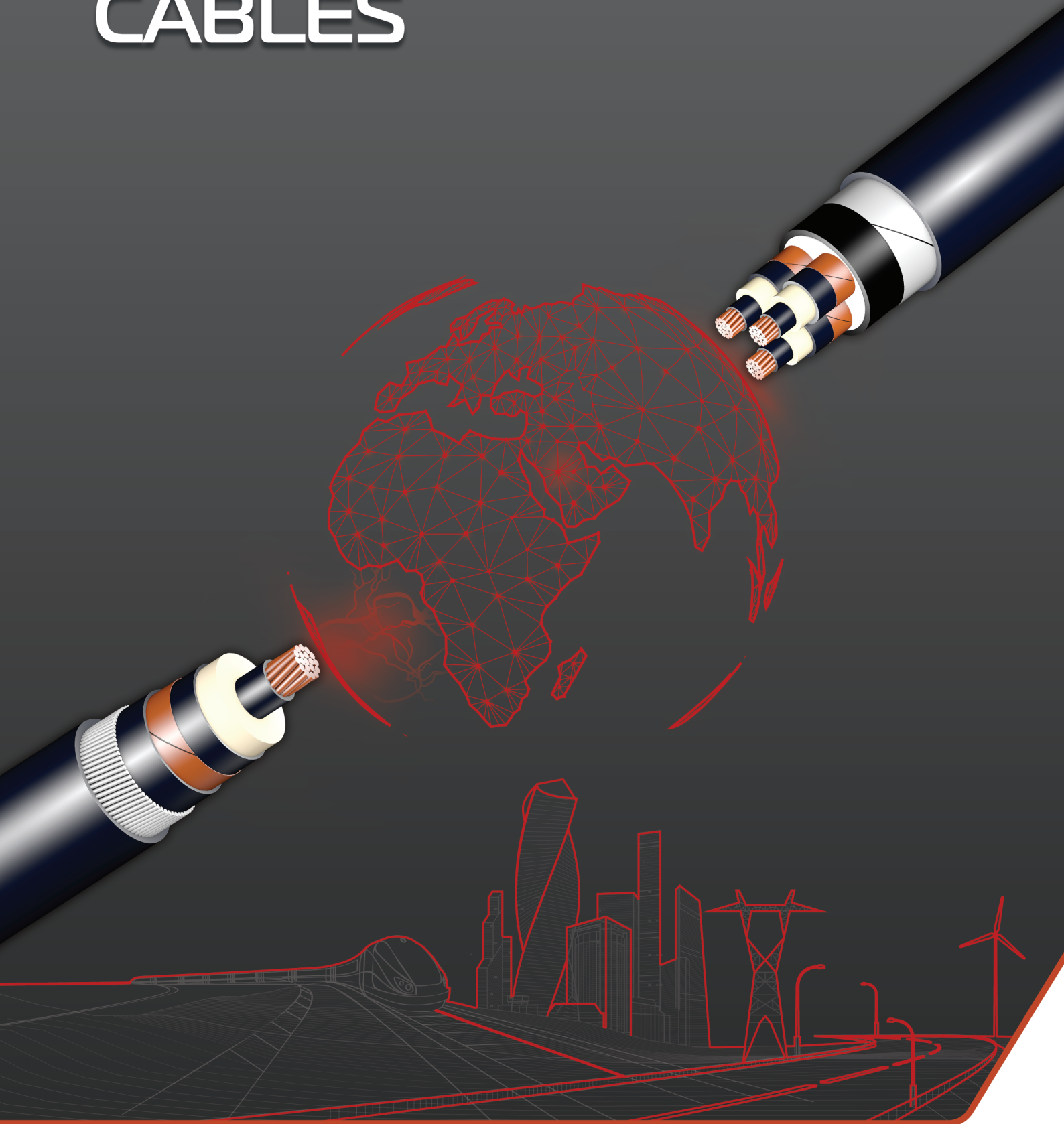


# MEDIUM VOLTAGE CABLES



مجموعة كابلات الرياض  
Riyadh Cables Group





## XLPE MATERIAL

The trend of cross-linked polyethylene insulated cables into power cables field is quite prevalent in the world as the substitutes of paper insulated cables, which had played the leading role in electric power transmission stage. Thus, nowadays after making its impact on its use in the medium voltage cables category, the stage seems to be turning in favour of XLPE cables in the high voltage and extra high voltage range. Especially in the higher voltage area, the monopoly of paper insulated cables, such as oil filled cable or gas filled or compressed type of cables, is gradually collapsing into the co-existence with XLPE cables, which have great advantages and economical reasons such as higher permissible temperature level, ease of jointing and maintenance techniques and omission of equipment inherent to the pressurized cable.

Electrical performance of XLPE is excellent. Di-electric breakdown strength and volume resistivity are high and both Di-electric loss ( $\tan \delta$ ) and dielectric constant ( $\epsilon$ ) are low. Thermal resistivity is low. XLPE insulated cables can operate continuously at a temperature of  $90^{\circ}\text{C}$ , because they have excellent heat aging characteristics. This leads to large power transmission capacity. XLPE cables are lighter in weight, they are easy to handle, easy to install and jointing and termination is easy. They are of dry type because no oil impregnation is involved.

The insulation material for types of XLPE cables is low-density (LD) polyethylene. PE has for a long time had a wide use as cable insulating and sheath materials owing to its excellent electrical and mechanical properties, its lightness, low temperature flexibility and good resistance to moisture, chemicals, ozone etc. as well as its comparatively low price.

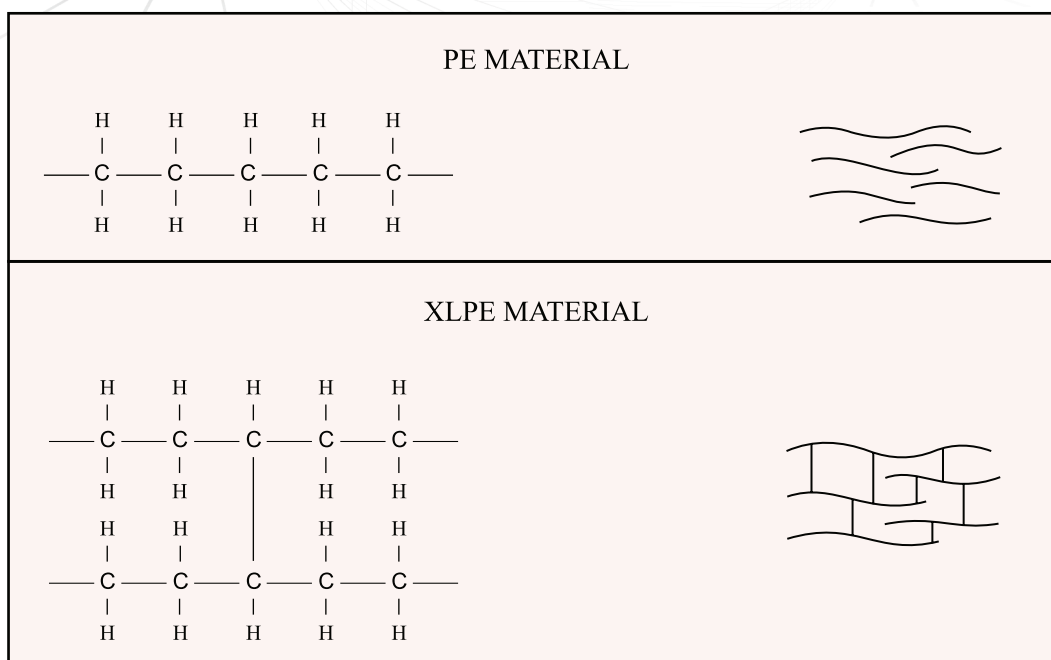
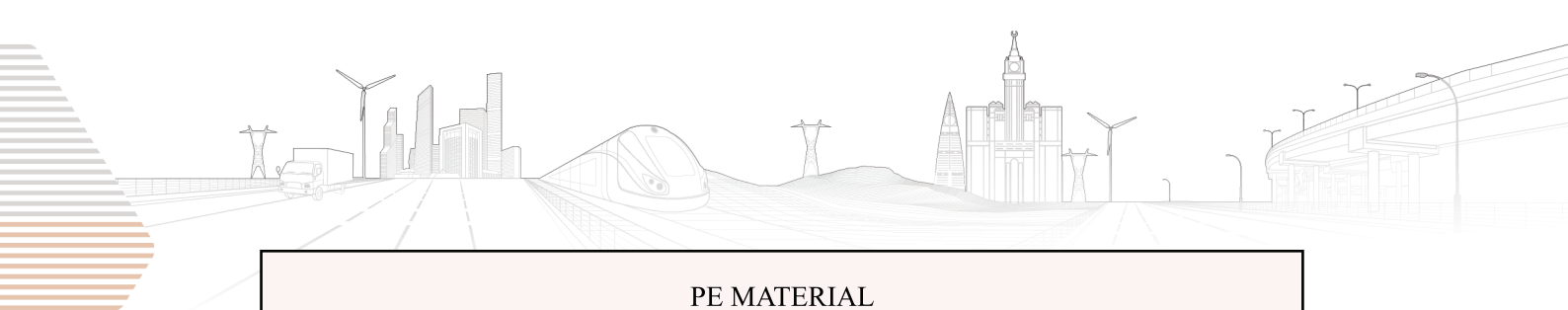
Low Density polyethylene, however, has properties which limit its use as cable insulation. Being a thermoplastic, its softening temperature is  $105 - 115^{\circ}\text{C}$ . Another disadvantage is its tendency to stress cracking when in contact with certain surface-active agents.

By means of a process reminiscent of the vulcanization of rubber, PE molecules can be cross-linked, thus greatly improving the thermal and mechanical properties of the material, while its electrical properties are retained largely unchanged. This product, cross-linked polyethylene (XLPE), is therefore no longer a thermoplastic. It assumes elastic, rubber-like consistency, a property that it retains during a further rise of temperature. The tendency to stress cracking entirely disappears and the material also acquires very good resistance to aging in hot air.

### Cross-linked Polyethylene:

PE is made up of long molecular chains. By cross-linked these chains a network of strong bonds is created and PE is converted into cross-linked polyethylene, XLPE.





### THERMAL PROPERTIES

Owing to the cross-linking, XLPE is a very heat-resistant material. It cannot melt like polyethylene but decomposes and carbonizes if exposed for long periods to temperatures above 300°C.

The permissible conductor temperature during short-circuit for 1 second has therefore been put at 250°C and under continuous load, conductors with XLPE insulation may have a temperature of 90°C. These temperatures are specified by International standards. In emergency conditions, and for limited period which shall not exceed 100 hours per year and 1500 hours in the cable life time, XLPE can withstand 130°C. XLPE, like PE, retains its low temperature flexibility down to - 40°C, which implies great advantages during laying of cables.

### ELECTRICAL PROPERTIES

The good electrical properties of PE remain largely unchanged during cross-linking process. XLPE therefore, like PE, has a very small and insignificant temperature dependant loss factor ( $\tan \delta$ ) and dielectric constant ( $\epsilon$ ). As a result the dielectric loss of XLPE cables are small in comparison with those of PVC and paper insulated cables. XLPE cables are specially adapted for long cable routes and high voltages, in both cases where dielectric losses are of great significance.

### MECHANICAL PROPERTIES

Polyethylene has good mechanical properties. It is interesting that at normal temperature PE can resist local stresses better than PVC. In this respect XLPE has the same advantageous properties as PE and certain grades, such as filled XLPE insulation also resists abrasion much better than polyethylene.

### CHEMICAL PROPERTIES

Owing to the cross-linking of molecules XLPE has better resistance than PE to most chemicals such as ordinary acids, bases and oil.



## ENVIRONMENTAL POLLUTION AND CABLES

From the environmental aspect, both PVC and oil-impregnated paper-insulated cables have distinct disadvantages. When PVC cables burn they give off corrosive gases, and a leaking oil-filled cable may cause severe damage to environment. XLPE admittedly burns, but the products of combustion carbon dioxide and water do not cause damage. Filled XLPE used for low voltage cables can also be made resistant to flame propagation and the compound does not produce halogen.

### Cross-linking Process:

Cross-linking is done by agent di-cumyl peroxide (DCP). Cross-linking takes place in the CCV Tube under heated and pressurized Nitrogen where DCP decomposes into two radicals, which react with Polyethylene thereby causing cross-linking.

Peroxide is already mixed at the material supplier's plant with proper balance of anti-oxidant and peroxide to ensure the required thermal stability and optimum curing level. Therefore, no mixing whatever is done during production. This will prevent problems which might occur due to the unbalanced mixing of material during production stage. Un-packing and handling of the material is also done in similar super clean environment at Riyadh Cables Group of Companies.

The mixing ratio is about 1 to 1.5 PHR with very small amount of anti-oxidant. The cross-link residual is gas, which defuses out of the insulation gradually. Other residuals are Acetophone and Cumyl-alcohol which are in very low ratio, Research in this regard has proven that this material has very good effect on insulation such as:

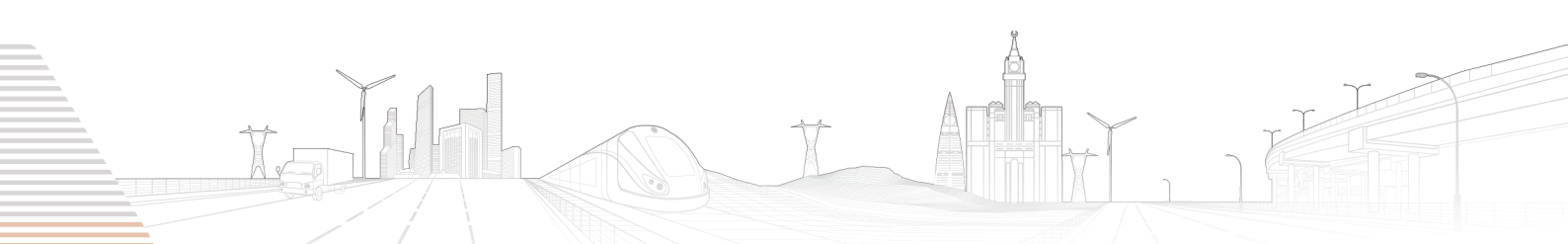
- a) It improves the breaking strength when inclusion occurs in XLPE material.
- b) It slows water tree growth in the XLPE material under service.

Riyadh Cables Group of Companies employs in-line dry curing for all its CCV lines alongwith State-Of-The-Art Triple Cross-Head extrusion where the Conductor Screen, Insulation and Insulation Screen are extruded simultaneously by means of a Triple Cross Head which has the following advantages:

- ❑ Reduces micro voids and moisture content in insulation and ensures enhanced and stable breakdown strength and uniform insulation structure.
- ❑ Ensures extremely accurate layer thickness.
- ❑ Ensures high purity in the frontier limit between the semi-conductive layers and the insulation.
- ❑ Provides optimal fusion of the individual layers without contamination.
- ❑ Ensures a firm bond and smooth interface between each layer thus improving electrical properties.
- ❑ Prevents unforeseen damage to the conductor or insulation screen during manufacturing process.

The above are optimized by the use of an X-Ray unit located immediately after the cross-head which provides a transparent view of all three layers. This arrangement also facilitates recording the trend every 2 seconds. The unit continuously scans 360° geometry of the cable and displays the maximum, minimum and eccentricity of all three layers separately. Any deviation between the specified values and the measured values are recorded and adjusted automatically.





Also incorporated in the CCV line is the “Twin-Rot” system, one of the latest in manufacturing technology which ensures superior control of eccentricity and eliminates the possibility of “Pear Drop” since the cable rotates during manufacture.

**Quality Aspect:**

It is the policy of Riyadh Cables Group of Companies to supply customers with products meeting fully their stated needs. The products perform their required functions safely, consistently and reliably for their intended use. They fully meet the specifications which they are designed to meet whether Customer, Country or International.

RCGC sources its raw materials from reputed suppliers from all over the world. The most important cable constituents such as XLPE material and conductor and insulation shielding material are procured from the world’s leading suppliers of cable components. Right from the beginning, all incoming material and cable constituents are analyzed and tested to ensure their quality and compliance with specifications before being used. During manufacture again complete tests are performed on physical, mechanical and electrical properties of insulation and sheath material.

The raw materials and products undergo rigorous and regular testing by local and overseas independent inspection agencies. Products have already been type tested at international agencies. Several of the products are also Type tested and certified from KEMA, Netherlands. Type tests are also performed in-house on a pre-defined regular basis to ensure and guarantee the quality of manufactured products.

Testing facilities are equipped with up-to-date most modern and advanced laboratories. The laboratories are equipped with facilities for complete testing of its products both for incoming raw material as well as finished goods as per International Standards. Test fields include the following which are used mainly for research activities, performing trials and also for performing type tests.

- ⇒ Routine test field with large shielded enclosures for carrying out the routine high voltage tests, Partial discharge measurements upto 400 kV at a noise level of below 2 pC, measurement of tangent delta and capacitance.
- ⇒ Type test field consisting basically of 2400 kV impulse generator, 1050 kV AC test system. Heating cycle equipment for conducting Special tests and Type tests on High Voltage Cables and Accessories, Qualification tests as per AEIC CS 8, AEIC CS9, BS Standards, Long term tests and for determination of cable breakdown.

Riyadh Cables has implemented in its system total quality management. Its commitment towards quality is reflected by achievement of ISO 9001 : 2008 (TUV certified) and has also obtained certification for its Quality Management System to BASEC (British Approvals Service for Cables).

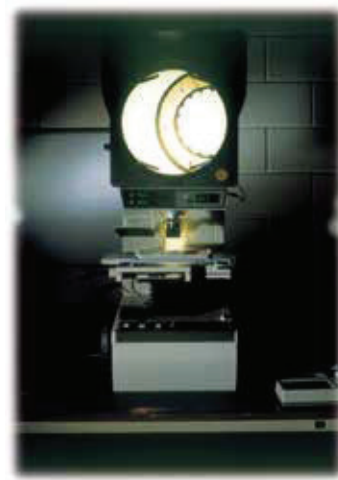


CCV LINE  
Completely Closed  
Completely Computerized



H.V. LAB.  
- 400 kV AC  
- 2400 kV impulse





MATERIAL TESTING LAB

### **Research and Development:**

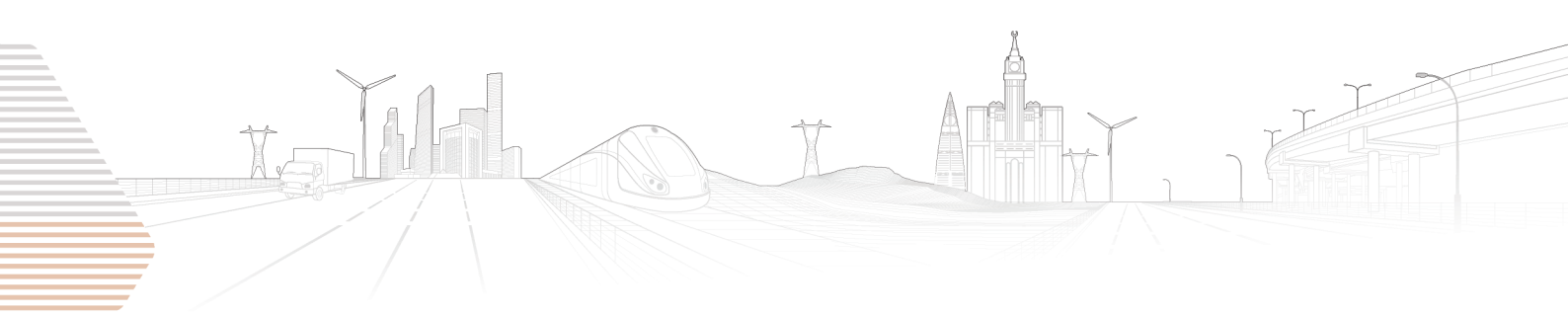
The company has a realistic approach towards improvement and development of its products, therefore, it has established a Research and Development Department whose main objectives are:

- Selection of the best raw material available for cables after long term and short term testing and after in-depth analysis and review.
- Co-ordinate with other research bodies both in the Kingdom and World, to study cable phenomenon such as cable aging and insulation de-gradation and provide measures to minimize this effect.
- Co-ordinate with local electric utilities in order to optimize the most economical cable construction taking into consideration their needs and local environment conditions.



