 x 2.1 4.0 120.0 27.8/15. 2.355 1.765
Dimensions/ Cross Sections Conductor, Cu or Al, round, S Conductor Screen Super Clean XLPE insulation Insulation Screen Screen, Copper Wire, Dimensi Thickness of Jacket, PE Outer Diameter Cable Weight (Cu/Al) Mechanical Data Minimum Bending Radius Maximum Pulling Force Electrical Data	approx. nom. approx. ion approx. approx. approx. Approx. During laying At termination	mm² mm mm mm No.xmm mm kg/m m kN	1000 40.6 1.0 20.32 1.8 81 × 2.1 4.0 105.0 17.7/11.3 2.040 1.53 22.24	1200 43.8 1.0 20.32 1.8 81 × 2.1 4.0 110.0 19.5/12.1 2.100 1.575 22.24	1600 50.4 1.0 20.32 1.8 81 × 2.1 4.0 115.0 23.6/13.7 2.235 1.675 22.24	2000 56.4 1.0 20.32 1.8 81 × 2.: 4.0 120.0 27.8/15. 2.355 1.765 22.24
Dimensions/ Cross Sections Conductor, Cu or Al, round, S Conductor Screen Super Clean XLPE insulation Insulation Screen Screen, Copper Wire, Dimensi Thickness of Jacket, PE Outer Diameter Cable Weight (Cu/Al) Mechanical Data Minimum Bending Radius Maximum Pulling Force Electrical Data Maximum DC Resistance	approx. nom. approx. ion approx. approx. approx. Approx. Cu Conductor	mm² mm mm mm No.×mm mm kg/m m kN	1000 40.6 1.0 20.32 1.8 81 × 2.1 4.0 105.0 17.7/11.3	1200 43.8 1.0 20.32 1.8 81 × 2.1 4.0 110.0 19.5/12.1 2.100 1.575 22.24	1600 50.4 1.0 20.32 1.8 81 × 2.1 4.0 115.0 23.6/13.7 2.235 1.675 22.24	2000 56.4 1.0 20.32 1.8 81 × 2.: 4.0 120.0 27.8/15. 2.355 1.765 22.24
Dimensions/ Cross Sections Conductor, Cu or Al, round, S Conductor Screen Super Clean XLPE insulation Insulation Screen Screen, Copper Wire, Dimensi Thickness of Jacket, PE Outer Diameter Cable Weight (Cu/Al) Mechanical Data Winimum Bending Radius Maximum Pulling Force Electrical Data Maximum DC Resistance © 20°C	approx. nom. approx. ion approx. approx. approx. Approx. During laying At termination Cu Conductor Al Conductor	mm² mm mm mm No.xmm mm kg/m m kN	1000 40.6 1.0 20.32 1.8 81 × 2.1 4.0 105.0 17.7/11.3 2.040 1.53 22.24	1200 43.8 1.0 20.32 1.8 81 × 2.1 4.0 110.0 19.5/12.1 2.100 1.575 22.24	1600 50.4 1.0 20.32 1.8 81 × 2.1 4.0 115.0 23.6/13.7 2.235 1.675 22.24	2000 56.4 1.0 20.32 1.8 81 × 2.: 4.0 120.0 27.8/15. 2.355 1.765 22.24 0.009 0.0149
Dimensions/ Cross Sections Conductor, Cu or AI, round, S Conductor Screen Super Clean XLPE insulation Insulation Screen Screen, Copper Wire, Dimensi Thickness of Jacket, PE Outer Diameter Cable Weight (Cu/AI) Mechanical Data Minimum Bending Radius Maximum Pulling Force Electrical Data Maximum DC Resistance De 20°C AC Resistance	approx. nom. approx. ion approx. approx. approx. Approx. During laying At termination Cu Conductor Al Conductor Cu Conductor	mm² mm mm mm No.xmm mm kg/m m kN	1000 40.6 1.0 20.32 1.8 81 x 2.1 4.0 105.0 17.7/11.3 2.040 1.53 22.24 0.0176 0.0291 0.0238	1200 43.8 1.0 20.32 1.8 81 x 2.1 4.0 110.0 19.5/12.1 2.100 1.575 22.24 0.0151 0.0247 0.0209	1600 50.4 1.0 20.32 1.8 81 × 2.1 4.0 115.0 23.6/13.7 2.235 1.675 22.24 0.0113 0.0186 0.0166	2000 56.4 1.0 20.32 1.8 81 × 2. 4.0 120.0 27.8/15. 2.355 1.765 22.24 0.009 0.0149 0.0141
Dimensions/ Cross Sections Conductor, Cu or AI, round, S Conductor Screen Super Clean XLPE insulation Insulation Screen Screen, Copper Wire, Dimensi Thickness of Jacket, PE Outer Diameter Cable Weight (Cu/AI) Mechanical Data Minimum Bending Radius Maximum Pulling Force Electrical Data Maximum DC Resistance © 20°C AC Resistance	approx. nom. approx. ion approx. approx. approx. Approx. During laying At termination Cu Conductor Al Conductor	mm² mm mm mm No.xmm mm kg/m m kN Ω/km Ω/km	1000 40.6 1.0 20.32 1.8 81 x 2.1 4.0 105.0 17.7/11.3 2.040 1.53 22.24 0.0176 0.0291 0.0238 0.0382	1200 43.8 1.0 20.32 1.8 81 x 2.1 4.0 110.0 19.5/12.1 2.100 1.575 22.24 0.0151 0.0247 0.0209 0.0327	1600 50.4 1.0 20.32 1.8 81 × 2.1 4.0 115.0 23.6/13.7 2.235 1.675 22.24 0.0113 0.0186 0.0166 0.0253	2000 56.4 1.0 20.32 1.8 81 × 2.: 4.0 120.0 27.8/15. 2.355 1.765 22.24 0.009 0.0149 0.0141 0.0209
Dimensions/ Cross Sections Conductor, Cu or AI, round, S Conductor Screen Super Clean XLPE insulation Insulation Screen Screen, Copper Wire, Dimensi Thickness of Jacket, PE Outer Diameter Cable Weight (Cu/AI) Mechanical Data Minimum Bending Radius Maximum Pulling Force Electrical Data Maximum DC Resistance @ 20°C AC Resistance @ 90°C Inductance	approx. nom. approx. ion approx. approx. approx. Approx. During laying At termination Cu Conductor Al Conductor Cu Conductor	mm² mm mm mm No.xmm mm kg/m m kN	1000 40.6 1.0 20.32 1.8 81 x 2.1 4.0 105.0 17.7/11.3 2.040 1.53 22.24 0.0176 0.0291 0.0238 0.0382 0.3755	1200 43.8 1.0 20.32 1.8 81 x 2.1 4.0 110.0 19.5/12.1 2.100 1.575 22.24 0.0151 0.0247 0.0209 0.0327 0.3651	1600 50.4 1.0 20.32 1.8 81 × 2.1 4.0 115.0 23.6/13.7 2.235 1.675 22.24 0.0113 0.0186 0.0166 0.0253 0.3492	2000 56.4 1.0 20.32 1.8 81 × 2.: 4.0 120.0 27.8/15. 2.355 1.765 22.24 0.009 0.0149 0.0141 0.0209 0.3372
Dimensions/ Cross Sections Conductor, Cu or Al, round, S Conductor Screen Super Clean XLPE insulation Insulation Screen Screen, Copper Wire, Dimensi Thickness of Jacket, PE Outer Diameter Cable Weight (Cu/Al) Mechanical Data Minimum Bending Radius Maximum Pulling Force Electrical Data Maximum DC Resistance @ 20°C AC Resistance @ 90°C Inductance Capacitance	approx. nom. approx. ion approx. approx. approx. approx. Approx. Curing laying At termination Cu Conductor Al Conductor Al Conductor Al Conductor	mm² mm mm mm No.xmm mm kg/m m kN Ω/km Ω/km	1000 40.6 1.0 20.32 1.8 81 x 2.1 4.0 105.0 17.7/11.3 2.040 1.53 22.24 0.0176 0.0291 0.0238 0.0382	1200 43.8 1.0 20.32 1.8 81 x 2.1 4.0 110.0 19.5/12.1 2.100 1.575 22.24 0.0151 0.0247 0.0209 0.0327	1600 50.4 1.0 20.32 1.8 81 × 2.1 4.0 115.0 23.6/13.7 2.235 1.675 22.24 0.0113 0.0186 0.0166 0.0253	2000 56.4 1.0 20.32 1.8 81 × 2.: 4.0 120.0 27.8/15. 2.355 1.765 22.24 0.009 0.0149 0.0141 0.0209 0.3372
Dimensions/ Cross Sections Conductor, Cu or AI, round, S Conductor Screen Super Clean XLPE insulation Insulation Screen Screen, Copper Wire, Dimensi Thickness of Jacket, PE Outer Diameter Cable Weight (Cu/AI) Mechanical Data Minimum Bending Radius Maximum Pulling Force Electrical Data Maximum DC Resistance @ 20°C AC Resistance @ 90°C Inductance Capacitance Current Carrying Capacity (continu	approx. nom. approx. ion approx. approx. approx. approx. During laying At termination Cu Conductor Al Conductor Cu Conductor Al Conductor	mm² mm mm mm mm No.xmm mm kg/m	1000 40.6 1.0 20.32 1.8 81 x 2.1 4.0 105.0 17.7/11.3 2.040 1.53 22.24 0.0176 0.0291 0.0238 0.0382 0.3755 0.2116	1200 43.8 1.0 20.32 1.8 81 x 2.1 4.0 110.0 19.5/12.1 2.100 1.575 22.24 0.0151 0.0247 0.0209 0.0327 0.3651 0.223	1600 50.4 1.0 20.32 1.8 81 × 2.1 4.0 115.0 23.6/13.7 2.235 1.675 22.24 0.0113 0.0186 0.0166 0.0253 0.3492 0.2462	2000 56.4 1.0 20.32 1.8 81 × 2.: 4.0 120.0 27.8/15. 2.355 1.765 22.24 0.009 0.0149 0.0141 0.0209 0.3372 0.2672
Dimensions/ Cross Sections Conductor, Cu or AI, round, S Conductor Screen Super Clean XLPE insulation Insulation Screen Screen, Copper Wire, Dimensi Thickness of Jacket, PE Outer Diameter Cable Weight (Cu/AI) Mechanical Data Minimum Bending Radius Maximum Pulling Force Electrical Data Maximum DC Resistance @ 20°C AC Resistance @ 90°C Inductance Capacitance Current Carrying Capacity (continu	approx. nom. approx. ion approx. approx. approx. approx. Approx. During laying At termination Cu Conductor Al Conductor Cu Conductor Al Conductor Cu Conductor Cu Conductor Cu Conductor	mm² mm mm mm No.xmm mm Kg/m m kN	1000 40.6 1.0 20.32 1.8 81 x 2.1 4.0 105.0 17.7/11.3 2.040 1.53 22.24 0.0176 0.0291 0.0238 0.0382 0.3755 0.2116	1200 43.8 1.0 20.32 1.8 81 x 2.1 4.0 110.0 19.5/12.1 2.100 1.575 22.24 0.0151 0.0247 0.0209 0.0327 0.3651 0.223	1600 50.4 1.0 20.32 1.8 81 × 2.1 4.0 115.0 23.6/13.7 2.235 1.675 22.24 0.0113 0.0186 0.0166 0.0253 0.3492 0.2462	2000 56.4 1.0 20.32 1.8 81 x 2.1 4.0 120.0 27.8/15. 2.355 1.765 22.24 0.009 0.0149 0.0141 0.0209 0.3372 0.2672
Dimensions/ Cross Sections Conductor, Cu or Al, round, S Conductor Screen Super Clean XLPE insulation Insulation Screen	approx. nom. approx. ion approx. approx. approx. approx. During laying At termination Cu Conductor Al Conductor Cu Conductor Al Conductor	mm² mm mm mm mm No.xmm mm kg/m	1000 40.6 1.0 20.32 1.8 81 x 2.1 4.0 105.0 17.7/11.3 2.040 1.53 22.24 0.0176 0.0291 0.0238 0.0382 0.3755 0.2116	1200 43.8 1.0 20.32 1.8 81 x 2.1 4.0 110.0 19.5/12.1 2.100 1.575 22.24 0.0151 0.0247 0.0209 0.0327 0.3651 0.223	1600 50.4 1.0 20.32 1.8 81 × 2.1 4.0 115.0 23.6/13.7 2.235 1.675 22.24 0.0113 0.0186 0.0166 0.0253 0.3492 0.2462	2000 56.4 1.0 20.32 1.8 81 x 2.1 4.0 120.0 27.8/15. 2.355 1.765 22.24 0.009 0.0149 0.0141 0.0209 0.3372 0.2672