MICROSCOPIC ANALYSIS





	XLPE		PVC	EP Rubber	Impreg-nated Paper
	Unfilled	Filled*			
Dielectric constant at 20°C	2.30	4	5	3	3.5
Loss factor, at 50 -60 Hz, 20°C	0.0005	0.005	0.07	0.003	0.003
Volume resistivity at 20°C, Ω cm	10 <sup>16</sup>	10 <sup>14</sup>	10 <sup>12</sup>	10 <sup>16</sup>	10 <sup>13</sup>
Max. continuous operating temperature, °C	90	90	70	85	65
Max. conductor temperature at short-circuit current °C	250	250	160	250	150
Tensile Strength N/mm <sup>2</sup>	15	15	15	5	-
Elongation at rupture, %	500	300	250	300	-
Flexibility 20°C	good	good	excellent	excellent	-
-10°C	good	good	poor	excellent	-
Abrasion resistance	good	excellent	good	poor	-
Deformation resistance at 150°C	good	excellent	poor	excellent	good
Oil resistance at 70°C	good	good	good	poor	-
Fire resistance	poor	moderate	excellent	poor	poor
Ageing resistance at 100°C	excellent	excellent	moderate	good	good
120°C	good	good	poor	moderate	moderate
150°C	moderate	moderate	-	poor	poor

\* Filled XLPE is used for 0.6/1 kV cables.





### **Conductors:**

Conductors shall be stranded class 2 of plain annealed copper or aluminium and in accordance with IEC 60228

### **Conductor screen:**

Conductor screen shall be non-metallic and shall consist of an extruded semi-conductive compound which may be applied on top of a semi-conductive tape at the manufacturer's discretion. The extruded semi-conducting compound shall be firmly bonded to the insulation.

### **XLPE Insulation:**

Insulation shall be XLPE (cross-linked polyethylene). Thickness and test requirements shall comply with IEC 60502-2 and IEC 60811 series.

### **Insulation Screen:**

The insulation screen shall consist of a non-metallic semi-conducting layer in combination with a metallic layer.

Non-metallic part: The non-metallic layer shall be extruded directly upon the insulation of each core and shall consist of either a strippable or bonded semi-conducting compound.

Metallic part: Metallic layer shall consist of one or more tapes or a concentric layer of wires or a combination of wires and tapes.

### **Inner Covering/Separation sheath:**

Inner covering may be extruded or lapped. When the underlying metallic layer and the armour are of different materials, they shall be separated by an extruded sheath of PVC or Polyethylene or LSF as applicable.

### **Metallic Armour:**

Armour shall be as per IEC 60502-2 of the following types:

- a) Round Wire Armour
- b) Double Tape Armour

Armour material shall be Galvanized steel for three core cables and Aluminium for single core cables. Armour of other material as per IEC 60502-2 can be provided upon request.

### **Outer Sheath:**

Outer sheath shall be extruded PVC type ST2 as per IEC 60502-2. Special type of PVC sheathing material such as Fire retardant PVC, antitermite and anti-rodent PVC, Ultraviolet PVC, Oil resistant PVC, etc. are available on request also other special sheathing materials such as LLDPE, MDPE, HDPE, CPE etc are available.

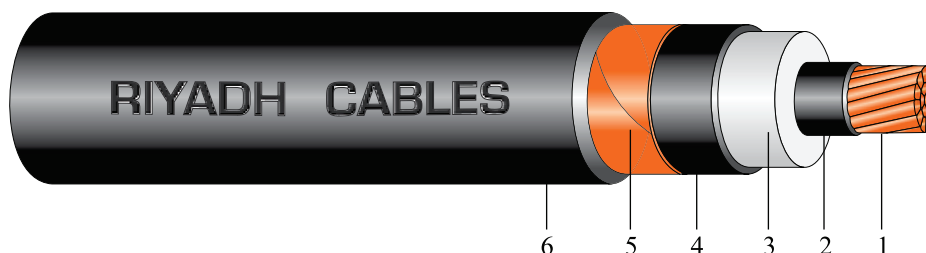
### **Phase Identification:**

For 3 core cables, Red, Yellow and Blue coloured strips shall be applied under the metallic screen throughout the length of the cable for phase identification. For single core cables no phase identification shall be provided.

### **Fire Performance of Cable Sheath:**

Cables can be supplied with special flame retardent PVC outer sheath to comply with the flame retradant test requirements of IEC 60332-3-22, IEC 60332-3-23 or IEC 60332-3-24, Riyadh Cables can also supply cables with Low Smoke Halogen Free (LSHF) material of type ST8 according to IEC 60502-1 or other equivalent standards.

## UNARMoured SINGLE CORE CABLES



- |                     |                                     |
|---------------------|-------------------------------------|
| 1. Conductor        | 4. Insulation Screen (Non-metallic) |
| 2. Conductor Screen | 5. Insulation Screen (Metallic)     |
| 3. XLPE Insulation  | 6. Outer Sheath                     |

Item code (1)	Size	Diameter of Conductor (Approx.)	Nominal Insulation Thickness	Diameter over insulation (Approx.)	Nominal Outer Sheath thickness		Overall Diameter (Approx.)		Weight of Cable (Approx.)	
					CUT	CUW	CUT	CUW	CUT	CUW
	mm <sup>2</sup>	mm	mm	mm	mm	mm	mm	mm	kg/km	kg/km
10	25	5.9	2.5	12.5	1.5	1.5	18	20	525	725
11	35	6.9	2.5	13.5	1.5	1.6	19	21	650	825
12	50	8.1	2.5	14.7	1.6	1.6	21	22	775	950
13	70	9.7	2.5	16.3	1.6	1.6	22	24	1000	1175
14	95	11.4	2.5	18.0	1.7	1.7	24	26	1300	1475
15	120	12.9	2.5	19.5	1.7	1.8	26	27	1550	1750
16	150	14.3	2.5	20.9	1.8	1.8	27	29	1825	2100
17	185	16.0	2.5	22.6	1.8	1.9	29	31	2200	2400
18	240	18.4	2.6	25.2	1.9	1.9	32	33	2800	3000
19	300	20.4	2.8	27.6	2.0	2.0	34	36	3400	3600
20	400	23.2	3.0	30.8	2.1	2.2	38	40	4275	4675
21	500	26.7	3.2	34.7	2.2	2.3	42	44	5375	5800
22	630	30.4	3.2	38.4	2.3	2.4	46	48	6800	7075

Size	Max. DC Resistance @ 20°C	Inductance		Capacitance	Adiabatic Short Circuit Current for 1 second			Current Carrying Capacity (2)				Voltage drop per phase
		Trefoil	Flat		Conductor	CUT	CUW	CUT		CUW		
								Direct Buried	In Air	Direct Buried	In Air	
mm <sup>2</sup>	Ohm/km	mH/km	mH/km	μF/km	kA	kA	kA	Amps	Amps	Amps	Amps	V/A.Km
25	0.727	0.444	0.760	0.26	3.575	0.341	2.000	164	158	166	162	0.842
35	0.524	0.426	0.745	0.29	5.005	0.364	2.000	197	191	198	196	0.632
50	0.387	0.408	0.720	0.32	7.150	0.392	2.000	232	230	234	235	0.488
70	0.268	0.388	0.694	0.37	10.010	0.430	2.000	284	288	286	293	0.362
95	0.193	0.378	0.679	0.39	13.585	0.469	2.000	340	352	341	358	0.283
120	0.153	0.364	0.660	0.44	17.160	0.504	2.000	386	407	387	413	0.239
150	0.124	0.354	0.645	0.48	21.450	0.537	3.125	432	463	431	469	0.208
185	0.0991	0.343	0.630	0.52	26.455	0.576	3.125	488	532	485	537	0.180
240	0.0754	0.332	0.611	0.56	34.320	0.637	3.125	564	631	559	633	0.154
300	0.0601	0.324	0.596	0.58	42.900	0.693	3.125	633	721	626	722	0.137
400	0.0470	0.313	0.578	0.61	57.200	0.767	4.375	715	835	696	826	0.122
500	0.0366	0.306	0.564	0.64	71.500	0.858	4.375	805	965	777	943	0.111
630	0.0283	0.296	0.548	0.71	90.090	0.944	4.375	898	1102	860	1069	0.102

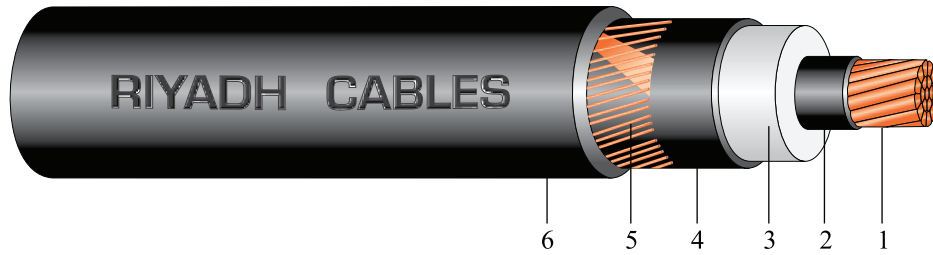
(1) The code numbers to be read in conjunction with 02020101 at the beginning. Example for 150 mm<sup>2</sup> cable, the code number is 0202010116

Code number for other types of insulation screen: Replace the 6<sup>th</sup> digit as follows:  
2 for S + CUW ; 3 for B + CUT ; 4 for B + CUW

(2) Laying conditions: Underground temperature of soil 20°C, Ground thermal resistivity 100°C cm/W, Ambient temperature 30°C. Depth of laying = 700 mm (For other laying conditions, please refer to page 71 and 72 for de-rating factors)



## UNARMoured SINGLE CORE CABLES



- |                     |                                     |
|---------------------|-------------------------------------|
| 1. Conductor        | 4. Insulation Screen (Non-metallic) |
| 2. Conductor Screen | 5. Insulation Screen (Metallic)     |
| 3. XLPE Insulation  | 6. Outer Sheath                     |

Item code (1)	Size	Diameter of Conductor (Approx.)	Nominal Insulation Thickness	Diameter over insulation (Approx.)	Nominal Outer Sheath thickness		Overall Diameter (Approx.)		Weight of Cable (Approx.)	
					CUT	CUW	CUT	CUW	CUT	CUW
	mm <sup>2</sup>	mm	mm	mm	mm	mm	mm	mm	kg/km	kg/km
10	25	5.9	3.4	14.3	1.5	1.6	20	22	600	775
11	35	6.9	3.4	15.3	1.6	1.6	21	23	700	875
12	50	8.1	3.4	16.5	1.6	1.7	22	24	850	1025
13	70	9.7	3.4	18.1	1.7	1.7	24	26	1075	1275
14	95	11.4	3.4	19.8	1.7	1.8	26	27	1350	1550
15	120	12.9	3.4	21.3	1.8	1.8	27	29	1625	1825
16	150	14.3	3.4	22.7	1.8	1.9	29	30	1900	2175
17	185	16.0	3.4	24.4	1.9	1.9	31	32	2300	2550
18	240	18.4	3.4	26.8	2.0	2.0	33	35	2900	3150
19	300	20.4	3.4	28.8	2.0	2.1	35	37	3475	3775
20	400	23.2	3.4	31.6	2.1	2.2	38	40	4325	4725
21	500	26.7	3.4	35.1	2.2	2.3	42	44	5400	5825
22	630	30.4	3.4	38.8	2.3	2.4	46	48	6825	7250

Size	Max. DC Resistance @ 20°C	Inductance		Capacitance	Adiabatic Short Circuit Current for 1 second			Current Carrying Capacity (2)				Voltage drop per phase
		Trefoil	Flat		Conductor	CUT	CUW	CUT		CUW		
				Direct Buried				In Air	Direct Buried	In Air		
mm <sup>2</sup>	Ohm/km	mH/km	mH/km	μF/km	kA	kA	kA	Amps	Amps	Amps	Amps	V/A.Km
25	0.727	0.460	0.770	0.21	3.575	0.383	2.000	164	161	166	164	0.846
35	0.524	0.440	0.751	0.23	5.005	0.406	2.000	196	195	198	199	0.635
50	0.387	0.420	0.726	0.25	7.150	0.434	2.000	232	234	233	238	0.490
70	0.268	0.401	0.700	0.29	10.010	0.472	2.000	284	292	285	297	0.364
95	0.193	0.383	0.681	0.31	13.585	0.511	2.000	340	356	340	362	0.284
120	0.153	0.376	0.666	0.34	17.160	0.546	2.000	386	411	387	417	0.242
150	0.124	0.364	0.650	0.37	21.450	0.579	3.125	433	468	431	473	0.210
185	0.0991	0.354	0.635	0.40	26.455	0.618	3.125	488	537	485	541	0.183
240	0.0754	0.341	0.615	0.45	34.320	0.674	3.125	564	635	559	637	0.156
300	0.0601	0.329	0.593	0.49	42.900	0.721	3.125	634	725	625	724	0.138
400	0.0470	0.318	0.580	0.55	57.200	0.786	4.375	716	837	696	824	0.123
500	0.0366	0.308	0.565	0.60	71.500	0.867	4.375	806	966	778	944	0.111
630	0.0283	0.299	0.549	0.68	90.090	0.954	4.375	898	1103	861	1071	0.103

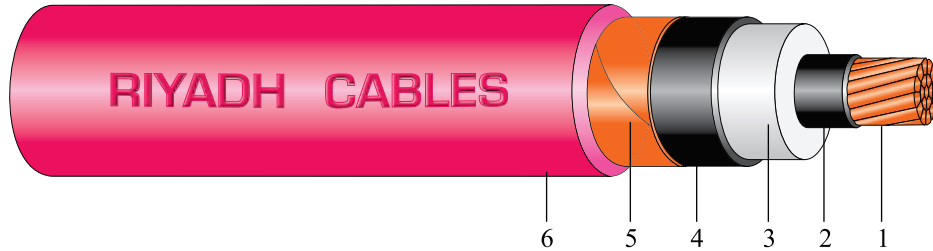
(1) The code numbers to be read in conjunction with 03020101 at the beginning. Example for 150 mm<sup>2</sup> cable, the code number is 0302010116

Code number for other types of insulation screen: Replace the 6<sup>th</sup> digit as follows:

2 for S + CUW ; 3 for B + CUT ; 4 for B + CUW

(2) Laying conditions: Underground temperature of soil 20°C, Ground thermal resistivity 100°C cm/W, Ambient temperature 30°C. Depth of laying = 700 mm (For other laying conditions, please refer to page 71 and 72 for de-rating factors)

## UNARMoured SINGLE CORE CABLES



- |                     |                                     |
|---------------------|-------------------------------------|
| 1. Conductor        | 4. Insulation Screen (Non-metallic) |
| 2. Conductor Screen | 5. Insulation Screen (Metallic)     |
| 3. XLPE Insulation  | 6. Outer Sheath                     |

Item code (1)	Size	Diameter of Conductor (Approx.)	Nominal Insulation Thickness	Diameter over insulation (Approx.)	Nominal Outer Sheath thickness		Overall Diameter (Approx.)		Weight of Cable (Approx.)		
					CUT	CUW	CUT	CUW	CUT	CUW	
	mm <sup>2</sup>	mm	mm	mm	mm	mm	mm	mm	mm	kg/km	kg/km
10	25	5.9	4.5	16.5	1.6	1.7	22	24	675	850	
11	35	6.9	4.5	17.5	1.7	1.7	23	25	800	975	
12	50	8.1	4.5	18.7	1.7	1.7	25	26	950	1125	
13	70	9.7	4.5	20.3	1.7	1.8	26	28	1175	1375	
14	95	11.4	4.5	22.0	1.8	1.8	28	30	1425	1650	
15	120	12.9	4.5	23.5	1.9	1.9	30	31	1750	1950	
16	150	14.3	4.5	24.9	1.9	1.9	31	33	2025	2300	
17	185	16.0	4.5	26.6	2.0	2.0	33	35	2425	2700	
18	240	18.4	4.5	29.0	2.0	2.1	35	37	3000	3300	
19	300	20.4	4.5	31.0	2.1	2.1	38	39	3650	3925	
20	400	23.2	4.5	33.8	2.2	2.3	41	42	4475	4900	
21	500	26.7	4.5	37.3	2.3	2.4	44	46	5575	6000	
22	630	30.4	4.5	41.0	2.4	2.5	48	50	7000	7450	

Size	Max. DC Resistance @ 20°C	Inductance		Capacitance	Adiabatic Short Circuit Current for 1 second			Current Carrying Capacity (2)				Voltage drop per phase				
		Trefoil	Flat		Conductor	CUT	CUW	CUT		CUW						
		mm <sup>2</sup>	Ohm/km	mH/km				mH/km	μF/km	kA	kA		kA	Direct Buried	In Air	Direct Buried
25	0.727	0.470	0.780	0.17	3.575	0.434	2.000	164	164	165	167	0.850				
35	0.524	0.456	0.758	0.19	5.005	0.457	2.000	196	198	197	202	0.638				
50	0.387	0.435	0.732	0.21	7.150	0.485	2.000	232	237	233	241	0.494				
70	0.268	0.415	0.706	0.23	10.010	0.523	2.000	283	296	285	300	0.368				
95	0.193	0.402	0.690	0.25	13.585	0.562	2.000	339	360	340	365	0.289				
120	0.153	0.389	0.672	0.27	17.160	0.597	2.000	385	416	386	421	0.245				
150	0.124	0.377	0.656	0.29	21.450	0.630	3.125	432	473	431	477	0.213				
185	0.0991	0.366	0.641	0.32	26.455	0.669	3.125	488	542	485	545	0.185				
240	0.0754	0.352	0.621	0.35	34.320	0.725	3.125	564	640	559	641	0.159				
300	0.0601	0.340	0.605	0.39	42.900	0.772	3.125	634	730	626	728	0.141				
400	0.0470	0.327	0.585	0.43	57.200	0.837	4.375	717	843	697	830	0.125				
500	0.0366	0.318	0.570	0.48	71.500	0.919	4.375	808	972	780	950	0.114				
630	0.0283	0.307	0.554	0.53	90.090	1.005	4.375	902	1111	865	1078	0.105				

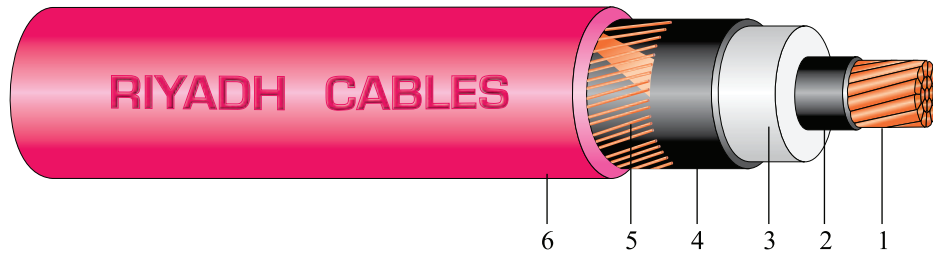
- (1) The code numbers to be read in conjunction with 04020101 at the beginning. Example for 150 mm<sup>2</sup> cable, the code number is 0402010116

Code number for other types of insulation screen: Replace the 6<sup>th</sup> digit as follows:  
 2 for S + CUW ; 3 for B + CUT ; 4 for B + CUW

- (2) Laying conditions: Underground temperature of soil 20°C, Ground thermal resistivity 100°C cm/W, Ambient temperature 30°C. Depth of laying = 700 mm (For other laying conditions, please refer to page 71 and 72 for de-rating factors)



## UNARMoured SINGLE CORE CABLES



- |                     |                                     |
|---------------------|-------------------------------------|
| 1. Conductor        | 4. Insulation Screen (Non-metallic) |
| 2. Conductor Screen | 5. Insulation Screen (Metallic)     |
| 3. XLPE Insulation  | 6. Outer Sheath                     |

Item code (1)	Size	Diameter of Conductor (Approx.)	Nominal Insulation Thickness	Diameter over insulation (Approx.)	Nominal Outer Sheath thickness		Overall Diameter (Approx.)		Weight of Cable (Approx.)	
					CUT	CUW	CUT	CUW	CUT	CUW
	mm <sup>2</sup>	mm	mm	mm	mm	mm	mm	mm	kg/km	kg/km
10	25	5.9	6.0	19.5	1.7	1.8	26	27	800	1000
11	35	6.9	5.5	19.5	1.7	1.8	26	27	875	1075
12	50	8.1	5.5	20.7	1.8	1.8	27	28	1050	1225
13	70	9.7	5.5	22.3	1.8	1.9	28	30	1275	1500
14	95	11.4	5.5	24.0	1.9	1.9	30	31	1575	1775
15	120	12.9	5.5	25.5	1.9	2.0	32	33	1850	2050
16	150	14.3	5.5	26.9	2.0	2.0	33	35	2150	2425
17	185	16.0	5.5	28.6	2.0	2.1	35	37	2550	2825
18	240	18.4	5.5	31.0	2.1	2.1	38	39	3150	3425
19	300	20.4	5.5	33.0	2.2	2.2	40	41	3775	4050
20	400	23.2	5.5	35.8	2.3	2.3	43	44	4650	5050
21	500	26.7	5.5	39.3	2.4	2.4	46	48	5750	6150
22	630	30.4	5.5	43.0	2.5	2.5	50	52	7180	7600

Size	Max. DC Resistance @ 20°C	Inductance		Capacitance	Adiabatic Short Circuit Current for 1 second			Current Carrying Capacity (2)				Voltage drop per phase				
		Trefoil	Flat		Conductor	CUT	CUW	CUT		CUW						
		mm <sup>2</sup>	Ohm/km	mH/km				mH/km	μF/km	kA	kA		kA	Direct Buried	In Air	Direct Buried
25	0.727	0.497	0.792	0.14	3.575	0.504	2.000	164	166	165	169	0.854				
35	0.524	0.468	0.763	0.16	5.005	0.504	2.000	196	200	197	204	0.641				
50	0.387	0.448	0.738	0.18	7.150	0.532	2.000	232	240	233	244	0.497				
70	0.268	0.426	0.712	0.20	10.010	0.569	2.000	283	299	284	303	0.370				
95	0.193	0.414	0.696	0.21	13.585	0.609	2.000	339	364	340	368	0.291				
120	0.153	0.399	0.677	0.23	17.160	0.644	2.000	386	419	386	424	0.247				
150	0.124	0.388	0.662	0.25	21.450	0.676	3.125	432	476	431	479	0.216				
185	0.0991	0.375	0.646	0.27	26.455	0.716	3.125	488	545	485	548	0.187				
240	0.0754	0.361	0.626	0.30	34.320	0.772	3.125	565	643	559	643	0.161				
300	0.0601	0.350	0.610	0.33	42.900	0.819	3.125	634	734	626	731	0.143				
400	0.0470	0.336	0.590	0.37	57.200	0.884	4.375	718	847	699	834	0.127				
500	0.0366	0.326	0.575	0.40	71.500	0.965	4.375	810	977	782	955	0.115				
630	0.0283	0.315	0.558	0.45	90.090	1.051	4.375	906	1116	869	1084	0.107				

(1) The code numbers to be read in conjunction with 05020101 at the beginning. Example for 150 mm<sup>2</sup> cable, the code number is 0502010116

Code number for other types of insulation screen: Replace the 6<sup>th</sup> digit as follows:  
2 for S + CUW ; 3 for B + CUT ; 4 for B + CUW

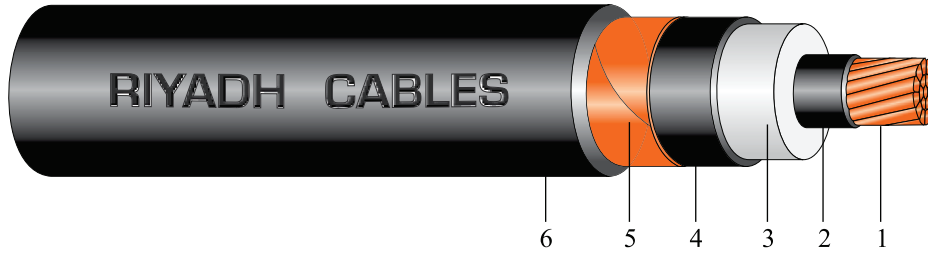
(2) Laying conditions: Underground temperature of soil 20°C, Ground thermal resistivity 100°C cm/W, Ambient temperature 30°C. Depth of laying = 700 mm (For other laying conditions, please refer to page 71 and 72 for de-rating factors)

## UNARMoured SINGLE CORE CABLES

**COPPER CONDUCTORS**

**IEC 60502-2**

**U<sub>0</sub>/U(U<sub>m</sub>)=18/30(36) kV**



- |                     |                                     |
|---------------------|-------------------------------------|
| 1. Conductor        | 4. Insulation Screen (Non-metallic) |
| 2. Conductor Screen | 5. Insulation Screen (Metallic)     |
| 3. XLPE Insulation  | 6. Outer Sheath                     |

Item code (1)	Size	Diameter of Conductor (Approx.)	Nominal Insulation Thickness	Diameter over insulation (Approx.)	Nominal Outer Sheath thickness		Overall Diameter (Approx.)		Weight of Cable (Approx.)	
					CUT	CUW	CUT	CUW	CUT	CUW
	mm <sup>2</sup>	mm	mm	mm	mm	mm	mm	mm	kg/km	kg/km
12	50	8.1	8.0	25.7	1.9	2.0	32	33	1300	1500
13	70	9.7	8.0	27.3	2.0	2.0	34	35	1575	1775
14	95	11.4	8.0	29.0	2.1	2.1	36	37	1900	2100
15	120	12.9	8.0	30.5	2.1	2.1	37	38	2150	2375
16	150	14.3	8.0	31.9	2.1	2.2	38	40	2450	2775
17	185	16.0	8.0	33.6	2.2	2.2	40	42	2900	3175
18	240	18.4	8.0	36.0	2.3	2.3	43	44	3525	3800
19	300	20.4	8.0	38.0	2.3	2.4	45	47	4150	4475
20	400	23.2	8.0	40.8	2.5	2.5	48	50	5050	5450
21	500	26.7	8.0	44.3	2.5	2.6	52	54	6150	6625
22	630	30.4	8.0	48.0	2.7	2.7	56	57	7650	8100

Size	Max. DC Resistance @ 20°C	Inductance		Capacitance	Adiabatic Short Circuit Current for 1 second			Current Carrying Capacity (2)				Voltage drop per phase
		Trefoil	Flat		Conductor	CUT	CUW	CUT		CUW		
				Direct Buried				In Air	Direct Buried	In Air		
mm <sup>2</sup>	Ohm/km	mH/km	mH/km	μF/km	kA	kA	kA	Amps	Amps	Amps	Amps	V/A.Km
50	0.387	0.482	0.755	0.14	7.150	0.649	2.000	231	245	232	248	0.504
70	0.268	0.459	0.728	0.16	10.010	0.686	2.000	283	304	284	307	0.377
95	0.193	0.446	0.712	0.17	13.585	0.725	2.000	338	370	339	373	0.299
120	0.153	0.430	0.693	0.18	17.160	0.760	2.000	385	425	385	429	0.254
150	0.124	0.417	0.677	0.19	21.450	0.793	3.125	431	482	430	484	0.222
185	0.0991	0.404	0.661	0.21	26.455	0.832	3.125	487	552	484	552	0.194
240	0.0754	0.388	0.641	0.23	34.320	0.888	3.125	564	650	559	649	0.167
300	0.0601	0.375	0.624	0.25	42.900	0.935	3.125	635	741	627	737	0.149
400	0.0470	0.360	0.604	0.27	57.200	1.000	4.375	720	855	701	841	0.133
500	0.0366	0.349	0.589	0.30	71.500	1.081	4.375	811	983	786	963	0.121
630	0.0283	0.338	0.570	0.33	90.090	1.168	4.375	910	1124	875	1094	0.112

(1) The code numbers to be read in conjunction with 06020101 at the beginning. Example for 150 mm<sup>2</sup> cable, the code number is 0602010116

Code number for other types of insulation screen: Replace the 6<sup>th</sup> digit as follows:  
2 for S + CUW ; 3 for B + CUT ; 4 for B + CUW

(2) Laying conditions: Underground temperature of soil 20°C, Ground thermal resistivity 100°C cm/W, Ambient temperature 30°C. Depth of laying = 700 mm (For other laying conditions, please refer to page 71 and 72 for de-rating factors)

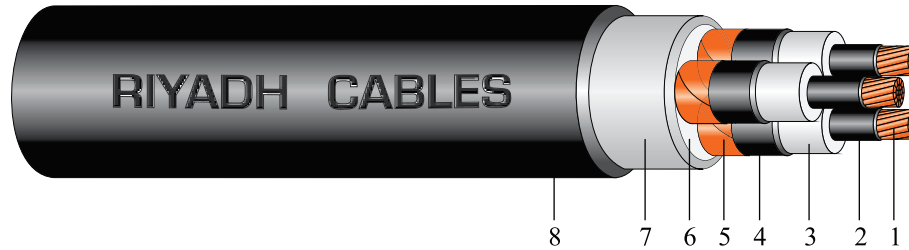


## UNARMoured THREE CORE CABLES

**COPPER CONDUCTORS**

**IEC 60502-2**

**U<sub>o</sub>/U(U<sub>m</sub>)=3.5/6(7.2) kV**



- |                                     |                                 |
|-------------------------------------|---------------------------------|
| 1. Conductor                        | 5. Insulation screen (Metallic) |
| 2. Conductor Screen                 | 6. PP Filler                    |
| 3. XLPE Insulation                  | 7. Bedding                      |
| 4. Insulation screen (Non-metallic) | 8. Outer Sheath                 |

Item code (1)	Size	Diameter of Conductor (Approx.)	Nominal Insulation Thickness	Diameter over insulation (Approx.)	Nominal Outer Sheath thickness		Overall Diameter (Approx.)		Weight of Cable (Approx.)	
					CUT	CUW	CUT	CUW	CUT	CUW
	mm <sup>2</sup>	mm	mm	mm	mm	mm	mm	mm	kg/km	kg/km
10	25	5.9	2.5	12.5	2.1	2.1	39	42	1925	2075
11	35	6.9	2.5	13.5	2.1	2.2	41	44	2300	2450
12	50	8.1	2.5	14.7	2.2	2.3	44	47	2775	2950
13	70	9.7	2.5	16.3	2.3	2.4	48	51	3550	3700
14	95	11.4	2.5	18.0	2.5	2.5	52	55	4500	4600
15	120	12.9	2.5	19.5	2.6	2.6	56	59	5350	5525
16	150	14.3	2.5	20.9	2.7	2.8	59	62	6350	6550
17	185	16.0	2.5	22.6	2.8	2.9	63	66	7550	7800
18	240	18.4	2.6	25.2	3.0	3.0	69	72	9500	9675
19	300	20.4	2.8	27.6	3.2	3.2	75	78	11650	11800

Size	Max. DC Resistance @ 20°C	Nominal Inductance	Capacitance	Adiabatic Short Circuit Current for 1 second			Current Carrying Capacity (2)				Voltage drop per phase
				Conductor	CUT	CUW	CUT		CUW		
							Direct Buried	In Air	Direct Buried	In Air	
mm <sup>2</sup>	Ohm/km	mH/km	μF/km	kA	kA	kA	Amps	Amps	Amps	Amps	V/A.Km
25	0.727	0.305	0.26	3.575	1.023	2.000	153	146	146	140	0.811
35	0.524	0.294	0.29	5.005	1.092	2.000	182	176	175	169	0.602
50	0.387	0.283	0.32	7.150	1.176	2.000	214	210	206	202	0.459
70	0.268	0.272	0.36	10.010	1.29	2.000	261	260	253	250	0.335
95	0.193	0.266	0.39	13.585	1.407	2.000	312	315	303	304	0.258
120	0.153	0.259	0.43	17.160	1.512	2.000	353	360	344	349	0.215
150	0.124	0.253	0.47	21.450	1.611	3.125	395	407	385	395	0.185
185	0.0991	0.250	0.52	26.455	1.728	3.125	445	464	435	451	0.159
240	0.0754	0.243	0.56	34.320	1.911	3.125	513	543	503	530	0.134
300	0.0601	0.236	0.58	42.900	2.079	3.125	573	613	563	599	0.117

(1) The code numbers to be read in conjunction with 02020103 at the beginning. Example for 150 mm<sup>2</sup> cable, the code number is 0202010316

Code number for other types of insulation screen: Replace the 6<sup>th</sup> digit as follows:  
2 for S + CUW ; 3 for B + CUT ; 4 for B + CUW

(2) Laying conditions: Underground temperature of soil 20°C, Ground thermal resistivity 100°C cm/W, Ambient temperature 30°C. Depth of laying = 700 mm (For other laying conditions, please refer to page 71 and 72 for de-rating factors)

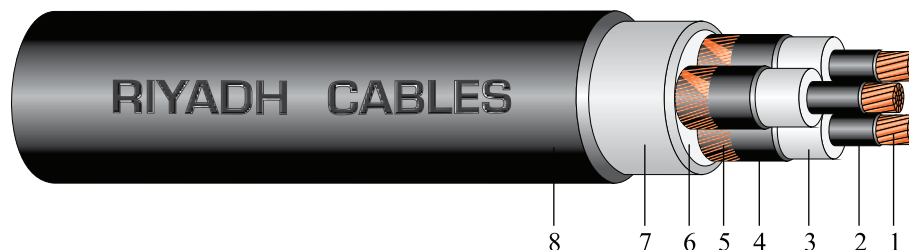


## UNARMoured THREE CORE CABLES

**COPPER CONDUCTORS**

**IEC 60502-2**

**U<sub>0</sub>/U<sub>Um</sub>=6/10(12) kV**



- |                                     |                                 |
|-------------------------------------|---------------------------------|
| 1. Conductor                        | 5. Insulation screen (Metallic) |
| 2. Conductor Screen                 | 6. PP Filler                    |
| 3. XLPE Insulation                  | 7. Bedding                      |
| 4. Insulation screen (Non-metallic) | 8. Outer Sheath                 |

Item code (1)	Size	Diameter of Conductor (Approx.)	Nominal Insulation Thickness	Diameter over insulation (Approx.)	Nominal Outer Sheath thickness		Overall Diameter (Approx.)		Weight of Cable (Approx.)	
					CUT	CUW	CUT	CUW	CUT	CUW
	mm <sup>2</sup>	mm	mm	mm	mm	mm	mm	mm	kg/km	kg/km
10	25	5.9	3.4	14.3	2.2	2.2	43	46	2200	2300
11	35	6.9	3.4	15.3	2.3	2.3	46	48	2650	2750
12	50	8.1	3.4	16.5	2.4	2.4	49	51	3200	3250
13	70	9.7	3.4	18.1	2.5	2.5	52	55	3900	4000
14	95	11.4	3.4	19.8	2.6	2.7	56	60	4850	5050
15	120	12.9	3.4	21.3	2.7	2.8	60	63	5750	5900
16	150	14.3	3.4	22.7	2.8	2.9	63	64	6700	6950
17	185	16.0	3.4	24.4	2.9	3.0	67	70	8000	8150
18	240	18.4	3.4	26.8	3.1	3.2	73	76	9900	10150
19	300	20.4	3.4	28.8	3.3	3.3	78	81	11975	12125

Size	Max. DC Resistance @ 20°C	Nominal Inductance	Capacitance	Adiabatic Short Circuit Current for 1 second			Current Carrying Capacity (2)				Voltage drop per phase
				Conductor	CUT	CUW	CUT		CUW		
							Direct Buried	In Air	Direct Buried	In Air	
mm <sup>2</sup>	Ohm/km	mH/km	μF/km	kA	kA	kA	Amps	Amps	Amps	Amps	V/A.Km
25	0.727	0.331	0.21	3.575	1.149	2.000	153	149	146	141	0.816
35	0.524	0.318	0.23	5.005	1.218	2.000	182	178	174	170	0.607
50	0.387	0.305	0.25	7.150	1.302	2.000	214	212	206	203	0.464
70	0.268	0.292	0.29	10.010	1.416	2.000	261	262	252	252	0.340
95	0.193	0.285	0.31	13.585	1.533	2.000	311	316	301	305	0.262
120	0.153	0.276	0.34	17.160	1.638	2.000	353	362	343	350	0.219
150	0.124	0.269	0.37	21.450	1.737	3.125	394	409	384	396	0.189
185	0.0991	0.263	0.40	26.455	1.854	3.125	444	465	434	452	0.162
240	0.0754	0.255	0.44	34.320	2.022	3.125	513	544	501	528	0.132
300	0.0601	0.248	0.48	42.900	2.163	3.125	573	614	562	600	0.120

(1) The code numbers to be read in conjunction with 03020103 at the beginning. Example for 150 mm<sup>2</sup> cable, the code number is 0302010316

Code number for other types of insulation screen: Replace the 6<sup>th</sup> digit as follows:

2 for S + CUW ; 3 for B + CUT ; 4 for B + CUW

(2) Laying conditions: Underground temperature of soil 20°C, Ground thermal resistivity 100°C cm/W, Ambient temperature 30°C. Depth of laying = 700 mm (For other laying conditions, please refer to page 71 and 72 for de-rating factors)

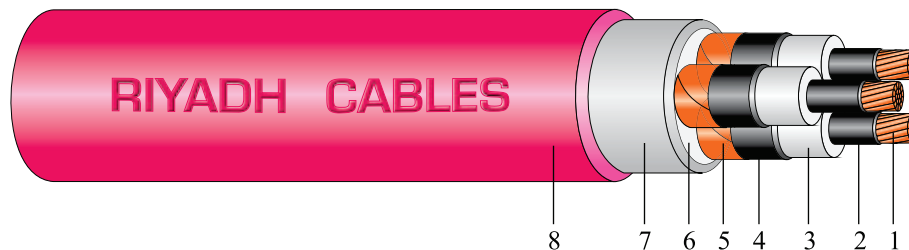


## UNARMoured THREE CORE CABLES

COPPER CONDUCTORS

IEC 60502-2

U<sub>o</sub>/U<sub>Um</sub>=8.7/15(17.5) kV



- |                                     |                                 |
|-------------------------------------|---------------------------------|
| 1. Conductor                        | 5. Insulation screen (Metallic) |
| 2. Conductor Screen                 | 6. PP Filler                    |
| 3. XLPE Insulation                  | 7. Bedding                      |
| 4. Insulation screen (Non-metallic) | 8. Outer Sheath                 |