SINGLE CORE CUIXLPE/CUW/PE, 66/115 (123) KV

Type : Copper conductor, XLPE insulation, copper wires screen, PE (orPVC) sheath

Standard : IEC 60840

Metallic sheath : Copper wires, Lead or aluminum
Watertight : Longitudinally and radially sealed

Packing : Non returnable wooden drums as per customer request



Laying Conditions:

Soil temperature : 25°C Ambient temperature : 40°C Depth of Laying : 1.5m Cable formation : Trefoil

Soil Thermal Resistivity : 1.0°C.m/W

P.S.: All cables are designed for an earth fault current of 40KA for 1sec. other designs are available

upon request

Other constructions are available upon request



115 KV Single Core XLPE Cables with Lead Screen

Dimensions/ Cross Sections		mm²	400	630	800	1000
Conductor, Cu or Al, round,	stranded, D	mm	23.4	30.8	33.4	38.6
Conductor Screen	approx.	mm	0.8	0.8	1.0	1.0
Super Clean XLPE insulation	nom.	mm	20.32	20.32	20.32	20.32
Insulation Screen	approx.	mm	1.8	1.8	1.8	1.8
Screen, Lead Sheath, Thick	kness	mm	6.3	5.8	5.6	5.3
Thickness of Jacket, PE		mm	4.0	4.0	4.0	4.0
Outer Diameter	approx.	mm	95.0	100.0	105.0	110.0
Cable Weight (Cu/Al)	approx.	Kg/m	26/23.7	29.1/25.1	30.8/25.8	33.2/-
Mechanical Data						
Minimum Bending	During laying	m	1.870	1.995	2.05	2,140
Radius	At termination	m	1.400	1.495	1.535	1,605
Maximum Pulling Force	·	kN	22.24	22,24	22,24	22.24
Electrical Data						
Maximum DC Resistance	Cy Conductor	Ω/km	0.047	0.0283	0.0221	0.0176
@ 20°C	Al Conductor	Ω/km	0.0778	0.0469	0.0367	-
AC Resistance	Cu Conductor	Ω/km	0.0623	0.0401	0.0331	0.0284
@ 90°C	Al Conductor	Ω/km	0.1012	0.0628	0.0505	-
Inductance	5/1446/01	mH/km	0.4669	0.4252	0.4141	0.394
Capacitance		μF/km	0.1483	0.1752	0.186	0.2045
Current Carrying Capacity (cont	inuous load)	рі 7 кіп	0.1403	0,2702	0.100	0.2010
Directly	Cu Conductor	Α	635	800	879	954
buried	Al Conductor	A	503	650	725	
in .	Cu Conductor	A	791	1035	1153	1280
n Air	Al Conductor	A	625	836	945	-
All	Al conductor	^	025	650	743	
Dimensions/ Cross Sections		mm²	1000	1200	1600	2000
Conductor, Cu or Al, round,	Seamental D	mm	40.6	43.8	50.4	56.4
Conductor Screen	approx.	mm	1.0	1.0	1.0	1.0
Super Clean XLPE insulation		mm	20.32	20,32	20.32	20.32
Insulation Screen	approx.	mm	1.8	1.8	1.8	1.8
Screen, Lead Sheath, Thick		mm	5.2	5.0	4.7	4.5
Thickness of Jacket, PE	WIE55	mm	4.0	4.0	4.0	4.0
Outer Diameter	approx.	mm	110.0	115.0	120.0	125.0
Cable Weight (Cu/Al)		Kg/m	33.5/27.1	35.2/27.7	39.4/29.5	43.8/31.3
Mechanical Data	approx.	Kg/m	33.5/27.1	35.2/2/./	39.4/29.5	43.6/31.3
	Dumina Lauta -	tec.	2,175	2,230	2,35	2.465
Minimum Bending Radius	During laying	m				
	At termination	m kN	1.630	1.675	1.765	1.85
Maximum Pulling Force		KIN	22.24	22.24	cc.c4	22.24
Electrical Data		0.0	0.0474	0.0154	0.0440	0.055
Maximum DC Resistance	Cu Conductor	Ω/km	0.0176	0.0151	0.0113	0.009
@ 20°C	Al Conductor	Ω/km	0.0291	0.0247	0.0186	0.0149
AC Resistance	Cu Conductor	Ω/km	0.0238	0.0208	0.0165	0.0140
@ 90° <i>C</i>	Al Conductor	Ω/km	0.0382	0.0327	0.0252	0.0209
Inductance		mH/km	0.3886	0.3771	0.3595	0.3463
Capacitance		μF/km	0.2116	0.223	0.2462	0.2672
Current Carrying Capacity (cont						
Current Carrying Capacity (cont	Cu Conductor	A	1038	1108	1238	1332
Current Carrying Capacity (cont Directly buried		A	1038 845	1108 916	1238 1046	1332 1151
Current Carrying Capacity (cont	Cu Conductor					