Item code (1)	Size	Diameter of Conductor (Approx.)	Nominal Insulation Thickness	Diameter over insulation (Approx.)	Nominal Outer Sheath thickness		Overall Diameter (Approx.)		Weight of Cable (Approx.)	
					CUT	CUW	CUT	CUW	CUT	CUW
	mm <sup>2</sup>	mm	mm	mm	mm	mm	mm	mm	kg/km	kg/km
10	25	5.9	4.5	16.1	2.4	2.4	47	50	3000	3200
11	35	6.9	4.5	17.5	2.5	2.5	51	54	3025	3125
12	50	8.1	4.5	18.7	2.6	2.6	54	56	3550	3650
13	70	9.7	4.5	20.3	2.7	2.7	58	61	4400	4500
14	95	11.4	4.5	22.0	2.8	2.8	62	64	5400	5500
15	120	12.9	4.5	23.5	2.9	2.9	65	68	6250	6350
16	150	14.3	4.5	24.9	3.0	3.1	69	71	7200	7400
17	185	16.0	4.5	26.6	3.1	3.2	72	76	8500	8800
18	240	18.4	4.5	29.0	3.3	3.3	78	81	10550	10700
19	300	20.4	4.5	31.0	3.4	3.5	83	86	12550	12750

Size	Max. DC Resistance @ 20°C	Nominal Inductance	Capacitance	Adiabatic Short Circuit Current for 1 second			Current Carrying Capacity (2)				Voltage drop per phase
				Conductor	CUT	CUW	CUT		CUW		
							Direct Buried	In Air	Direct Buried	In Air	
mm <sup>2</sup>	Ohm/km	mH/km	μF/km	kA	kA	kA	Amps	Amps	Amps	Amps	V/A.Km
25	0.727	0.359	0.17	3.575	1.302	2.000	153	151	146	142	0.823
35	0.524	0.344	0.19	5.005	1.371	2.000	181	180	174	171	0.612
50	0.387	0.329	0.21	7.150	1.455	2.000	213	214	206	204	0.470
70	0.268	0.314	0.23	10.010	1.569	2.000	260	263	251	252	0.345
95	0.193	0.306	0.25	13.585	1.686	2.000	310	318	301	306	0.267
120	0.153	0.296	0.27	17.160	1.791	2.000	352	364	342	351	0.224
150	0.124	0.288	0.29	21.450	1.89	3.125	394	411	383	396	0.193
185	0.0991	0.280	0.32	26.455	2.007	3.125	444	467	432	451	0.166
240	0.0754	0.271	0.35	34.320	2.175	3.125	511	544	500	529	0.140
300	0.0601	0.260	0.39	42.900	2.316	3.125	572	615	561	599	0.123

(1) The code numbers to be read in conjunction with 04020103 at the beginning. Example for 150 mm<sup>2</sup> cable, the code number is 0402010316

Code number for other types of insulation screen: Replace the 6<sup>th</sup> digit as follows:  
2 for S + CUW ; 3 for B + CUT ; 4 for B + CUW

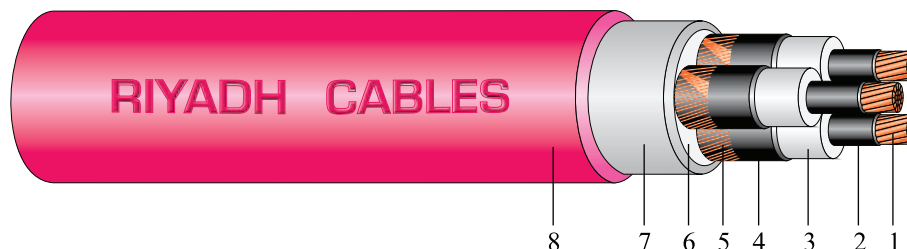
(2) Laying conditions: Underground temperature of soil 20°C, Ground thermal resistivity 100°C cm/W, Ambient temperature 30°C. Depth of laying = 700 mm (For other laying conditions, please refer to page 71 and 72 for de-rating factors)

## UNARMoured THREE CORE CABLES

**COPPER CONDUCTORS**

**IEC 60502-2**

**U<sub>0</sub>/U<sub>m</sub>=12/20(24) kV**



- |  |  |
|--|--|
| <ol style="list-style-type: none"> <li>1. Conductor</li> <li>2. Conductor Screen</li> <li>3. XLPE Insulation</li> <li>4. Insulation screen (Non-metallic)</li> </ol> | <ol style="list-style-type: none"> <li>5. Insulation screen (Metallic)</li> <li>6. PP Filler</li> <li>7. Bedding</li> <li>8. Outer Sheath</li> </ol> |
|--|--|

Item code (1)	Size	Diameter of Conductor (Approx.)	Nominal Insulation Thickness	Diameter over insulation (Approx.)	Nominal Outer Sheath thickness		Overall Diameter (Approx.)		Weight of Cable (Approx.)	
					CUT	CUW	CUT	CUW	CUT	CUW
	mm <sup>2</sup>	mm	mm	mm	mm	mm	mm	mm	kg/km	kg/km
10	25	5.9	6.0	19.5	2.6	2.6	56	59	3200	3350
11	35	6.9	5.5	19.5	2.6	2.7	56	59	3400	3600
12	50	8.1	5.5	20.7	2.7	2.8	59	62	4000	4100
13	70	9.7	5.5	22.3	2.8	2.9	63	65	4800	4950
14	95	11.4	5.5	24.0	2.9	3.0	66	69	5800	6000
15	120	12.9	5.5	25.5	3.0	3.1	70	73	6700	6900
16	150	14.3	5.5	26.9	3.1	3.2	73	76	7700	8000
17	185	16.0	5.5	28.6	3.3	3.3	78	80	9100	9250
18	240	18.4	5.5	31.0	3.4	3.5	83	86	11100	11300
19	300	20.4	5.5	33.0	3.6	3.6	88	90	13150	13300

Size	Max. DC Resistance @ 20°C	Nominal Inductance	Capacitance	Adiabatic Short Circuit Current for 1 second			Current Carrying Capacity (2)				Voltage drop per phase
				Conductor	CUT	CUW	CUT		CUW		
							Direct Buried	In Air	Direct Buried	In Air	
mm <sup>2</sup>	Ohm/km	mH/km	μF/km	kA	kA	kA	Amps	Amps	Amps	Amps	V/A.Km
25	0.727	0.394	0.14	3.575	1.512	2.000	153	152	145	143	0.831
35	0.524	0.365	0.16	5.005	1.512	2.000	181	181	173	172	0.618
50	0.387	0.349	0.18	7.150	1.596	2.000	213	214	205	205	0.474
70	0.268	0.332	0.20	10.010	1.707	2.000	260	265	251	253	0.349
95	0.193	0.323	0.21	13.585	1.827	2.000	310	319	300	307	0.271
120	0.153	0.312	0.23	17.160	1.932	2.000	351	365	341	352	0.227
150	0.124	0.303	0.25	21.450	2.028	3.125	392	411	382	396	0.197
185	0.0991	0.295	0.27	26.455	2.148	3.125	442	467	431	452	0.169
240	0.0754	0.285	0.30	34.320	2.316	3.125	510	544	499	529	0.143
300	0.0601	0.270	0.33	42.900	2.457	3.125	572	616	561	600	0.125

(1) The code numbers to be read in conjunction with 05020103 at the beginning. Example for 150 mm<sup>2</sup> cable, the code number is 0502010316

Code number for other types of insulation screen: Replace the 6<sup>th</sup> digit as follows:  
2 for S + CUW ; 3 for B + CUT ; 4 for B + CUW

(2) Laying conditions: Underground temperature of soil 20°C, Ground thermal resistivity 100°C cm/W, Ambient temperature 30°C. Depth of laying = 700 mm (For other laying conditions, please refer to page 71 and 72 for de-rating factors)

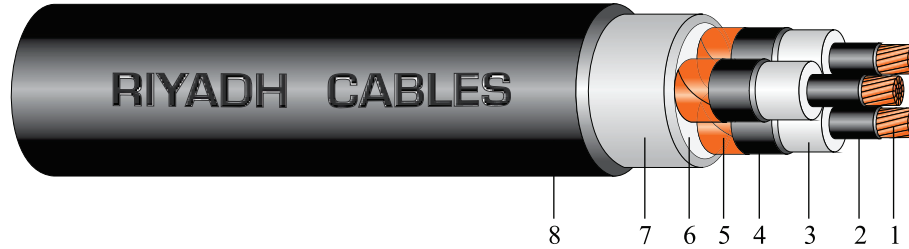


## UNARMoured THREE CORE CABLES

**COPPER CONDUCTORS**

**IEC 60502-2**

**U<sub>0</sub>/U(U<sub>m</sub>)=18/30(36) kV**



- |                                     |                                 |
|-------------------------------------|---------------------------------|
| 1. Conductor                        | 5. Insulation screen (Metallic) |
| 2. Conductor Screen                 | 6. PP Filler                    |
| 3. XLPE Insulation                  | 7. Bedding                      |
| 4. Insulation screen (Non-metallic) | 8. Outer Sheath                 |

Item code (1)	Size	Diameter of Conductor (Approx.)	Nominal Insulation Thickness	Diameter over insulation (Approx.)	Nominal Outer Sheath thickness		Overall Diameter (Approx.)		Weight of Cable (Approx.)		
					CUT	CUW	CUT	CUW	CUT	CUW	
	mm <sup>2</sup>	mm	mm	mm	mm	mm	mm	mm	mm	kg/km	kg/km
12	50	8.1	8.0	25.7	3.1	3.1	71	73	5100	5300	
13	70	9.7	8.0	27.3	3.2	3.2	75	77	6100	6200	
14	95	11.4	8.0	29.0	3.3	3.4	78	81	7150	7300	
15	120	12.9	8.0	30.5	3.4	3.5	82	85	8100	8300	
16	150	14.3	8.0	31.9	3.5	3.6	85	88	9200	9300	
17	185	16.0	8.0	33.6	3.6	3.7	89	92	10500	10700	
18	240	18.4	8.0	36.0	3.8	3.9	95	98	12600	12900	
19	300	20.4	8.0	38.0	4.0	4.0	100	102	14900	15000	

Size	Max. DC Resistance @ 20°C	Nominal Inductance	Capacitance	Adiabatic Short Circuit Current for 1 second			Current Carrying Capacity (2)				Voltage drop per phase
				Conductor	CUT	CUW	CUT		CUW		
							Direct Buried	In Air	Direct Buried	In Air	
mm <sup>2</sup>	Ohm/km	mH/km	μF/km	kA	kA	kA	Amps	Amps	Amps	Amps	V/A Km
50	0.387	0.399	0.14	7.150	1.947	2.000	211	215	204	207	0.485
70	0.268	0.380	0.16	10.010	2.058	2.000	257	264	249	255	0.360
95	0.193	0.369	0.17	13.585	2.175	2.000	307	319	298	308	0.281
120	0.153	0.355	0.18	17.160	2.28	2.000	348	365	339	352	0.237
150	0.124	0.345	0.19	21.450	2.379	3.125	390	411	380	397	0.206
185	0.0991	0.334	0.21	26.455	2.496	3.125	440	467	429	452	0.178
240	0.0754	0.321	0.23	34.320	2.664	3.125	507	544	496	528	0.152
300	0.0601	0.308	0.25	42.900	2.805	3.125	569	615	558	598	0.134

(1) The code numbers to be read in conjunction with 06020103 at the beginning. Example for 150 mm<sup>2</sup> cable, the code number is 0602010316

Code number for other types of insulation screen: Replace the 6<sup>th</sup> digit as follows:  
2 for S + CUW ; 3 for B + CUT ; 4 for B + CUW

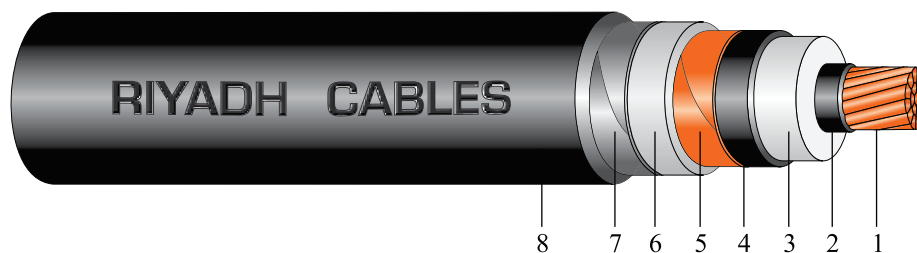
(2) Laying conditions: Underground temperature of soil 20°C, Ground thermal resistivity 100°C cm/W, Ambient temperature 30°C. Depth of laying = 700 mm (For other laying conditions, please refer to page 71 and 72 for de-rating factors)

## ARMoured SINGLE CORE CABLES

**COPPER CONDUCTORS**

**IEC 60502-2**

**U<sub>o</sub>/U(U<sub>m</sub>)=3.5/6(7.2) kV**



- |  |  |
|--|--|
| <ol style="list-style-type: none"> <li>1. Conductor</li> <li>2. Conductor Screen</li> <li>3. XLPE Insulation</li> <li>4. Insulation Screen (non-metallic)</li> </ol> | <ol style="list-style-type: none"> <li>5. Insulation Screen (Metallic)</li> <li>6. Bedding</li> <li>7. Aluminium Tape Armour</li> <li>8. Outer Sheath</li> </ol> |
|--|--|

Item code (1)	Size	Diameter of Conductor (Approx.)	Nominal Insulation Thickness	Diameter over insulation (Approx.)	Number & Nominal Thickness of Aluminium Tape	Nominal Outer Sheath thickness		Overall Diameter (Approx.)		Weight of Cable (Approx.)	
						CUT	CUW	CUT	CUW	CUT	CUW
	mm <sup>2</sup>	mm	mm	mm	mm	mm	mm	mm	mm	kg/km	kg/km
10	25	5.9	2.5	12.5	2x0.5	1.8	1.8	23	25	800	1000
11	35	6.9	2.5	13.5	2x0.5	1.8	1.8	24	26	925	1100
12	50	8.1	2.5	14.7	2x0.5	1.8	1.8	25	27	1075	1250
13	70	9.7	2.5	16.3	2x0.5	1.8	1.8	27	28	1300	1500
14	95	11.4	2.5	18.0	2x0.5	1.8	1.9	29	30	1500	1825
15	120	12.9	2.5	19.5	2x0.5	1.9	1.9	30	32	1900	2075
16	150	14.3	2.5	20.9	2x0.5	1.9	2.0	32	34	2175	2500
17	185	16.0	2.5	22.6	2x0.5	2.0	2.0	34	35	2600	2850
18	240	18.4	2.6	25.2	2x0.5	2.1	2.1	37	38	3200	3500
19	300	20.4	2.8	27.6	2x0.5	2.1	2.2	39	41	3850	4175
20	400	23.2	3.0	30.8	2x0.5	2.3	2.3	43	44	4775	5200
21	500	26.7	3.2	34.7	2x0.5	2.4	2.4	47	48	5950	6375
22	630	30.4	3.2	38.4	2x0.5	2.5	2.5	51	53	7450	7925

Size	Max. DC Resistance @ 20°C	Inductance		Capacitance	Adiabatic Short Circuit Current for 1 second			Current Carrying Capacity (2)				Voltage drop per phase
		Trefoil	Flat		Conductor	CUT	CUW	CUT		CUW		
								Direct Buried	In Air	Direct Buried	In Air	
mm <sup>2</sup>	Ohm/km	mH/km	mH/km	μF/km	kA	kA	kA	Amps	Amps	Amps	Amps	V/A.Km
25	0.727	0.473	0.785	0.26	3.575	0.341	2.000	165	166	166	168	0.849
35	0.524	0.461	0.760	0.29	5.005	0.364	2.000	197	200	198	203	0.640
50	0.387	0.440	0.735	0.32	7.150	0.392	2.000	233	240	234	243	0.495
70	0.268	0.418	0.708	0.37	10.010	0.430	2.000	284	298	285	302	0.368
95	0.193	0.406	0.792	0.39	13.585	0.469	2.000	340	363	340	367	0.289
120	0.153	0.392	0.673	0.44	17.160	0.504	2.000	386	419	385	422	0.246
150	0.124	0.380	0.658	0.48	21.450	0.537	3.125	432	474	429	477	0.214
185	0.0991	0.369	0.642	0.52	26.455	0.576	3.125	486	543	482	544	0.186
240	0.0754	0.356	0.623	0.56	34.320	0.637	3.125	562	640	555	639	0.160
300	0.0601	0.346	0.608	0.58	42.900	0.693	3.125	629	730	620	726	0.142
400	0.0470	0.334	0.589	0.61	57.200	0.767	4.375	707	838	686	824	0.127
500	0.0366	0.327	0.576	0.64	71.500	0.858	4.375	795	963	765	937	0.116
630	0.0283	0.315	0.558	0.71	90.090	0.944	4.375	885	1096	845	1058	0.107

(1) The code numbers to be read in conjunction with 02020131 at the beginning. Example for 150 mm<sup>2</sup> cable, the code number is 0202013116

Code number for other types of insulation screen: Replace the 6<sup>th</sup> digit as follows:  
2 for S + CUW ; 3 for B + CUT ; 4 for B + CUW

(2) Laying conditions: Underground temperature of soil 20°C, Ground thermal resistivity 100°C cm/W, Ambient temperature 30°C. Depth of laying = 700 mm (For other laying conditions, please refer to page 71 and 72 for de-rating factors)

(3) For current carrying capacity of cables with single point bonding please refer to page 39

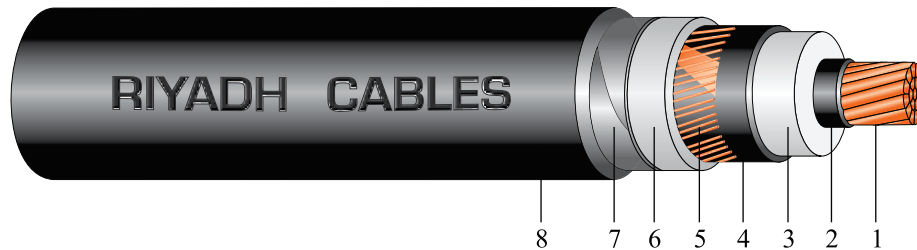


## ARMoured SINGLE CORE CABLES

COPPER CONDUCTORS

IEC 60502-2

$U_o/U(U_m)=6/10(12)$  kV



- |                                     |                                 |
|-------------------------------------|---------------------------------|
| 1. Conductor                        | 5. Insulation Screen (Metallic) |
| 2. Conductor Screen                 | 6. Bedding                      |
| 3. XLPE Insulation                  | 7. Aluminium Tape Armour        |
| 4. Insulation Screen (non-metallic) | 8. Outer Sheath                 |