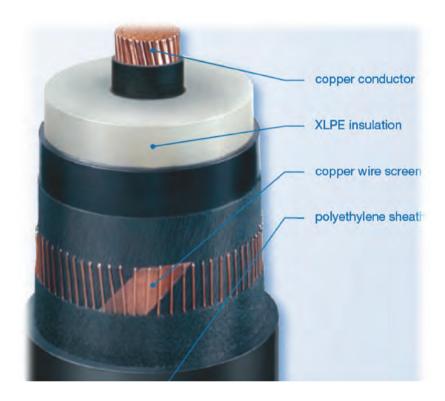
SINGLE CORE CUIXLPE/CUWIPE, 76/132 (145) KV

Type : Copper conductor, XLPE insulation, copper wires screen, PE (orPVC) sheath

Standard : IEC 60840

Metallic sheath : Copper wires, Lead or aluminum Watertight : Longitudinally and radially sealed

Packing : Non returnable wooden drums as per customer request



Laying Conditions:

: 40°C Soil temperature : 25°C Ambient temperature Cable formation Depth of Laying : 1.5m : Trefoil

Soil Thermal Resistivity : 1.0°C.m/W

P.S.: All cables are designed for an earth fault current of 40KA for 1sec. other designs are available

upon request

Other constructions are available upon request



132 KV Single Core XLPE Cables with Copper Wire Screen

Dimensions/ Cross Sections	<u></u>	mm ²	400	630	800	1000
Conductor, Cu or Al, round,	stranded, D	mm	23.4	30.8	33.4	38.6
Conductor Screen	approx.	mm	0.8	0.8	1.0	1.0
Super Clean XLPE insulation	nom.	mm	21.60	21.60	21.60	21.60
Insulation Screen	approx.	mm	1.8	1.8	1.8	1.8
Screen, Copper Wire, Dimen	sion	No.xmm	81 × 2.1	81 × 2.1	81 x 2.1	81 × 2.1
Thickness of Jacket, PE		mm	4.0	4.0	4.0	4.0
Outer Diameter	approx.	mm	90.0	95.0	100.0	105.0
Cable Weight (Cu/Al)	approx.	Kg/m	10.6/8.3	13.6/9.6	15.4/10.5	17.7/-
Mechanical Data				-		_
Minimum Bending	During laying	m	1.740	1.885	1.945	2.050
Radius	At termination	m	1.305	1.415	1.46	1.540
Maximum Pulling Force		kN	22.24	22.24	22.24	22.24
Electrical Data						
Maximum DC Resistance	Cu Conductor	Ω/km	0.047	0.0283	0.0221	0.0176
@ 20° <i>C</i>	Al Conductor	Ω/km	0.0778	0.0469	0.0367	-
AC Resistance	Cu Conductor	Ω/km	0.0624	0.0402	0.0332	0.0285
@ 90° <i>C</i>	Al Conductor	Ω/km	0.1013	0.0629	0.0506	-
Inductance		mH/km	0.4525	0.4139	0.4039	0.3854
Capacitance		uF/km	0.1426	0.1681	0.1782	0.1957
Current Carrying Capacity (contin	nuous load)					
Directly	Cu Conductor	Α	645	826	917	1006
buried	Al Conductor	A	506	662	744	-
'n	Cu Conductor	A	787	1043	1169	1309
Air	Al Conductor	A	618	835	949	-
		1				
Dimensions/ Cross Sections		mm ²	1000	1200	1600	2000
Conductor, Cu or Al, round,	Segmental, D	mm	40.6	43.8	50.4	56.4
	Segmental, D approx.	mm	40.6 1.0	43.8 1.0	50.4 1.0	56.4 1.0
Conductor Screen						
Conductor Screen Super Clean XLPE insulation	approx.	mm	1.0	1.0	1.0	1.0
Conductor Screen Super Clean XLPE insulation Insulation Screen	approx. nom. approx.	mm mm	1.0 21.60	1.0 21.60	1.0 21.60	1.0 21.60
Conductor Screen Super Clean XLPE insulation Insulation Screen Screen, Copper Wire, Dimen	approx. nom. approx.	mm mm mm	1.0 21.60 1.8	1.0 21.60 1.8	1.0 21.60 1.8	1.0 21.60 1.8
Conductor Screen Super Clean XLPE insulation Insulation Screen Screen, Copper Wire, Dimen Thickness of Jacket, PE	approx. nom. approx.	mm mm mm No.xmm	1.0 21.60 1.8 81 × 2.1	1.0 21.60 1.8 81 x 2.1	1.0 21.60 1.8 81 x 2.1	1.0 21.60 1.8 81 x 2.1
Conductor Screen Super Clean XLPE insulation Insulation Screen Screen, Copper Wire, Dimen Thickness of Jacket, PE Outer Diameter	approx. nom. approx. sion	mm mm mm No.xmm mm	1.0 21.60 1.8 81 x 2.1 4.0	1.0 21.60 1.8 81 x 2.1 4.0	1.0 21.60 1.8 81 x 2.1 4.0	1.0 21.60 1.8 81 x 2.1 4.0 125.0
Conductor Screen Super Clean XLPE insulation Insulation Screen Screen, Copper Wire, Dimen: Thickness of Jacket, PE Outer Diameter Cable Weight (Cu/Al)	approx. nom. approx.	mm mm No.xmm mm	1.0 21.60 1.8 81 x 2.1 4.0 105.0	1.0 21.60 1.8 81 x 2.1 4.0 110.0	1.0 21.60 1.8 81 x 2.1 4.0 115.0	1.0 21.60 1.8 81 x 2.1 4.0