Item code (1)	Size	Diameter of Conductor (Approx.)	Nominal Insulation Thickness	Diameter over insulation (Approx.)	Number & Nominal Thickness of Aluminium Tape	Nominal Outer Sheath thickness		Overall Diameter (Approx.)		Weight of Cable (Approx.)	
						CUT	CUW	CUT	CUW	CUT	CUW
	mm <sup>2</sup>	mm	mm	mm	mm	mm	mm	mm	mm	kg/km	kg/km
10	25	5.9	3.4	14.3	2x0.5	1.8	1.8	25	26	850	1050
11	35	6.9	3.4	15.3	2x0.5	1.8	1.8	26	27	1000	1200
12	50	8.1	3.4	16.5	2x0.5	1.8	1.8	27	28	1150	1350
13	70	9.7	3.4	18.1	2x0.5	1.8	1.9	29	30	1400	1600
14	95	11.4	3.4	19.8	2x0.5	1.9	1.9	31	32	1700	1900
15	120	12.9	3.4	21.3	2x0.5	1.9	2.0	32	34	1975	2000
16	150	14.3	3.4	22.7	2x0.5	2.0	2.0	33	35	2300	2600
17	185	16.0	3.4	24.4	2x0.5	2.0	2.1	35	37	2700	3000
18	240	18.4	3.4	26.8	2x0.5	2.1	2.2	38	40	3250	3625
19	300	20.4	3.4	28.8	2x0.5	2.2	2.2	40	41	3950	4250
20	400	23.2	3.4	31.6	2x0.5	2.3	2.3	43	45	4825	5250
21	500	26.7	3.4	35.1	2x0.5	2.4	2.4	47	49	5975	6400
22	630	30.4	3.4	38.8	2x0.5	2.5	2.6	51	53	7475	7925

Size	Max. DC Resistance @ 20°C	Inductance		Capacitance	Adiabatic Short Circuit Current for 1 second			Current Carrying Capacity (2)				Voltage drop per phase
		Trefoil	Flat		Conductor	CUT	CUW	CUT		CUW		
				Direct Buried				In Air	Direct Buried	In Air		
mm <sup>2</sup>	Ohm/km	mH/km	mH/km	μF/km	kA	kA	kA	Amps	Amps	Amps	Amps	V/A.Km
25	0.727	0.488	0.790	0.21	3.575	0.383	2.000	165	167	166	170	0.852
35	0.524	0.472	0.765	0.23	5.005	0.406	2.000	197	202	198	205	0.642
50	0.387	0.450	0.739	0.25	7.150	0.434	2.000	233	242	233	245	0.497
70	0.268	0.428	0.713	0.29	10.010	0.472	2.000	284	301	285	304	0.370
95	0.193	0.416	0.697	0.31	13.585	0.511	2.000	340	366	340	369	0.292
120	0.153	0.401	0.678	0.34	17.160	0.546	2.000	385	421	385	425	0.248
150	0.124	0.390	0.663	0.37	21.450	0.579	3.125	431	477	429	480	0.216
185	0.0991	0.378	0.647	0.40	26.455	0.618	3.125	486	546	482	547	0.188
240	0.0754	0.363	0.627	0.45	34.320	0.674	3.125	562	643	555	641	0.161
300	0.0601	0.351	0.611	0.49	42.900	0.721	3.125	630	732	618	726	0.143
400	0.0470	0.338	0.591	0.55	57.200	0.786	4.375	708	839	686	822	0.128
500	0.0366	0.328	0.576	0.60	71.500	0.867	4.375	795	964	765	938	0.116
630	0.0283	0.317	0.560	0.68	90.090	0.954	4.375	886	1098	845	1058	0.107

(1) The code numbers to be read in conjunction with 03020131 at the beginning. Example for 150 mm<sup>2</sup> cable, the code number is 0302013116

Code number for other types of insulation screen: Replace the 6<sup>th</sup> digit as follows:  
2 for S + CUW ; 3 for B + CUT ; 4 for B + CUW

(2) Laying conditions: Underground temperature of soil 20°C, Ground thermal resistivity 100°C cm/W, Ambient temperature 30°C. Depth of laying = 700 mm (For other laying conditions, please refer to page 71 and 72 for de-rating factors)

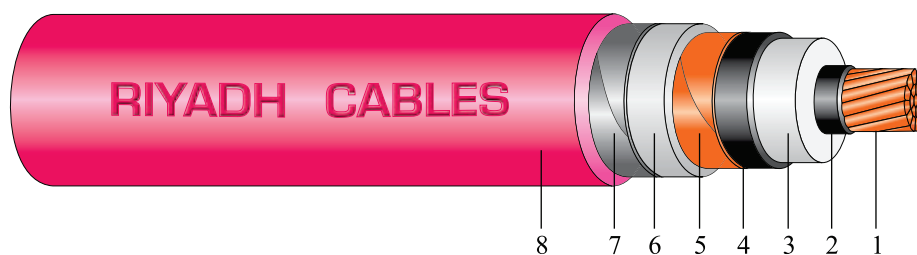
(3) For current carrying capacity of cables with single point bonding please refer to page 39

## ARMoured SINGLE CORE CABLES

COPPER CONDUCTORS

IEC 60502-2

U<sub>0</sub>/U<sub>(Um)</sub>=8.7/15(17.5) kV



- |  |  |
|--|--|
| <ol style="list-style-type: none"> <li>1. Conductor</li> <li>2. Conductor Screen</li> <li>3. XLPE Insulation</li> <li>4. Insulation Screen (non-metallic)</li> </ol> | <ol style="list-style-type: none"> <li>5. Insulation Screen (Metallic)</li> <li>6. Bedding</li> <li>7. Aluminium Tape Armour</li> <li>8. Outer Sheath</li> </ol> |
|--|--|

Item code (1)	Size	Diameter of Conductor (Approx.)	Nominal Insulation Thickness	Diameter over insulation (Approx.)	Number & Nominal Thickness of Aluminium Tape	Nominal Outer Sheath thickness		Overall Diameter (Approx.)		Weight of Cable (Approx.)	
						CUT	CUW	CUT	CUW	CUT	CUW
	mm <sup>2</sup>	mm	mm	mm	mm	mm	mm	mm	mm	kg/km	kg/km
10	25	5.9	4.5	16.5	2x0.5	1.8	1.8	27	28	975	1175
11	35	6.9	4.5	17.5	2x0.5	1.8	1.8	28	29	1100	1300
12	50	8.1	4.5	18.7	2x0.5	1.9	1.9	29	31	1275	1475
13	70	9.7	4.5	20.3	2x0.5	1.9	1.9	31	32	1525	1725
14	95	11.4	4.5	22.0	2x0.5	2.0	2.0	33	34	1850	2050
15	120	12.9	4.5	23.5	2x0.5	2.0	2.0	34	36	2125	2325
16	150	14.3	4.5	24.9	2x0.5	2.1	2.1	36	37	2450	2725
17	185	16.0	4.5	26.6	2x0.5	2.1	2.2	38	39	2850	3150
18	240	18.4	4.5	29.0	2x0.5	2.2	2.2	40	41	3475	3775
19	300	20.4	4.5	31.0	2x0.5	2.3	2.3	42	44	4125	4450
20	400	23.2	4.5	33.8	2x0.5	2.4	2.4	45	47	5050	5450
21	500	26.7	4.5	37.3	2x0.5	2.5	2.5	49	51	6200	6625
22	630	30.4	4.5	41.0	2x0.5	2.6	2.6	53	55	7700	8125

Size	Max. DC Resistance @ 20°C	Inductance		Capacitance	Adiabatic Short Circuit Current for 1 second			Current Carrying Capacity (2)				Voltage drop per phase
		Trefoil	Flat		Conductor	CUT	CUW	CUT		CUW		
								Direct Buried	In Air	Direct Buried	In Air	
mm <sup>2</sup>	Ohm/km	mH/km	mH/km	μF/km	kA	kA	kA	Amps	Amps	Amps	Amps	V/A.Km
25	0.727	0.505	0.796	0.17	3.575	0.434	2.000	165	169	165	171	0.856
35	0.524	0.484	0.771	0.19	5.005	0.457	2.000	197	204	198	207	0.645
50	0.387	0.463	0.745	0.21	7.150	0.485	2.000	232	244	233	247	0.500
70	0.268	0.441	0.719	0.23	10.010	0.523	2.000	284	303	284	306	0.373
95	0.193	0.428	0.703	0.25	13.585	0.562	2.000	339	368	339	372	0.294
120	0.153	0.413	0.684	0.27	17.160	0.597	2.000	385	424	385	427	0.250
150	0.124	0.401	0.668	0.29	21.450	0.630	3.125	431	480	429	482	0.219
185	0.0991	0.388	0.652	0.32	26.455	0.669	3.125	486	549	482	550	0.190
240	0.0754	0.373	0.632	0.35	34.320	0.725	3.125	562	646	554	643	0.163
300	0.0601	0.361	0.616	0.39	42.900	0.772	3.125	628	733	618	728	0.146
400	0.0470	0.346	0.596	0.43	57.200	0.837	4.375	709	843	687	826	0.130
500	0.0366	0.337	0.582	0.48	71.500	0.919	4.375	797	968	767	942	0.118
630	0.0283	0.325	0.565	0.53	90.090	1.005	4.375	889	1103	849	1065	0.109

(1) The code numbers to be read in conjunction with 04020131 at the beginning. Example for 150 mm<sup>2</sup> cable, the code number is 0402013116

Code number for other types of insulation screen: Replace the 6<sup>th</sup> digit as follows:  
2 for S + CUW ; 3 for B + CUT ; 4 for B + CUW

(2) Laying conditions: Underground temperature of soil 20°C, Ground thermal resistivity 100°C cm/W, Ambient temperature 30°C. Depth of laying = 700 mm (For other laying conditions, please refer to page 71 and 72 for de-rating factors)

(3) For current carrying capacity of cables with single point bonding please refer to page 39

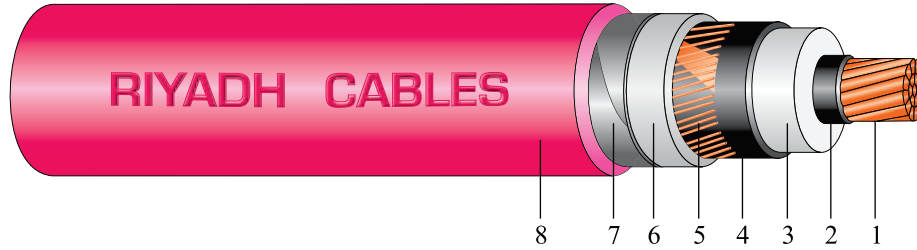


## ARMoured SINGLE CORE CABLES

**COPPER CONDUCTORS**

**IEC 60502-2**

**U<sub>0</sub>/U<sub>m</sub>=12/20(24) kV**



- |  |  |
|--|--|
| <ol style="list-style-type: none"> <li>1. Conductor</li> <li>2. Conductor Screen</li> <li>3. XLPE Insulation</li> <li>4. Insulation Screen (non-metallic)</li> </ol> | <ol style="list-style-type: none"> <li>5. Insulation Screen (Metallic)</li> <li>6. Bedding</li> <li>7. Aluminium Tape Armour</li> <li>8. Outer Sheath</li> </ol> |
|--|--|

Item code (1)	Size	Diameter of Conductor (Approx.)	Nominal Insulation Thickness	Diameter over insulation (Approx.)	Number & Nominal Thickness of Aluminium Tape	Nominal Outer Sheath thickness		Overall Diameter (Approx.)		Weight of Cable (Approx.)	
						CUT	CUW	CUT	CUW	CUT	CUW
	mm <sup>2</sup>	mm	mm	mm	mm	mm	mm	mm	mm	kg/km	kg/km
10	25	5.9	6.0	19.5	2x0.5	1.9	1.9	30	31	1150	1350
11	35	6.9	5.5	19.5	2x0.5	1.9	1.9	30	31	1225	1425
12	50	8.1	5.5	20.7	2x0.5	1.9	2.0	31	33	1400	1600
13	70	9.7	5.5	22.3	2x0.5	2.0	2.0	33	34	1650	1875
14	95	11.4	5.5	24.0	2x0.5	2.0	2.1	35	36	1975	2200
15	120	12.9	5.5	25.5	2x0.5	2.1	2.1	36	38	2275	2500
16	150	14.3	5.5	26.9	2x0.5	2.1	2.2	38	39	2600	2900
17	185	16.0	5.5	28.6	2x0.5	2.2	2.2	40	41	3000	3300
18	240	18.4	5.5	31.0	2x0.5	2.3	2.3	42	44	3650	3975
19	300	20.4	5.5	33.0	2x0.5	2.3	2.4	45	46	4300	4625
20	400	23.2	5.5	35.8	2x0.5	2.4	2.5	48	50	5200	5675
21	500	26.7	5.5	39.3	2x0.5	2.5	2.6	51	53	6375	6850
22	630	30.4	5.5	43.0	2x0.5	2.6	2.7	55	57	7875	8400

Size	Max. DC Resistance @ 20°C	Inductance		Capacitance	Adiabatic Short Circuit Current for 1 second			Current Carrying Capacity (2)				Voltage drop per phase
		Trefoil	Flat		Conductor	CUT	CUW	CUT		CUW		
				Direct Buried				In Air	Direct Buried	In Air		
mm <sup>2</sup>	Ohm/km	mH/km	mH/km	μF/km	kA	kA	kA	Amps	Amps	Amps	Amps	V/A.Km
25	0.727	0.504	0.805	0.14	3.575	0.504	2.000	164	170	165	172	0.860
35	0.524	0.496	0.776	0.16	5.005	0.504	2.000	197	206	197	208	0.647
50	0.387	0.474	0.751	0.18	7.150	0.532	2.000	232	246	233	248	0.502
70	0.268	0.452	0.724	0.20	10.010	0.569	2.000	283	305	284	308	0.376
95	0.193	0.438	0.708	0.21	13.585	0.609	2.000	339	370	339	373	0.297
120	0.153	0.423	0.689	0.23	17.160	0.644	2.000	385	426	385	429	0.253
150	0.124	0.410	0.673	0.25	21.450	0.676	3.125	431	482	428	484	0.221
185	0.0991	0.397	0.657	0.27	26.455	0.716	3.125	486	551	482	552	0.192
240	0.0754	0.383	0.637	0.30	34.320	0.772	3.125	560	647	553	644	0.165
300	0.0601	0.370	0.621	0.33	42.900	0.819	3.125	628	735	618	730	0.148
400	0.0470	0.355	0.601	0.37	57.200	0.884	4.375	709	846	688	828	0.132
500	0.0366	0.335	0.586	0.40	71.500	0.965	4.375	798	972	769	945	0.120
630	0.0283	0.333	0.569	0.45	90.090	1.051	4.375	891	1106	851	1069	0.111

(1) The code numbers to be read in conjunction with 05020131 at the beginning. Example for 150 mm<sup>2</sup> cable, the code number is 0502013116

Code number for other types of insulation screen: Replace the 6<sup>th</sup> digit as follows:  
2 for S + CUW ; 3 for B + CUT ; 4 for B + CUW

(2) Laying conditions: Underground temperature of soil 20°C, Ground thermal resistivity 100°C cm/W, Ambient temperature 30°C. Depth of laying = 700 mm (For other laying conditions, please refer to page 71 and 72 for de-rating factors)

(3) For current carrying capacity of cables with single point bonding please refer to page 39

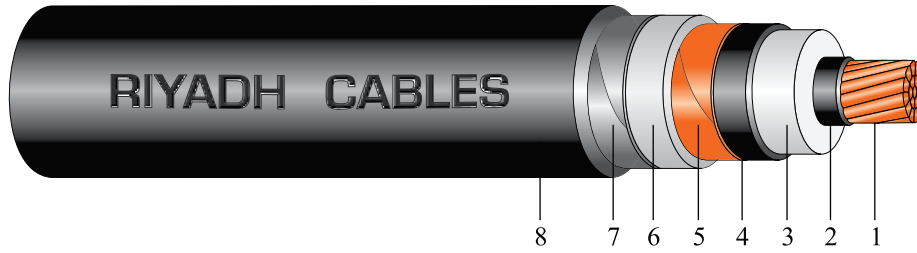


## ARMoured SINGLE CORE CABLES

**COPPER CONDUCTORS**

**IEC 60502-2**

**U<sub>o</sub>/U<sub>(Um)</sub>=18/30(36) kV**



- |                                     |                                 |
|-------------------------------------|---------------------------------|
| 1. Conductor                        | 5. Insulation Screen (Metallic) |
| 2. Conductor Screen                 | 6. Bedding                      |
| 3. XLPE Insulation                  | 7. Aluminium Tape Armour        |
| 4. Insulation Screen (non-metallic) | 8. Outer Sheath                 |

Item code (1)	Size	Diameter of Conductor (Approx.)	Nominal Insulation Thickness	Diameter over insulation (Approx.)	Number & Nominal Thickness of Aluminium Tape	Nominal Outer Sheath thickness		Overall Diameter (Approx.)		Weight of Cable (Approx.)	
						CUT	CUW	CUT	CUW	CUT	CUW
	mm <sup>2</sup>	mm	mm	mm	mm	mm	mm	mm	mm	kg/km	kg/km
12	50	8.1	8.0	25.7	2x0.5	2.1	2.1	37	38	1725	1950
13	70	9.7	8.0	27.3	2x0.5	2.1	2.2	38	40	2000	2250
14	95	11.4	8.0	29.0	2x0.5	2.2	2.2	40	42	2350	2575
15	120	12.9	8.0	30.5	2x0.5	2.3	2.3	42	43	2650	2900
16	150	14.3	8.0	31.9	2x0.5	2.3	2.4	43	45	3000	3325
17	185	16.0	8.0	33.6	2x0.5	2.4	2.4	45	47	3450	3750
18	240	18.4	8.0	36.0	2x0.5	2.4	2.5	48	50	4100	4450
19	300	20.4	8.0	38.0	2x0.5	2.5	2.6	50	52	4800	5125
20	400	23.2	8.0	40.8	2x0.5	2.6	2.7	53	55	5700	6200
21	500	26.7	8.0	44.3	2x0.5	2.7	2.8	57	59	6925	7400
22	630	30.4	8.0	48.0	2x0.5	2.8	2.9	61	63	8450	8975

Size	Max. DC Resistance @ 20°C	Inductance		Capacitance	Adiabatic Short Circuit Current for 1 second			Current Carrying Capacity (2)				Voltage drop per phase
		Trefoil	Flat		Conductor	CUT	CUW	CUT		CUW		
				Direct Buried				In Air	Direct Buried	In Air		
mm <sup>2</sup>	Ohm/km	mH/km	mH/km	μF/km	kA	kA	kA	Amps	Amps	Amps	Amps	V/A.Km
50	0.387	0.504	0.766	0.14	7.150	0.649	2.000	231	249	232	251	0.509
70	0.268	0.481	0.740	0.16	10.010	0.686	2.000	283	308	283	311	0.382
95	0.193	0.467	0.723	0.17	13.585	0.725	2.000	338	374	338	376	0.303
120	0.153	0.450	0.704	0.18	17.160	0.760	2.000	383	429	383	431	0.259
150	0.124	0.437	0.688	0.19	21.450	0.793	3.125	429	485	427	486	0.227
185	0.0991	0.424	0.672	0.21	26.455	0.832	3.125	484	554	480	553	0.198
240	0.0754	0.407	0.652	0.23	34.320	0.888	3.125	560	651	553	647	0.171
300	0.0601	0.394	0.635	0.25	42.900	0.935	3.125	629	740	619	734	0.153
400	0.0470	0.377	0.614	0.27	57.200	1.000	4.375	711	851	690	833	0.137
500	0.0366	0.366	0.599	0.30	71.500	1.081	4.375	800	975	769	948	0.125
630	0.0283	0.353	0.584	0.33	90.090	1.168	4.375	889	1105	853	1072	0.115

(1) The code numbers to be read in conjunction with 06020131 at the beginning. Example for 150 mm<sup>2</sup> cable, the code number is 0602013116

Code number for other types of insulation screen: Replace the 6<sup>th</sup> digit as follows:  
2 for S + CUW ; 3 for B + CUT ; 4 for B + CUW

(2) Laying conditions: Underground temperature of soil 20°C, Ground thermal resistivity 100°C cm/W, Ambient temperature 30°C. Depth of laying = 700 mm (For other laying conditions, please refer to page 71 and 72 for de-rating factors)

(3) For current carrying capacity of cables with single point bonding please refer to page 39

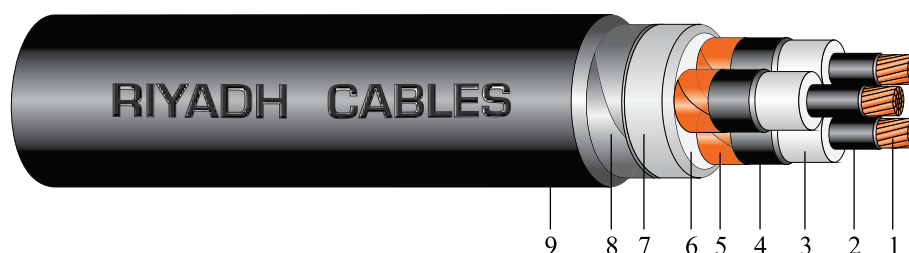


## ARMoured THREE CORE CABLES

COPPER CONDUCTORS

IEC 60502-2

U<sub>o</sub>/U<sub>(Um)</sub>=3.5/6(7.2) kV



- |   |  |
|---|--|
| <ol style="list-style-type: none"> <li>1. Conductor</li> <li>2. Conductor Screen</li> <li>3. XLPE Insulation</li> <li>4. Insulation Screen (non-metallic)</li> <li>5. Insulation Screen (Metallic)</li> </ol> | <ol style="list-style-type: none"> <li>6. PP Filler</li> <li>7. Bedding</li> <li>8. Double Steel Tape Armour</li> <li>9. Outer Sheath</li> </ol> |
|---|--|

Item code (1)	Size	Diameter of Conductor (Approx.)	Nominal Insulation Thickness	Diameter over insulation (Approx.)	Number & Nominal Thickness of Steel Tape	Nominal Outer Sheath thickness		Overall Diameter (Approx.)		Weight of Cable (Approx.)	
						CUT	CUW	CUT	CUW	CUT	CUW
						mm	mm	mm	mm	kg/km	kg/km
10	25	5.9	2.5	12.5	2x0.5	2.2	2.2	41	44	2550	2750
11	35	6.9	2.5	13.5	2x0.5	2.3	2.3	44	47	2975	3175
12	50	8.1	2.5	14.7	2x0.5	2.4	2.4	47	49	3500	3650
13	70	9.7	2.5	16.3	2x0.5	2.5	2.5	51	53	4350	4500
14	95	11.4	2.5	18.0	2x0.5	2.6	2.6	54	57	5350	5500
15	120	12.9	2.5	19.5	2x0.5	2.7	2.8	58	61	6300	6475
16	150	14.3	2.5	20.9	2x0.5	2.8	2.9	61	65	7250	7550
17	185	16.0	2.5	22.6	2x0.5	2.9	3.0	65	69	8600	8850
18	240	18.4	2.6	25.2	2x0.5	3.1	3.2	71	74	10650	10900
19	300	20.4	2.8	27.6	2x0.5	3.3	3.4	77	80	12950	13100

Size	Max. DC Resistance @ 20°C	Inductance	Capacitance	Adiabatic Short Circuit Current for 1 second			Current Carrying Capacity (2)				Voltage drop per phase
				Conductor	CUT	CUW	CUT		CUW		
							Direct Buried	In Air	Direct Buried	In Air	
mm <sup>2</sup>	Ohm/km	mH/km	μF/km	kA	kA	kA	Amps	Amps	Amps	Amps	V/A.Km
25	0.727	0.363	0.26	3.575	1.023	2.000	149	142	143	137	0.820
35	0.524	0.344	0.29	5.005	1.092	2.000	177	171	170	164	0.613
50	0.387	0.333	0.32	7.150	1.176	2.000	208	204	201	196	0.417
70	0.268	0.322	0.36	10.010	1.29	2.000	253	251	246	243	0.346
95	0.193	0.316	0.39	13.585	1.407	2.000	303	304	295	295	0.269
120	0.153	0.309	0.43	17.160	1.512	2.000	342	347	334	337	0.227
150	0.124	0.303	0.47	21.450	1.611	3.125	382	390	373	380	0.197
185	0.0991	0.300	0.52	26.455	1.728	3.125	430	444	421	434	0.170
240	0.0754	0.293	0.56	34.320	1.911	3.125	494	518	485	507	0.145
300	0.0601	0.286	0.58	42.900	2.079	3.125	551	584	543	572	0.129

(1) The code numbers to be read in conjunction with 02020143 at the beginning. Example for 150 mm<sup>2</sup> cable, the code number is 0202014316

Code number for other types of insulation screen: Replace the 6<sup>th</sup> digit as follows:  
2 for S + CUW ; 3 for B + CUT ; 4 for B + CUW

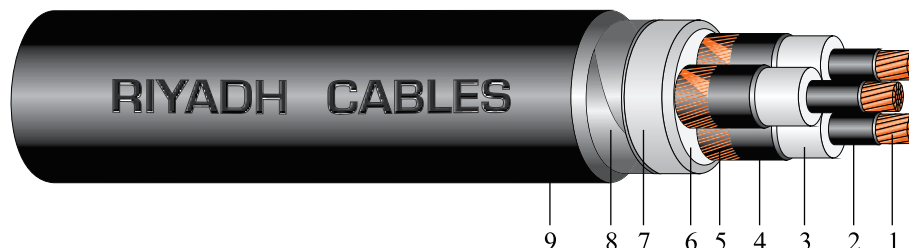
(2) Laying conditions: Underground temperature of soil 20°C, Ground thermal resistivity 100°C cm/W, Ambient temperature 30°C. Depth of laying = 700 mm (For other laying conditions, please refer to page 71 and 72 for de-rating factors)

## ARMURED THREE CORE CABLES

**COPPER CONDUCTORS**

**IEC 60502-2**

**U<sub>o</sub>/U<sub>(Um)</sub>=6/10(12) kV**



- |   |  |
|---|--|
| <ol style="list-style-type: none"> <li>1. Conductor</li> <li>2. Conductor Screen</li> <li>3. XLPE Insulation</li> <li>4. Insulation Screen (non-metallic)</li> <li>5. Insulation Screen (Metallic)</li> </ol> | <ol style="list-style-type: none"> <li>6. PP Filler</li> <li>7. Bedding</li> <li>8. Double Steel Tape Armour</li> <li>9. Outer Sheath</li> </ol> |
|---|--|

Item code (1)	Size	Diameter of Conductor (Approx.)	Nominal Insulation Thickness	Diameter over insulation (Approx.)	Number & Nominal Thickness of Steel Tape	Nominal Outer Sheath thickness		Overall Diameter (Approx.)		Weight of Cable (Approx.)	
						CUT	CUW	CUT	CUW	CUT	CUW
						mm	mm	mm	mm	kg/km	kg/km
10	25	5.9	3.4	14.3	2x0.5	2.3	2.4	46	48	2925	3100
11	35	6.9	3.4	15.3	2x0.5	2.4	2.5	48	51	3350	3525
12	50	8.1	3.4	16.5	2x0.5	2.5	2.6	52	54	3900	4100
13	70	9.7	3.4	18.1	2x0.5	2.6	2.7	55	58	4750	4950
14	95	11.4	3.4	19.8	2x0.5	2.8	2.8	59	62	5800	5975
15	120	12.9	3.4	21.3	2x0.5	2.9	2.9	63	65	6750	6925
16	150	14.3	3.4	22.7	2x0.5	3.0	3.0	66	67	7750	8050
17	185	16.0	3.4	24.4	2x0.5	3.1	3.1	70	72	9100	9300
18	240	18.4	3.4	26.8	2x0.5	3.3	3.3	76	78	11200	11400
19	300	20.4	3.4	28.8	2x0.5	3.4	3.5	80	83	13300	13500

Size	Max. DC Resistance @ 20°C	Inductance	Capacitance	Adiabatic Short Circuit Current for 1 second			Current Carrying Capacity (2)				Voltage drop per phase
				Conductor	CUT	CUW	CUT		CUW		
							Direct Buried	In Air	Direct Buried	In Air	
mm <sup>2</sup>	Ohm/km	mH/km	μF/km	kA	kA	kA	Amps	Amps	Amps	Amps	V/A Km
25	0.727	0.387	0.21	3.575	1.149	2.000	149	144	142	137	0.829
35	0.524	0.368	0.23	5.005	1.218	2.000	177	173	170	166	0.618
50	0.387	0.355	0.25	7.150	1.302	2.000	208	205	201	197	0.476
70	0.268	0.342	0.29	10.010	1.416	2.000	253	252	245	244	0.351
95	0.193	0.335	0.31	13.585	1.533	2.000	302	305	293	295	0.273
120	0.153	0.326	0.34	17.160	1.638	2.000	341	348	333	338	0.231
150	0.124	0.319	0.37	21.450	1.737	3.125	382	393	372	381	0.200
185	0.0991	0.313	0.40	26.455	1.854	3.125	429	445	420	434	0.173
240	0.0754	0.305	0.44	34.320	2.022	3.125	493	518	484	506	0.148
300	0.0601	0.297	0.48	42.900	2.163	3.125	551	584	541	572	0.131

(1) The code numbers to be read in conjunction with 03020143 at the beginning. Example for 150 mm<sup>2</sup> cable, the code number is 0302014316

Code number for other types of insulation screen: Replace the 6<sup>th</sup> digit as follows:  
2 for S + CUW ; 3 for B + CUT ; 4 for B + CUW

(2) Laying conditions: Underground temperature of soil 20°C, Ground thermal resistivity 100°C cm/W, Ambient temperature 30°C. Depth of laying = 700 mm (For other laying conditions, please refer to page 71 and 72 for de-rating factors)

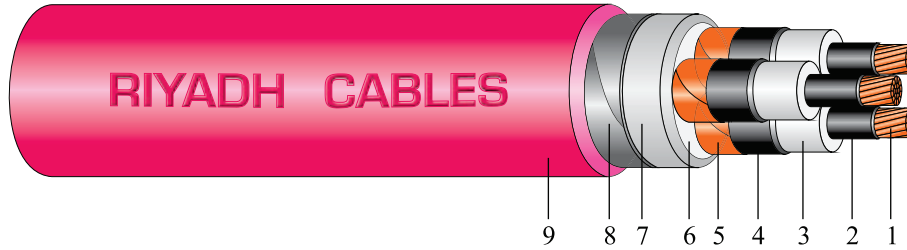


## ARMoured THREE CORE CABLES

COPPER CONDUCTORS

IEC 60502-2

U<sub>0</sub>/U(U<sub>m</sub>)=8.7/15(17.5) kV



- |                                     |                             |
|-------------------------------------|-----------------------------|
| 1. Conductor                        | 6. PP Filler                |
| 2. Conductor Screen                 | 7. Bedding                  |
| 3. XLPE Insulation                  | 8. Double Steel Tape Armour |
| 4. Insulation Screen (non-metallic) | 9. Outer Sheath             |
| 5. Insulation Screen (Metallic)     |                             |

Item code (1)	Size	Diameter of Conductor (Approx.)	Nominal Insulation Thickness	Diameter over insulation (Approx.)	Number & Nominal Thickness of Steel Tape	Nominal Outer Sheath thickness		Overall Diameter (Approx.)		Weight of Cable (Approx.)	
						CUT	CUW	CUT	CUW	CUT	CUW
	mm <sup>2</sup>	mm	mm	mm	mm	mm	mm	mm	mm	kg/km	kg/km
10	25	5.9	4.5	16.1	2x0.5	2.5	2.5	49	52	3700	3900
11	35	6.9	4.5	17.5	2x0.5	2.6	2.6	53	56	3850	4000
12	50	8.1	4.5	18.7	2x0.5	2.7	2.7	56	59	4400	4600
13	70	9.7	4.5	20.3	2x0.5	2.8	2.8	60	63	5300	5500
14	95	11.4	4.5	22.0	2x0.5	2.9	3.0	64	67	6350	6550
15	120	12.9	4.5	23.5	2x0.5	3.0	3.1	68	71	7400	7500
16	150	14.3	4.5	24.9	2x0.5	3.1	3.2	71	74	8400	8650
17	185	16.0	4.5	26.6	2x0.5	3.3	3.3	75	78	9800	10000
18	240	18.4	4.5	29.0	2x0.5	3.4	3.5	81	84	11900	12100
19	300	20.4	4.5	31.0	2x0.5	3.6	3.7	87	90	14800	15100

Size	Max. DC Resistance @ 20°C	Inductance	Capacitance	Adiabatic Short Circuit Current for 1 second			Current Carrying Capacity (2)				Voltage drop per phase
				Conductor	CUT	CUW	CUT		CUW		
							Direct Buried	In Air	Direct Buried	In Air	
mm <sup>2</sup>	Ohm/km	mH/km	μF/km	kA	kA	kA	Amps	Amps	Amps	Amps	V/A.Km
25	0.727	0.413	0.17	3.575	1.302	2.000	149	146	142	139	0.835
35	0.524	0.394	0.19	5.005	1.371	2.000	176	174	170	167	0.624
50	0.387	0.379	0.21	7.150	1.455	2.000	207	207	200	198	0.481
70	0.268	0.364	0.23	10.010	1.569	2.000	253	255	244	245	0.357
95	0.193	0.356	0.25	13.585	1.686	2.000	301	306	292	296	0.278
120	0.153	0.346	0.27	17.160	1.791	2.000	340	349	332	338	0.235
150	0.124	0.338	0.29	21.450	1.89	3.125	381	394	371	381	0.204
185	0.0991	0.330	0.32	26.455	2.007	3.125	428	446	418	434	0.177
240	0.0754	0.321	0.35	34.320	2.175	3.125	492	519	483	506	0.152
300	0.0601	0.312	0.39	42.900	2.316	3.125	551	587	541	573	0.134

(1) The code numbers to be read in conjunction with 04020143 at the beginning. Example for 150 mm<sup>2</sup> cable, the code number is 0402014316

Code number for other types of insulation screen: Replace the 6<sup>th</sup> digit as follows:  
2 for S + CUW ; 3 for B + CUT ; 4 for B + CUW

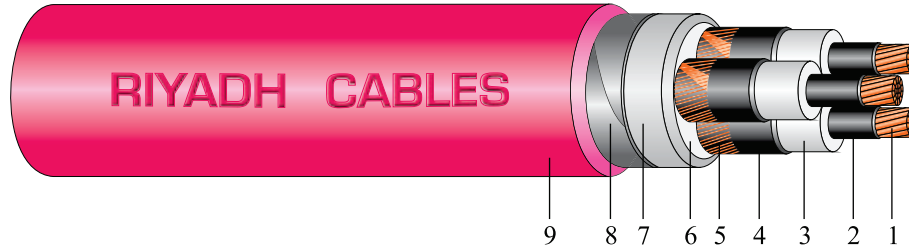
(2) Laying conditions: Underground temperature of soil 20°C, Ground thermal resistivity 100°C cm/W, Ambient temperature 30°C. Depth of laying = 700 mm (For other laying conditions, please refer to page 71 and 72 for de-rating factors)

## ARMoured THREE CORE CABLES

**COPPER CONDUCTORS**

**IEC 60502-2**

**U<sub>o</sub>/U<sub>(Um)</sub>=12/20(24) kV**



- |                                     |                             |
|-------------------------------------|-----------------------------|
| 1. Conductor                        | 6. PP Filler                |
| 2. Conductor Screen                 | 7. Bedding                  |
| 3. XLPE Insulation                  | 8. Double Steel Tape Armour |
| 4. Insulation Screen (non-metallic) | 9. Outer Sheath             |
| 5. Insulation Screen (Metallic)     |                             |

Item code (1)	Size	Diameter of Conductor (Approx.)	Nominal Insulation Thickness	Diameter over insulation (Approx.)	Number & Nominal Thickness of Steel Tape	Nominal Outer Sheath thickness		Overall Diameter (Approx.)		Weight of Cable (Approx.)	
						CUT	CUW	CUT	CUW	CUT	CUW
10	25	5.9	6.0	19.5	2x0.5	2.7	2.8	58	61	4100	4275
11	35	6.9	5.5	19.5	2x0.5	2.7	2.8	58	61	4350	4500
12	50	8.1	5.5	20.7	2x0.5	2.8	2.9	61	64	5000	5100
13	70	9.7	5.5	22.3	2x0.5	2.9	3.0	65	68	5800	6000
14	95	11.4	5.5	24.0	2x0.5	3.1	3.1	69	72	7000	7100
15	120	12.9	5.5	25.5	2x0.5	3.2	3.2	66	75	7900	8100
16	150	14.3	5.5	26.9	2x0.5	3.3	3.4	76	79	9000	9250
17	185	16.0	5.5	28.6	2x0.5	3.4	3.5	80	83	10400	10600
18	240	18.4	5.5	31.0	2x0.8	3.6	3.7	87	90	13400	13600
19	300	20.4	5.5	33.0	2x0.8	3.8	3.9	92	95	15600	15900

Size	Max. DC Resistance @ 20°C	Inductance	Capacitance	Adiabatic Short Circuit Current for 1 second			Current Carrying Capacity (2)				Voltage drop per phase
				Conductor	CUT	CUW	CUT		CUW		
							Direct Buried	In Air	Direct Buried	In Air	
mm <sup>2</sup>	Ohm/km	mH/km	μF/km	kA	kA	kA	Amps	Amps	Amps	Amps	V/A.Km
25	0.727	0.444	0.14	3.575	1.512	2.000	149	148	142	139	0.842
35	0.524	0.415	0.16	5.005	1.512	2.000	176	175	169	168	0.629
50	0.387	0.399	0.18	7.150	1.596	2.000	207	207	200	199	0.486
70	0.268	0.382	0.20	10.010	1.707	2.000	252	255	244	246	0.361
95	0.193	0.373	0.21	13.585	1.827	2.000	300	307	292	297	0.282
120	0.153	0.362	0.23	17.160	1.932	2.000	340	350	331	339	0.239
150	0.124	0.353	0.25	21.450	2.028	3.125	380	395	370	382	0.208
185	0.0991	0.345	0.27	26.455	2.148	3.125	427	447	417	434	0.180
240	0.0754	0.335	0.30	34.320	2.316	3.125	492	521	482	507	0.155
300	0.0601	0.320	0.33	42.900	2.457	3.125	550	587	540	573	0.136

(1) The code numbers to be read in conjunction with 05020143 at the beginning. Example for 150 mm<sup>2</sup> cable, the code number is 0502014316

Code number for other types of insulation screen: Replace the 6<sup>th</sup> digit as follows:  
2 for S + CUW ; 3 for B + CUT ; 4 for B + CUW

(2) Laying conditions: Underground temperature of soil 20°C, Ground thermal resistivity 100°C cm/W, Ambient temperature 30°C. Depth of laying = 700 mm (For other laying conditions, please refer to page 71 and 72 for de-rating factors)