Conductor Screen Super Clean XLPE insulation Insulation Screen Screen, Copper Wire, Dimen: Thickness of Jacket, PE Outer Diameter Cable Weight (Cu/Al) Mechanical Data	approx. nom. approx. sion	mm mm No.xmm mm	1.0 21.60 1.8 81 x 2.1 4.0 105.0	1.0 21.60 1.8 81 x 2.1 4.0 110.0	1.0 21.60 1.8 81 x 2.1 4.0 115.0	1.0 21.60 1.8 81 x 2.1 4.0 125.0
Conductor Screen Super Clean XLPE insulation Insulation Screen Screen, Copper Wire, Dimen: Thickness of Jacket, PE Outer Diameter Cable Weight (Cu/Al) Mechanical Data Minimum Bending	approx. nom. approx. sion approx. approx.	mm mm No.xmm mm mm Kg/m	1.0 21.60 1.8 81 × 2.1 4.0 105.0 18/11.7	1.0 21.60 1.8 81 × 2.1 4.0 110.0 19.9/12.4	1.0 21.60 1.8 81 x 2.1 4.0 115.0 24/14.1	1.0 21.60 1.8 81 × 2.1 4.0 125.0 28.2/15.7
Conductor Screen Super Clean XLPE insulation Insulation Screen Screen, Copper Wire, Dimen: Thickness of Jacket, PE Outer Diameter Cable Weight (Cu/Al) Mechanical Data Minimum Bending Radius	approx. nom. approx. sion approx. approx. approx.	mm mm No.xmm mm mm Kg/m	1.0 21.60 1.8 81 × 2.1 4.0 105.0 18/11.7	1.0 21.60 1.8 81 × 2.1 4.0 110.0 19.9/12.4	1.0 21.60 1.8 81 x 2.1 4.0 115.0 24/14.1	1.0 21.60 1.8 81 × 2.1 4.0 125.0 28.2/15.7
Conductor Screen Super Clean XLPE insulation Insulation Screen Screen, Copper Wire, Dimen: Thickness of Jacket, PE Outer Diameter Cable Weight (Cu/Al) Mechanical Data Minimum Bending Radius Maximum Pulling Force	approx. nom. approx. sion approx. approx. approx.	mm mm No.xmm mm Kg/m	1.0 21.60 1.8 81 × 2.1 4.0 105.0 18/11.7	1.0 21.60 1.8 81 x 2.1 4.0 110.0 19.9/12.4 2.155 1.615	1.0 21.60 1.8 81 x 2.1 4.0 115.0 24/14.1 2.285 1.715	1.0 21.60 1.8 81 x 2.1 4.0 125.0 28.2/15.7 2.405 1.805
Conductor Screen Super Clean XLPE insulation Insulation Screen Screen, Copper Wire, Dimentification Thickness of Jacket, PE Outer Diameter Cable Weight (Cu/Al) Mechanical Data Minimum Bending Radius Maximum Pulling Force Electrical Data	approx. nom. approx. sion approx. approx. approx. During laying At termination	mm mm No.xmm mm kg/m m kN	1.0 21.60 1.8 81 x 2.1 4.0 105.0 18/11.7 2.090 1.570 22.24	1.0 21.60 1.8 81 x 2.1 4.0 110.0 19.9/12.4 2.155 1.615 22.24	1.0 21.60 1.8 81 x 2.1 4.0 115.0 24/14.1 2.285 1.715 22.24	1.0 21.60 1.8 81 × 2.1 4.0 125.0 28.2/15.7 2.405 1.805 22.24
Conductor Screen Super Clean XLPE insulation Insulation Screen Screen, Copper Wire, Dimen: Thickness of Jacket, PE Outer Diameter Cable Weight (Cu/Al) Mechanical Data Minimum Bending Radius Maximum Pulling Force Electrical Data Maximum DC Resistance	approx. nom. approx. sion approx. approx. approx.	mm mm No.×mm mm kg/m m kN	1.0 21.60 1.8 81 × 2.1 4.0 105.0 18/11.7	1.0 21.60 1.8 81 x 2.1 4.0 110.0 19.9/12.4 2.155 1.615	1.0 21.60 1.8 81 x 2.1 4.0 115.0 24/14.1 2.285 1.715	1.0 21.60 1.8 81 x 2.1 4.0 125.0 28.2/15.7
Conductor Screen Super Clean XLPE insulation Insulation Screen Screen, Copper Wire, Dimen: Thickness of Jacket, PE Outer Diameter Cable Weight (Cu/Al) Mechanical Data Minimum Bending Radius Maximum Pulling Force Electrical Data Maximum DC Resistance © 20°C	approx. nom. approx. sion approx. approx. approx. During laying At termination Cu Conductor Al Conductor	mm mm No.xmm mm kg/m m kN	1.0 21.60 1.8 81 x 2.1 4.0 105.0 18/11.7 2.090 1.570 22.24 0.0176 0.0291	1.0 21.60 1.8 81 x 2.1 4.0 110.0 19.9/12.4 2.155 1.615 22.24	1.0 21.60 1.8 81 x 2.1 4.0 115.0 24/14.1 2.285 1.715 22.24 0.0113 0.0186	1.0 21.60 1.8 81 x 2.1 4.0 125.0 28.2/15.7 2.405 1.805 22.24 0.009 0.0149
Conductor Screen Super Clean XLPE insulation Insulation Screen Screen, Copper Wire, Dimentification Thickness of Jacket, PE Outer Diameter Cable Weight (Cu/Al) Mechanical Data Minimum Bending Radius Maximum Pulling Force Electrical Data Maximum DC Resistance © 20°C AC Resistance	approx. nom. approx. sion approx. approx. approx. approx. During laying At termination Cu Conductor Al Conductor Cu Conductor	mm mm No.xmm mm kg/m m kN Δ/km Ω/km	1.0 21.60 1.8 81 x 2.1 4.0 105.0 18/11.7 2.090 1.570 22.24 0.0176 0.0291 0.0238	1.0 21.60 1.8 81 x 2.1 4.0 110.0 19.9/12.4 2.155 1.615 22.24 0.0151 0.0247 0.0209	1.0 21.60 1.8 81 x 2.1 4.0 115.0 24/14.1 2.285 1.715 22.24 0.0113 0.0186 0.0166	1.0 21.60 1.8 81 x 2.1 4.0 125.0 28.2/15.7 2.405 1.805 22.24 0.009 0.0149 0.0141
Conductor Screen Super Clean XLPE insulation Insulation Screen Screen, Copper Wire, Dimentification Thickness of Jacket, PE Outer Diameter Cable Weight (Cu/Al) Mechanical Data Minimum Bending Radius Maximum Pulling Force Electrical Data Maximum DC Resistance © 20°C AC Resistance	approx. nom. approx. sion approx. approx. approx. During laying At termination Cu Conductor Al Conductor	mm mm nm No.xmm mm mm Kg/m m kN Δ/km Ω/km Ω/km	1.0 21.60 1.8 81 x 2.1 4.0 105.0 18/11.7 2.090 1.570 22.24 0.0176 0.0291 0.0238 0.0382	1.0 21.60 1.8 81 x 2.1 4.0 110.0 19.9/12.4 2.155 1.615 22.24 0.0151 0.0247 0.0209 0.0327	1.0 21.60 1.8 81 x 2.1 4.0 115.0 24/14.1 2.285 1.715 22.24 0.0113 0.0186 0.0166 0.0253	1.0 21.60 1.8 81 x 2.1 4.0 125.0 28.2/15.7 2.405 1.805 22.24 0.009 0.0149 0.0141 0.0209
Conductor Screen Super Clean XLPE insulation Insulation Screen Screen, Copper Wire, Dimentification Thickness of Jacket, PE Outer Diameter Cable Weight (Cu/Al) Mechanical Data Minimum Bending Radius Maximum Pulling Force Electrical Data Maximum DC Resistance © 20°C AC Resistance © 90°C Inductance	approx. nom. approx. sion approx. approx. approx. approx. During laying At termination Cu Conductor Al Conductor Cu Conductor	mm mm mm No.xmm mm mm kg/m m kN Δ/km Ω/km Ω/km Ω/km mH/km	1.0 21.60 1.8 81 x 2.1 4.0 105.0 18/11.7 2.090 1.570 22.24 0.0176 0.0291 0.0238 0.0382 0.3806	1.0 21.60 1.8 81 x 2.1 4.0 110.0 19.9/12.4 2.155 1.615 22.24 0.0151 0.0247 0.0209 0.0327 0.37	1.0 21.60 1.8 81 x 2.1 4.0 115.0 24/14.1 2.285 1.715 22.24 0.0113 0.0186 0.0166 0.0253 0.3538	1.0 21.60 1.8 81 x 2.1 4.0 125.0 28.2/15.7 2.405 1.805 22.24 0.009 0.0149 0.0141 0.0209 0.3416
Conductor Screen Super Clean XLPE insulation Insulation Screen Screen, Copper Wire, Dimen: Thickness of Jacket, PE Outer Diameter Cable Weight (Cu/Al) Mechanical Data Minimum Bending Radius Maximum Pulling Force Electrical Data Maximum DC Resistance © 20°C AC Resistance © 90°C Inductance Capacitance	approx. nom. approx. sion approx. approx. approx. During laying At termination Cu Conductor Al Conductor Al Conductor	mm mm nm No.xmm mm mm Kg/m m kN Δ/km Ω/km Ω/km	1.0 21.60 1.8 81 x 2.1 4.0 105.0 18/11.7 2.090 1.570 22.24 0.0176 0.0291 0.0238 0.0382	1.0 21.60 1.8 81 x 2.1 4.0 110.0 19.9/12.4 2.155 1.615 22.24 0.0151 0.0247 0.0209 0.0327	1.0 21.60 1.8 81 x 2.1 4.0 115.0 24/14.1 2.285 1.715 22.24 0.0113 0.0186 0.0166 0.0253	1.0 21.60 1.8 81 x 2.1 4.0 125.0 28.2/15.7 2.405 1.805 22.24 0.009 0.0149 0.0141 0.0209