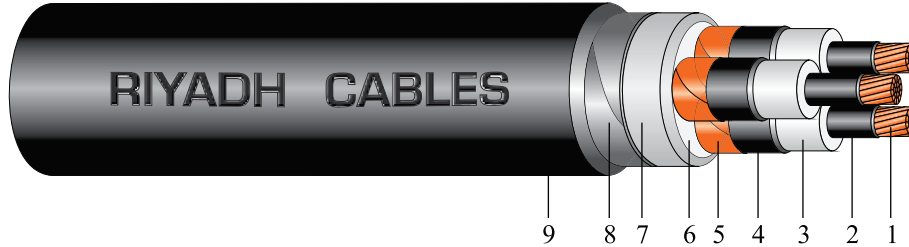


## ARMoured THREE CORE CABLES

COPPER CONDUCTORS

IEC 60502-2

U<sub>o</sub>/U<sub>m</sub>=18/30(36) kV



- |   |  |
|---|--|
| <ol style="list-style-type: none"> <li>1. Conductor</li> <li>2. Conductor Screen</li> <li>3. XLPE Insulation</li> <li>4. Insulation Screen (non-metallic)</li> <li>5. Insulation Screen (Metallic)</li> </ol> | <ol style="list-style-type: none"> <li>6. PP Filler</li> <li>7. Bedding</li> <li>8. Double Steel Tape Armour</li> <li>9. Outer Sheath</li> </ol> |
|---|--|

Item code (1)	Size	Diameter of Conductor (Approx.)	Nominal Insulation Thickness	Diameter over insulation (Approx.)	Number & Nominal Thickness of Steel Tape	Nominal Outer Sheath thickness		Overall Diameter (Approx.)		Weight of Cable (Approx.)	
						CUT	CUW	CUT	CUW	CUT	CUW
	mm <sup>2</sup>	mm	mm	mm	mm	mm	mm	mm	mm	kg/km	kg/km
12	50	8.1	8.0	25.7	2x0.5	3.2	3.3	73	76	6400	6500
13	70	9.7	8.0	27.3	2x0.5	3.3	3.4	77	80	7300	7550
14	95	11.4	8.0	29.0	2x0.5	3.5	3.5	81	84	8500	8650
15	120	12.9	8.0	30.5	2x0.8	3.6	3.7	86	89	10400	10600
16	150	14.3	8.0	31.9	2x0.8	3.7	3.8	89	92	11450	11800
17	185	16.0	8.0	33.6	2x0.8	3.9	3.9	93	96	13050	13250
18	240	18.4	8.0	36.0	2x0.8	4.0	4.1	99	101	15300	15600
19	300	20.4	8.0	38.0	2x0.8	4.2	4.2	104	106	17650	17850

Size	Max. DC Resistance @ 20°C	Inductance	Capacitance	Adiabatic Short Circuit Current for 1 second			Current Carrying Capacity (2)				Voltage drop per phase
				Conductor	CUT	CUW	CUT		CUW		
							Direct Buried	In Air	Direct Buried	In Air	
mm <sup>2</sup>	Ohm/km	mH/km	μF/km	kA	kA	kA	Amps	Amps	Amps	Amps	V/A.Km
50	0.387	0.449	0.14	7.150	1.947	2.000	205	208	199	201	0.497
70	0.268	0.430	0.16	10.010	2.058	2.000	250	255	243	247	0.372
95	0.193	0.419	0.17	13.585	2.175	2.000	298	308	291	298	0.292
120	0.153	0.405	0.18	17.160	2.28	2.000	338	352	330	341	0.248
150	0.124	0.395	0.19	21.450	2.379	3.125	378	396	369	383	0.217
185	0.0991	0.384	0.21	26.455	2.496	3.125	425	448	416	435	0.189
240	0.0754	0.371	0.23	34.320	2.664	3.125	490	520	480	507	0.163
300	0.0601	0.358	0.25	42.900	2.805	3.125	549	587	539	573	0.143

(1) The code numbers to be read in conjunction with 06020143 at the beginning. Example for 150 mm<sup>2</sup> cable, the code number is 0602014316

Code number for other types of insulation screen: Replace the 6<sup>th</sup> digit as follows:  
2 for S + CUW ; 3 for B + CUT ; 4 for B + CUW

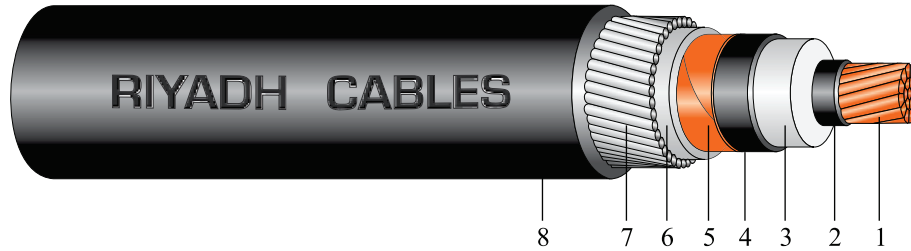
(2) Laying conditions: Underground temperature of soil 20°C, Ground thermal resistivity 100°C cm/W, Ambient temperature 30°C. Depth of laying = 700 mm (For other laying conditions, please refer to page 71 and 72 for de-rating factors)

## ARMoured SINGLE CORE CABLES

**COPPER CONDUCTORS**

**IEC 60502-2**

**U<sub>o</sub>/U<sub>m</sub>=3.5/6(7.2) kV**



- |                                     |                                 |
|-------------------------------------|---------------------------------|
| 1. Conductor                        | 5. Insulation Screen (Metallic) |
| 2. Conductor Screen                 | 6. Bedding                      |
| 3. XLPE Insulation                  | 7. Aluminium Wire Armour        |
| 4. Insulation Screen (non-metallic) | 8. Outer Sheath                 |

Item code (1)	Size	Diameter of Conductor (Approx.)	Nominal Insulation Thickness	Diameter over insulation (Approx.)	Nominal diameter of Aluminium Wire	Nominal Outer Sheath thickness		Overall Diameter (Approx.)		Weight of Cable (Approx.)	
						CUT/CUW	CUT	CUW	CUT	CUW	CUT
	mm <sup>2</sup>	mm	mm	mm	mm	mm	mm	mm	mm	kg/km	kg/km
10	25	5.9	2.5	12.5	1.6	1.8	1.8	24	26	925	1125
11	35	6.9	2.5	13.5	1.6	1.8	1.8	25	27	1025	1175
12	50	8.1	2.5	14.7	1.6	1.8	1.8	27	28	1200	1400
13	70	9.7	2.5	16.3	1.6	1.8	1.8	28	30	1450	1650
14	95	11.4	2.5	18.0	1.6	1.9	1.9	30	32	1750	1950
15	120	12.9	2.5	19.5	1.6	1.9	1.9	32	33	2025	2250
16	150	14.3	2.5	20.9	1.6/2.0	2.0	2.0	34	36	2450	2850
17	185	16.0	2.5	22.6	2.0	2.0	2.1	36	37	2750	3150
18	240	18.4	2.6	25.2	2.0	2.1	2.2	39	40	3450	3800
19	300	20.4	2.8	27.6	2.0	2.2	2.2	41	43	4175	4475
20	400	23.2	3.0	30.8	2.0/2.5	2.3	2.4	45	48	5100	5725
21	500	26.7	3.2	34.7	2.5	2.5	2.5	50	52	6500	6950
22	630	30.4	3.2	38.4	2.5	2.6	2.6	54	56	8050	8475

Size	Max. DC Resistance @ 20°C	Inductance		Capacitance	Adiabatic Short Circuit Current for 1 second			Current Carrying Capacity (2) (Both Ends Bonded)				Voltage drop per phase
		Trefoil	Flat		Conductor	CUT	CUW	CUT		CUW		
								Direct Buried	In Air	Direct Buried	In Air	
mm <sup>2</sup>	Ohm/km	mH/km	mH/km	μF/km	kA	kA	kA	Amps	Amps	Amps	Amps	V/A.Km
25	0.727	0.473	0.785	0.26	3.575	0.341	2.000	165	168	166	170	0.849
35	0.524	0.461	0.760	0.29	5.005	0.364	2.000	197	202	198	205	0.640
50	0.387	0.440	0.735	0.32	7.150	0.392	2.000	232	242	233	245	0.495
70	0.268	0.418	0.708	0.37	10.010	0.430	2.000	282	299	283	303	0.368
95	0.193	0.406	0.792	0.39	13.585	0.469	2.000	335	362	336	366	0.289
120	0.153	0.392	0.673	0.44	17.160	0.504	2.000	379	415	379	419	0.246
150	0.124	0.380	0.658	0.48	21.450	0.537	3.125	421	468	417	470	0.214
185	0.0991	0.369	0.642	0.52	26.455	0.576	3.125	467	530	463	531	0.186
240	0.0754	0.356	0.623	0.56	34.320	0.637	3.125	530	614	524	614	0.160
300	0.0601	0.346	0.608	0.58	42.900	0.693	3.125	584	689	577	686	0.142
400	0.0470	0.334	0.589	0.61	57.200	0.767	4.375	643	775	620	760	0.127
500	0.0366	0.327	0.576	0.64	71.500	0.858	4.375	685	852	675	846	0.116
630	0.0283	0.315	0.558	0.71	90.090	0.944	4.375	738	939	726	930	0.107

(1) The code numbers to be read in conjunction with 02020111 at the beginning. Example for 150 mm<sup>2</sup> cable, the code number is 0202011116

Code number for other types of insulation screen: Replace the 6<sup>th</sup> digit as follows:  
2 for S + CUW ; 3 for B + CUT ; 4 for B + CUW

- (2) Laying conditions: Underground temperature of soil 20°C, Ground thermal resistivity 100°C cm/W, Ambient temperature 30°C. Depth of laying = 700 mm (For other laying conditions, please refer to page 71 and 72 for de-rating factors)
- (3) For current carrying capacity of cables with single point bonding please refer to page 39

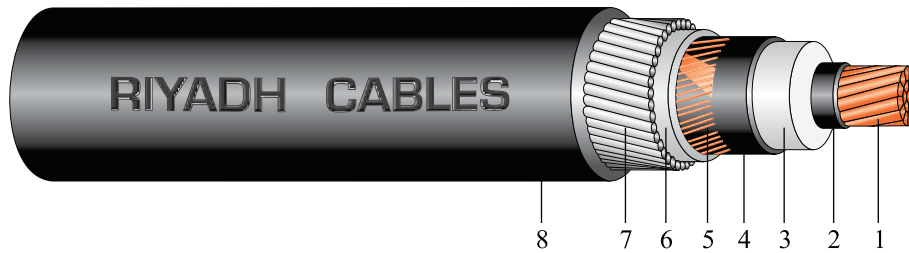


## ARMoured SINGLE CORE CABLES

COPPER CONDUCTORS

IEC 60502-2

U<sub>0</sub>/U<sub>m</sub>=6/10(12) kV



- |                                     |                                 |
|-------------------------------------|---------------------------------|
| 1. Conductor                        | 5. Insulation Screen (Metallic) |
| 2. Conductor Screen                 | 6. Bedding                      |
| 3. XLPE Insulation                  | 7. Aluminium Wire Armour        |
| 4. Insulation Screen (non-metallic) | 8. Outer Sheath                 |

Item code (1)	Size	Diameter of Conductor (Approx.)	Nominal Insulation Thickness	Diameter over insulation (Approx.)	Nominal diameter of Aluminium Wire	Nominal Outer Sheath thickness		Overall Diameter (Approx.)		Weight of Cable (Approx.)	
						CUT/CUW	CUT	CUW	CUT	CUW	CUT
	mm <sup>2</sup>	mm	mm	mm	mm	mm	mm	mm	mm	kg/km	kg/km
10	25	5.9	3.4	14.3	1.6	1.8	1.8	26	27	1000	1200
11	35	6.9	3.4	15.3	1.6	1.8	1.8	27	28	1125	1325
12	50	8.1	3.4	16.5	1.6	1.8	1.9	28	30	1275	1500
13	70	9.7	3.4	18.1	1.6	1.9	1.9	30	31	1550	1750
14	95	11.4	3.4	19.8	1.6	1.9	2.0	32	33	1850	2100
15	120	12.9	3.4	21.3	1.6/2.0	2.0	2.0	32	35	2150	2450
16	150	14.3	3.4	22.7	2.0	2.1	2.1	36	37	2575	2875
17	185	16.0	3.4	24.4	2.0	2.1	2.1	37	39	2975	3275
18	240	18.4	3.4	26.8	2.0	2.2	2.2	40	41	3625	3925
19	300	20.4	3.4	28.8	2.0	2.2	2.3	42	44	4250	4600
20	400	23.2	3.4	31.6	2.0/2.5	2.4	2.4	45	48	5175	5775
21	500	26.7	3.4	35.1	2.5	2.5	2.5	50	52	6525	6950
22	630	30.4	3.4	38.8	2.5	2.6	2.7	54	56	8050	8525

Size	Max. DC Resistance @ 20°C	Inductance		Capacitance	Adiabatic Short Circuit Current for 1 second			Current Carrying Capacity (2) (Both Ends Bonded)				Voltage drop per phase
		Trefoil	Flat		Conductor	CUT	CUW	CUT		CUW		
								Direct Buried	In Air	Direct Buried	In Air	
mm <sup>2</sup>	Ohm/km	mH/km	mH/km	μF/km	kA	kA	kA	Amps	Amps	Amps	Amps	V/A.Km
25	0.727	0.488	0.790	0.21	3.575	0.383	2.000	165	169	166	171	0.852
35	0.524	0.472	0.765	0.23	5.005	0.406	2.000	197	204	198	207	0.642
50	0.387	0.450	0.739	0.25	7.150	0.434	2.000	232	243	232	246	0.497
70	0.268	0.428	0.713	0.29	10.010	0.472	2.000	282	301	282	304	0.370
95	0.193	0.416	0.697	0.31	13.585	0.511	2.000	335	364	335	367	0.292
120	0.153	0.401	0.678	0.34	17.160	0.546	2.000	376	417	376	421	0.248
150	0.124	0.390	0.663	0.37	21.450	0.579	3.125	418	469	416	472	0.216
185	0.0991	0.378	0.647	0.40	26.455	0.618	3.125	466	532	463	533	0.188
240	0.0754	0.363	0.627	0.45	34.320	0.674	3.125	529	616	524	615	0.161
300	0.0601	0.351	0.611	0.49	42.900	0.721	3.125	583	690	577	688	0.143
400	0.0470	0.338	0.591	0.55	57.200	0.786	4.375	630	765	620	760	0.128
500	0.0366	0.328	0.576	0.60	71.500	0.867	4.375	686	854	675	846	0.116
630	0.0283	0.317	0.560	0.68	90.090	0.954	4.375	740	941	726	931	0.107

(1) The code numbers to be read in conjunction with 03020111 at the beginning. Example for 150 mm<sup>2</sup> cable, the code number is 0302011116

Code number for other types of insulation screen: Replace the 6<sup>th</sup> digit as follows:  
2 for S + CUW ; 3 for B + CUT ; 4 for B + CUW

(2) Laying conditions: Underground temperature of soil 20°C, Ground thermal resistivity 100°C cm/W, Ambient temperature 30°C. Depth of laying = 700 mm (For other laying conditions, please refer to page 71 and 72 for de-rating factors)

(3) For current carrying capacity of cables with single point bonding please refer to page 39

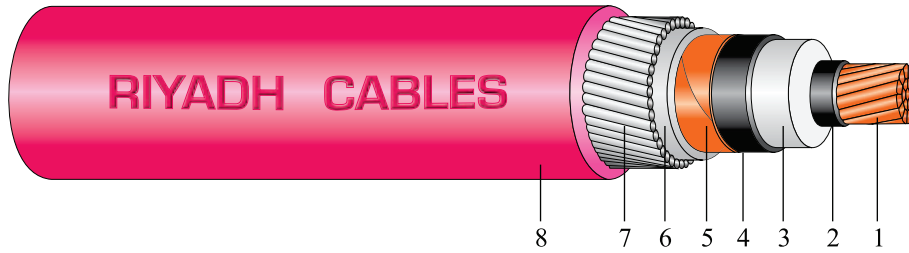


## ARMOURED SINGLE CORE CABLES

COPPER CONDUCTORS

IEC 60502-2

U<sub>0</sub>/U<sub>(Um)</sub>=8.7/15(17.5) kV



- |                                     |                                 |
|-------------------------------------|---------------------------------|
| 1. Conductor                        | 5. Insulation Screen (Metallic) |
| 2. Conductor Screen                 | 6. Bedding                      |
| 3. XLPE Insulation                  | 7. Aluminium Wire Armour        |
| 4. Insulation Screen (non-metallic) | 8. Outer Sheath                 |

Item code (1)	Size	Diameter of Conductor (Approx.)	Nominal Insulation Thickness	Diameter over insulation (Approx.)	Nominal diameter of Aluminium Wire	Nominal Outer Sheath thickness		Overall Diameter (Approx.)		Weight of Cable (Approx.)	
						CUT/CUW	CUT	CUW	CUT	CUW	CUT
	mm <sup>2</sup>	mm	mm	mm	mm	mm	mm	mm	mm	kg/km	kg/km
10	25	5.9	4.5	16.5	1.6	1.8	1.9	28	30	1100	1325
11	35	6.9	4.5	17.5	1.6	1.9	1.9	29	31	1250	1475
12	50	8.1	4.5	18.7	1.6	1.9	1.9	30	32	1425	1625
13	70	9.7	4.5	20.3	1.6	1.9	2.0	32	34	1700	1925
14	95	11.4	4.5	22.0	2.0	2.0	2.1	35	36	2100	2350
15	120	12.9	4.5	23.5	2.0	2.1	2.1	36	38	2425	2650
16	150	14.3	4.5	24.9	2.0	2.1	2.2	38	40	2725	3050
17	185	16.0	4.5	26.6	2.0	2.2	2.2	40	41	3150	3450
18	240	18.4	4.5	29.0	2.0	2.3	2.3	42	44	3800	4125
19	300	20.4	4.5	31.0	2.0/2.5	2.3	2.4	44	47	4450	4975
20	400	23.2	4.5	33.8	2.5	2.5	2.5	49	50	5575	6000
21	500	26.7	4.5	37.3	2.5	2.6	2.6	52	54	6775	7250
22	630	30.4	4.5	41.0	2.5	2.7	2.7	57	58	8300	8775

Size	Max. DC Resistance @ 20°C	Inductance		Capacitance	Adiabatic Short Circuit Current for 1 second			Current Carrying Capacity (2) (Both Ends Bonded)				Voltage drop per phase
		Trefoil	Flat		Conductor	CUT	CUW	CUT		CUW		
				Direct Buried				In Air	Direct Buried	In Air		
mm <sup>2</sup>	Ohm/km	mH/km	mH/km	μF/km	kA	kA	kA	Amps	Amps	Amps	Amps	V/A.Km
25	0.727	0.505	0.796	0.17	3.575	0.434	2.000	165	171	165	173	0.856
35	0.524	0.484	0.771	0.19	5.005	0.457	2.000	196	206	197	208	0.645
50	0.387	0.463	0.745	0.21	7.150	0.485	2.000	231	245	232	248	0.500
70	0.268	0.441	0.719	0.23	10.010	0.523	2.000	281	303	282	306	0.373
95	0.193	0.428	0.703	0.25	13.585	0.562	2.000	333	367	333	370	0.294
120	0.153	0.413	0.684	0.27	17.160	0.597	2.000	375	419	375	422	0.250
150	0.124	0.401	0.668	0.29	21.450	0.630	3.125	417	472	415	473	0.219
185	0.0991	0.388	0.652	0.32	26.455	0.669	3.125	465	534	462	535	0.190
240	0.0754	0.373	0.632	0.35	34.320	0.725	3.125	528	618	523	617	0.163
300	0.0601	0.361	0.616	0.39	42.900	0.772	3.125	583	693	567	683	0.146
400	0.0470	0.346	0.596	0.43	57.200	0.837	4.375	628	767	620	763	0.130
500	0.0366	0.337	0.582	0.48	71.500	0.919	4.375	685	855	675	849	0.118
630	0.0283	0.325	0.565	0.53	90.090	1.005	4.375	739	943	728	936	0.109