Conductor Screen Super Clean XLPE insulation Insulation Screen Screen, Copper Wire, Dimentification Thickness of Jacket, PE Outer Diameter Cable Weight (Cu/Al) Mechanical Data Minimum Bending Radius Maximum Pulling Force Electrical Data Maximum DC Resistance © 20°C AC Resistance © 90°C Inductance Capacitance Current Carrying Capacity (contin	approx. nom. approx. sion approx. approx. approx. approx. During laying At termination Cu Conductor Al Conductor Al Conductor Al Conductor	mm mm mm No.xmm mm mm Kg/m m kN Ω/km Ω/km Ω/km Ω/km μF/km	1.0 21.60 1.8 81 x 2.1 4.0 105.0 18/11.7 2.090 1.570 22.24 0.0176 0.0291 0.0238 0.0382 0.3806 0.2024	1.0 21.60 1.8 81 x 2.1 4.0 110.0 19.9/12.4 2.155 1.615 22.24 0.0151 0.0247 0.0209 0.0327 0.37 0.2131	1.0 21.60 1.8 81 x 2.1 4.0 115.0 24/14.1 2.285 1.715 22.24 0.0113 0.0186 0.0166 0.0253 0.3538 0.235	1.0 21.60 1.8 81 x 2.1 4.0 125.0 28.2/15.7 2.405 1.805 22.24 0.009 0.0149 0.0141 0.0209 0.3416 0.2548
Conductor, Cu or Al, round, Conductor Screen Super Clean XLPE insulation Insulation Screen Screen, Copper Wire, Dimentickness of Jacket, PE Outer Diameter Cable Weight (Cu/Al) Mechanical Data Minimum Bending Radius Maximum Pulling Force Electrical Data Maximum DC Resistance @ 20°C AC Resistance @ 90°C Inductance Capacitance Current Carrying Capacity (contine) Directly buried	approx. nom. approx. sion approx. approx. approx. approx. During laying At termination Cu Conductor Al Conductor Al Conductor Al Conductor Cu Conductor Al Conductor Al Conductor	mm mm mm No.xmm mm mm Kg/m m kN Δ/km Ω/km Ω/km Ω/km μF/km	1.0 21.60 1.8 81 x 2.1 4.0 105.0 18/11.7 2.090 1.570 22.24 0.0176 0.0291 0.0238 0.0382 0.3806 0.2024	1.0 21.60 1.8 81 x 2.1 4.0 110.0 19.9/12.4 2.155 1.615 22.24 0.0151 0.0247 0.0209 0.0327 0.37 0.2131	1.0 21.60 1.8 81 x 2.1 4.0 115.0 24/14.1 2.285 1.715 22.24 0.0113 0.0186 0.0166 0.0253 0.3538 0.235	1.0 21.60 1.8 81 x 2.1 4.0 125.0 28.2/15.7 2.405 1.805 22.24 0.009 0.0149 0.0141 0.0209 0.3416 0.2548
Conductor Screen Super Clean XLPE insulation Insulation Screen Screen, Copper Wire, Dimentification Thickness of Jacket, PE Outer Diameter Cable Weight (Cu/Al) Mechanical Data Minimum Bending Radius Maximum Pulling Force Electrical Data Maximum DC Resistance © 20°C AC Resistance © 90°C Inductance Capacitance Current Carrying Capacity (contin	approx. nom. approx. sion approx. approx. approx. approx. During laying At termination Cu Conductor Al Conductor Al Conductor Al Conductor	mm mm mm No.xmm mm mm Kg/m m kN Ω/km Ω/km Ω/km Ω/km μF/km	1.0 21.60 1.8 81 x 2.1 4.0 105.0 18/11.7 2.090 1.570 22.24 0.0176 0.0291 0.0238 0.0382 0.3806 0.2024	1.0 21.60 1.8 81 x 2.1 4.0 110.0 19.9/12.4 2.155 1.615 22.24 0.0151 0.0247 0.0209 0.0327 0.37 0.2131	1.0 21.60 1.8 81 x 2.1 4.0 115.0 24/14.1 2.285 1.715 22.24 0.0113 0.0186 0.0166 0.0253 0.3538 0.235	1.0 21.60 1.8 81 x 2.1 4.0 125.0 28.2/15.7 2.405 1.805 22.24 0.009 0.0149 0.0141 0.0209 0.3416 0.2548



DERATING FACTORS

To determine current carrying capacity for the various laying conditions than those indicated on every tables, multiply table values by the below factors:

Correction Factors for various Ambient Air Temperature

Air Temperature (°C)	20°C	25°C	30° <i>C</i>	35° <i>C</i>	40°C	45°C	50° <i>C</i>
Rating Factor	1.2	1.16	1.10	1.05	1.0	0.94	0.88

Correction Factors for various Ground Temperature

Ground Temperature (°C)	15°C	20° <i>C</i>	25°C	30° <i>C</i>	35° <i>C</i>	40°C	45°C
Rating Factor	1.08	1.04	13.0	0.96	0.91	0.87	0.83

Correction Factors for Various Thermal Resistivity of Ground

Thermal Resistivity Soil (°C.cm/W)	of 0.7	1.0	1.2	1.5	2.0	2.5	3.0
Rating Factor	1.14	1.0	0.93	0.84	0.74	0.67	0.61

Correction Factors for Various Depth of Laying

Depth of Laying (m)	Rating Factor
0.50 ~ 0.70	1.09
0.71 ~ 0.90	1.05
0.91 ~ 1.10	1.03
1.31 ~ 1.50	1.00

For other conditions, please contact JCC.



Electrical data





ELECTRICAL PARAMETERS OF THE CABLES

DC Resistance of the Conductor

The maximum DC resistance values of conductors at 20°C are as per IEC 60228 standard. DC resistance per unit length of the conductor at other conductor temperature is given by:

$$R = R_0 \times [1 + \alpha_{20^{\circ}C} \times (t - 20^{\circ}C)]$$

Where:

R : DC resistance at temperature $t^{\circ}C[\Omega/km]$

 R_o : DC resistance at temperature $20^{\circ}C \left[\Omega/km\right]$ (given in the relative tables for each

type of cable)

t : Conductor temperature $[^{\circ}C]$

 $\alpha_{20^{\circ}C}$: Temperature coefficient at $20^{\circ}C$ [1/ $^{\circ}C$]

[For copper conductor, $\alpha_{20^{\circ}C} = 0.00393$] [For aluminum conductor, $\alpha_{20^{\circ}C} = 0.00403$]

AC Resistance of the Conductor

The AC resistance per unit length of the conductor (effective resistance) at its maximum operating temperature is made up of the DC resistance at this temperature and the extra resistance which takes into account additional losses caused by the current displacement in the conductor (skin effect, proximity effect). The AC resistance is given in the relative tables for each type of cable.

Inductance

The values of the inductance for both multi cores and three single core cables have been calculated based on the following equation:

$$L = K + 0.2 \times ln\left(\frac{2 \times S}{d}\right)$$

Where:

L : Cable inductance [mH/km]

K : a constant relating to the conductor formation [mH/km]

d : Conductor diameter [mm]

S : Axial spacing between conductors for cables in trefoil formation [mm]

S = 1.26 x Axial spacing between conductors for cables in flat formation [mm]

The value for inductance of single core cables has been calculated based on one cable diameter between cables in the flat formation.



Operation Capacitance

The values of operating capacitance for cables have been calculated based on the following presume:

$$C = \frac{\varepsilon_r}{18 \times ln\left(\frac{D}{d}\right)}$$

Where:

C: Cable capacitance [μ F/km] : Relative permittivity of insulation : External diameter of insulation [mm] D

: Conductor diameter [mm]

Operation temperature for XLPE insulated cables

90°C for continuous normal operation. 105°C for emergency overload conditions.

250°C for short circuit condictions.

Voltage Drop

When current flows in a cable conductor, there is a voltage drop between the ends of the conductor which is the product of the current and the impedance. The following equations should be used to calculate the voltage drop:

1- Single phase system

 $V_d = 2 \times (R \times \cos \varphi + X \times \sin \varphi)$

2- Three phase system

 $V_d = \sqrt{3} \times (R \times \cos \varphi + X \times \sin \varphi)$

Where:

 V_d : Voltage drop [V/A.m]

R : AC resistance of conductor at maximum conductor temperature $[\Omega/km]$

Χ : Induction reactance of cable [Ω/km]

: Power factor of load $Cos \varphi$



Cable Short-Circuit Current

The permissible short-circuit as presented in are calculated in accordance to IEC 60949, which are based on the following conditions:

- 1- Short circuit starts from the maximum operating temperature.
- 2- Maximum temperature during short-circuit (for XLPE, t=250°C)
- 3- Maximum short-circuit current duration in 5 seconds

The short-circuit current shall be calculated from the formula.

$$I^2 = \frac{K^2 \times S^2}{\Delta T} \times ln\left(\frac{\theta_f + \beta}{\theta_i + \beta}\right)$$

Where:

: Short-circuit current [A]

 ΔT : Duration of short-circuit [second]

: Constant for the material of the conductor Κ

: Area of conductor [mm²] : Final temperature [°C] θf θ 1 : Initial temperature [°C]

: Reciprocal of temperature coefficient of resistance (α) of the conductor.