(1) The code numbers to be read in conjunction with 04020111 at the beginning. Example for 150 mm<sup>2</sup> cable, the code number is 0402011116

Code number for other types of insulation screen: Replace the 6<sup>th</sup> digit as follows:  
2 for S + CUW ; 3 for B + CUT ; 4 for B + CUW

(2) Laying conditions: Underground temperature of soil 20°C, Ground thermal resistivity 100°C cm/W, Ambient temperature 30°C. Depth of laying = 700 mm (For other laying conditions, please refer to page 71 and 72 for de-rating factors)

(3) For current carrying capacity of cables with single point bonding please refer to page 39

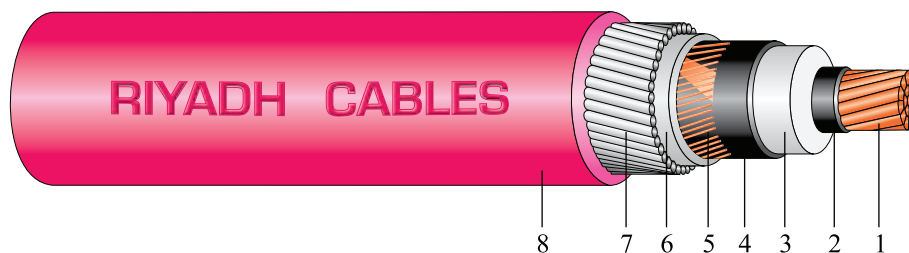


## ARMoured SINGLE CORE CABLES

COPPER CONDUCTORS

IEC 60502-2

U<sub>o</sub>/U(U<sub>m</sub>)=12/20(24) kV



- |                                     |                                 |
|-------------------------------------|---------------------------------|
| 1. Conductor                        | 5. Insulation Screen (Metallic) |
| 2. Conductor Screen                 | 6. Bedding                      |
| 3. XLPE Insulation                  | 7. Aluminium Wire Armour        |
| 4. Insulation Screen (non-metallic) | 8. Outer Sheath                 |

Item code (1)	Size	Diameter of Conductor (Approx.)	Nominal Insulation Thickness	Diameter over insulation (Approx.)	Nominal diameter of Aluminium Wire	Nominal Outer Sheath thickness		Overall Diameter (Approx.)		Weight of Cable (Approx.)	
						CUT/CUW	CUT	CUW	CUT	CUW	CUT
	mm <sup>2</sup>	mm	mm	mm	mm	mm	mm	mm	mm	kg/km	kg/km
10	25	5.9	6.0	19.5	1.6	1.9	2.0	31	33	1300	1525
11	35	6.9	5.5	19.5	1.6	1.9	2.0	31	33	1375	1600
12	50	8.1	5.5	20.7	1.6	2.0	2.0	33	35	1550	1875
13	70	9.7	5.5	22.3	2.0	2.0	2.1	35	37	1925	2150
14	95	11.4	5.5	24.0	2.0	2.1	2.1	37	38	2250	2475
15	120	12.9	5.5	25.5	2.0	2.1	2.2	38	40	2550	2800
16	150	14.3	5.5	26.9	2.0	2.2	2.2	40	41	2900	3100
17	185	16.0	5.5	28.6	2.0	2.2	2.3	42	43	3325	3650
18	240	18.4	5.5	31.0	2.0/2.5	2.3	2.4	44	47	3975	4500
19	300	20.4	5.5	33.0	2.5	2.4	2.5	48	49	4825	5175
20	400	23.2	5.5	35.8	2.5	2.5	2.6	51	53	5775	6250
21	500	26.7	5.5	39.3	2.5	2.6	2.7	55	57	7000	7450
22	630	30.4	5.5	43.0	2.5	2.8	2.8	59	61	8550	9050

Size	Max. DC Resistance @ 20°C	Inductance		Capacitance	Adiabatic Short Circuit Current for 1 second			Current Carrying Capacity (2) (Both Ends Bonded)				Voltage drop per phase
		Trefoil	Flat		Conductor	CUT	CUW	CUT		CUW		
								Direct Buried	In Air	Direct Buried	In Air	
mm <sup>2</sup>	Ohm/km	mH/km	mH/km	μF/km	kA	kA	kA	Amps	Amps	Amps	Amps	V/A.Km
25	0.727	0.524	0.805	0.14	3.575	0.504	2.000	165	172	165	174	0.860
35	0.524	0.496	0.776	0.16	5.005	0.504	2.000	196	207	197	209	0.647
50	0.387	0.474	0.751	0.18	7.150	0.532	2.000	231	247	232	250	0.502
70	0.268	0.452	0.724	0.20	10.010	0.569	2.000	280	306	281	308	0.376
95	0.193	0.438	0.708	0.21	13.585	0.609	2.000	333	369	333	371	0.299
120	0.153	0.423	0.689	0.23	17.160	0.644	2.000	375	421	374	423	0.253
150	0.124	0.410	0.673	0.25	21.450	0.676	3.125	416	473	415	475	0.221
185	0.0991	0.397	0.657	0.27	26.455	0.716	3.125	464	535	461	536	0.192
240	0.0754	0.392	0.637	0.30	34.320	0.772	3.125	528	620	516	614	0.165
300	0.0601	0.370	0.621	0.33	42.900	0.819	3.125	571	685	567	685	0.148
400	0.0470	0.355	0.601	0.37	57.200	0.884	4.375	628	769	619	764	0.132
500	0.0366	0.345	0.586	0.40	71.500	0.965	4.375	685	858	675	852	0.120
630	0.0283	0.333	0.569	0.45	90.090	1.051	4.375	739	946	729	939	0.111

(1) The code numbers to be read in conjunction with 05020111 at the beginning. Example for 150 mm<sup>2</sup> cable, the code number is 050201116

Code number for other types of insulation screen: Replace the 6<sup>th</sup> digit as follows:  
2 for S + CUW ; 3 for B + CUT ; 4 for B + CUW

(2) Laying conditions: Underground temperature of soil 20°C, Ground thermal resistivity 100°C cm/W, Ambient temperature 30°C. Depth of laying = 700 mm (For other laying conditions, please refer to page 71 and 72 for de-rating factors)

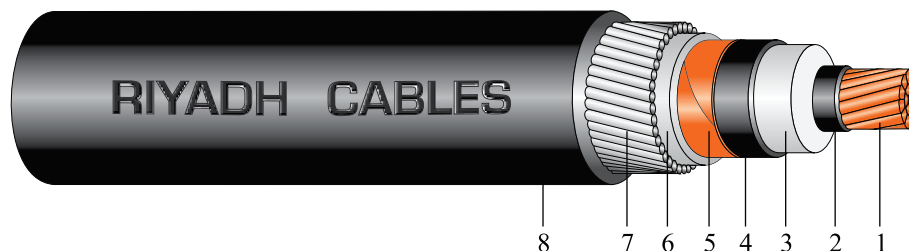
(3) For current carrying capacity of cables with single point bonding please refer to page 39

## ARMoured SINGLE CORE CABLES

**COPPER CONDUCTORS**

**IEC 60502-2**

**U<sub>o</sub>/U(U<sub>m</sub>)=18/30(36) kV**



- |                                     |                                 |
|-------------------------------------|---------------------------------|
| 1. Conductor                        | 5. Insulation Screen (Metallic) |
| 2. Conductor Screen                 | 6. Bedding                      |
| 3. XLPE Insulation                  | 7. Aluminium Wire Armour        |
| 4. Insulation Screen (non-metallic) | 8. Outer Sheath                 |

Item code (1)	Size	Diameter of Conductor (Approx.)	Nominal Insulation Thickness	Diameter over insulation (Approx.)	Nominal diameter of Aluminium Wire	Nominal Outer Sheath thickness		Overall Diameter (Approx.)		Weight of Cable (Approx.)	
						CUT/CUW	CUT	CUW	CUT	CUW	CUT
	mm <sup>2</sup>	mm	mm	mm	mm	mm	mm	mm	mm	kg/km	kg/km
12	50	8.1	8.0	25.7	2.0	2.2	2.2	39	40	2025	2250
13	70	9.7	8.0	27.3	2.0	2.2	2.3	40	42	2300	2575
14	95	11.4	8.0	29.0	2.0	2.3	2.3	42	44	2675	2900
15	120	12.9	8.0	30.5	2.0/2.5	2.3	2.4	44	47	3000	3400
16	150	14.3	8.0	31.9	2.5	2.4	2.5	47	48	3500	3850
17	185	16.0	8.0	33.6	2.5	2.5	2.5	49	50	3975	4300
18	240	18.4	8.0	36.0	2.5	2.5	2.6	51	53	4650	5025
19	300	20.4	8.0	38.0	2.5	2.6	2.7	53	55	5375	5725
20	400	23.2	8.0	40.8	2.5	2.7	2.8	56	58	6350	6850
21	500	26.7	8.0	44.3	2.5	2.8	2.9	60	62	7600	8100
22	630	30.4	8.0	48.0	2.5	2.9	3.0	64	66	9150	9700

Size	Max. DC Resistance @ 20°C	Inductance		Capacitance	Adiabatic Short Circuit Current for 1 second			Current Carrying Capacity (2) (Both Ends Bonded)				Voltage drop per phase
		Trefoil	Flat		Conductor	CUT	CUW	CUT		CUW		
								Direct Buried	In Air	Direct Buried	In Air	
mm <sup>2</sup>	Ohm/km	mH/km	mH/km	μF/km	kA	kA	kA	Amps	Amps	Amps	Amps	V/A.Km
50	0.387	0.504	0.766	0.14	7.150	0.649	2.000	230	250	231	252	0.509
70	0.268	0.481	0.740	0.16	10.010	0.686	2.000	279	308	280	310	0.382
95	0.193	0.467	0.723	0.17	13.585	0.725	2.000	331	371	332	373	0.303
120	0.153	0.450	0.704	0.18	17.160	0.760	2.000	374	423	371	425	0.259
150	0.124	0.437	0.688	0.19	21.450	0.793	3.125	412	474	410	475	0.227
185	0.0991	0.424	0.672	0.21	26.455	0.832	3.125	458	535	456	536	0.198
240	0.0754	0.407	0.652	0.23	34.320	0.888	3.125	518	617	515	616	0.171
300	0.0601	0.394	0.635	0.25	42.900	0.935	3.125	570	688	566	687	0.153
400	0.0470	0.377	0.614	0.27	57.200	1.000	4.375	626	772	620	768	0.137
500	0.0366	0.366	0.599	0.30	71.500	1.081	4.375	685	862	677	857	0.125
630	0.0283	0.357	0.582	0.33	90.090	1.168	4.375	739	950	731	946	0.115

(1) The code numbers to be read in conjunction with 06020111 at the beginning. Example for 150 mm<sup>2</sup> cable, the code number is 0602011116

Code number for other types of insulation screen: Replace the 6<sup>th</sup> digit as follows:  
2 for S + CUW ; 3 for B + CUT ; 4 for B + CUW

(2) Laying conditions: Underground temperature of soil 20°C, Ground thermal resistivity 100°C cm/W, Ambient temperature 30°C. Depth of laying = 700 mm (For other laying conditions, please refer to page 71 and 72 for de-rating factors)

(3) For current carrying capacity of cables with single point bonding please refer to page 39

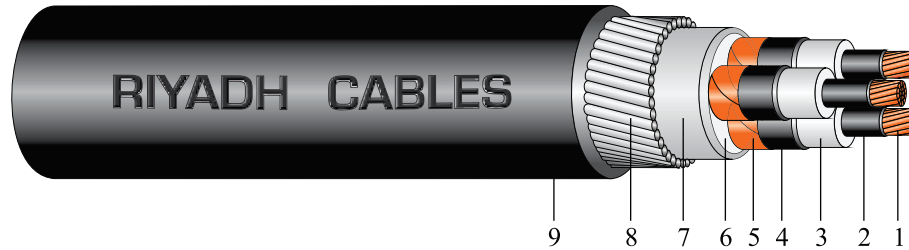


## ARMoured THREE CORE CABLES

COPPER CONDUCTORS

IEC 60502-2

U<sub>o</sub>/U<sub>(Um)</sub>=3.5/6(7.2) kV



- |                                     |                      |
|-------------------------------------|----------------------|
| 1. Conductor                        | 6. PP Filler         |
| 2. Conductor Screen                 | 7. Bedding           |
| 3. XLPE Insulation                  | 8. Steel Wire Armour |
| 4. Insulation Screen (non-metallic) | 9. Outer Sheath      |
| 5. Insulation Screen (Metallic)     |                      |

Item code (1)	Size	Diameter of Conductor (Approx.)	Nominal Insulation Thickness	Diameter over insulation (Approx.)	Nominal Diameter of Steel Wire	Nominal Outer Sheath thickness		Overall Diameter (Approx.)		Weight of Cable (Approx.)	
						CUT/CUW	CUT	CUW	CUT	CUW	CUT
	mm <sup>2</sup>	mm	mm	mm	mm	mm	mm	mm	mm	kg/km	kg/km
10	25	5.9	2.5	12.5	2.0	2.3	2.3	43	46	3400	3650
11	35	6.9	2.5	13.5	2.0/2.5	2.3	2.4	46	50	3850	4550
12	50	8.1	2.5	14.7	2.5	2.5	2.5	50	52	4900	5100
13	70	9.7	2.5	16.3	2.5	2.6	2.6	54	56	5850	6100
14	95	11.4	2.5	18.0	2.5	2.7	2.8	58	60	6950	7200
15	120	12.9	2.5	19.5	2.5	2.8	2.9	61	64	8000	8250
16	150	14.3	2.5	20.9	2.5	2.9	3.0	64	68	9050	9450
17	185	16.0	2.5	22.6	2.5	3.1	3.1	69	72	10650	11000
18	240	18.4	2.6	25.2	2.5/3.15	3.3	3.4	75	80	12900	14150
19	300	20.4	2.8	27.6	3.15	3.5	3.6	83	85	16200	16600

Size	Max. DC Resistance @ 20°C	Inductance	Capacitance	Adiabatic Short Circuit Current for 1 second			Current Carrying Capacity (2)				Voltage drop per phase
				Conductor	CUT	CUW	CUT		CUW		
							Direct Buried	In Air	Direct Buried	In Air	
mm <sup>2</sup>	Ohm/km	mH/km	μF/km	kA	kA	kA	Amps	Amps	Amps	Amps	V/A.Km
25	0.727	0.363	0.26	3.575	1.023	2.000	150	145	144	138	0.820
35	0.524	0.344	0.29	5.005	1.092	2.000	178	174	172	167	0.613
50	0.387	0.333	0.32	7.150	1.176	2.000	210	207	203	199	0.471
70	0.268	0.322	0.36	10.010	1.29	2.000	255	255	247	246	0.346
95	0.193	0.316	0.39	13.585	1.407	2.000	303	308	295	297	0.269
120	0.153	0.309	0.43	17.160	1.512	2.000	342	350	333	340	0.227
150	0.124	0.303	0.47	21.450	1.611	3.125	380	392	371	382	0.197
185	0.0991	0.300	0.52	26.455	1.728	3.125	425	444	416	433	0.170
240	0.0754	0.293	0.56	34.320	1.911	3.125	485	514	474	502	0.145
300	0.0601	0.286	0.58	42.900	2.079	3.125	533	574	524	562	0.129

(1) The code numbers to be read in conjunction with 02020123 at the beginning. Example for 150 mm<sup>2</sup> cable, the code number is 0202012316

Code number for other types of insulation screen: Replace the 6<sup>th</sup> digit as follows:  
2 for S + CUW ; 3 for B + CUT ; 4 for B + CUW

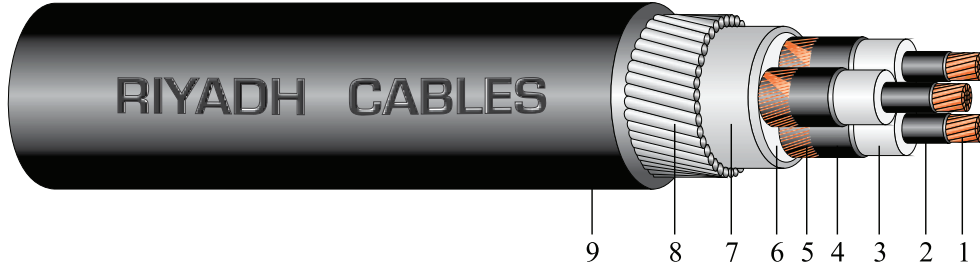
(2) Laying conditions: Underground temperature of soil 20°C, Ground thermal resistivity 100°C cm/W, Ambient temperature 30°C. Depth of laying = 700 mm (For other laying conditions, please refer to page 71 and 72 for de-rating factors)

## ARMoured THREE CORE CABLES

COPPER CONDUCTORS

IEC 60502-2

U<sub>0</sub>/U(U<sub>m</sub>)=6/10(12) kV



- |   |   |
|---|---|
| <ol style="list-style-type: none"> <li>1. Conductor</li> <li>2. Conductor Screen</li> <li>3. XLPE Insulation</li> <li>4. Insulation Screen (non-metallic)</li> <li>5. Insulation Screen (Metallic)</li> </ol> | <ol style="list-style-type: none"> <li>6. PP Filler</li> <li>7. Bedding</li> <li>8. Steel Wire Armour</li> <li>9. Outer Sheath</li> </ol> |
|---|---|

Item code (1)	Size	Diameter of Conductor (Approx.)	Nominal Insulation Thickness	Diameter over insulation (Approx.)	Nominal Diameter of Steel Wire	Nominal Outer Sheath thickness		Overall Diameter (Approx.)		Weight of Cable (Approx.)		
						CUT/CUW	CUT	CUW	CUT	CUW	CUT	CUW
10	25	5.9	3.4	14.3	2.5	2.4	2.5	49	52	4250	4525	
11	35	6.9	3.4	15.3	2.5	2.5	2.6	51	54	4750	5000	
12	50	8.1	3.4	16.5	2.5	2.6	2.7	54	57	5400	5650	
13	70	9.7	3.4	18.1	2.5	2.7	2.8	58	61	6350	6650	
14	95	11.4	3.4	19.8	2.5	2.9	2.9	62	65	7550	7800	
15	120	12.9	3.4	21.3	2.5	3.0	3.0	66	69	8600	8975	
16	150	14.3	3.4	22.7	2.5	3.1	3.2	70	73	9800	10250	
17	185	16.0	3.4	24.4	2.5	3.2	3.3	74	76	11250	11600	
18	240	18.4	3.4	26.8	3.15	3.4	3.5	81	83	14450	14800	
19	300	20.4	3.4	28.8	3.15	3.6	3.6	86	88	16775	17050	

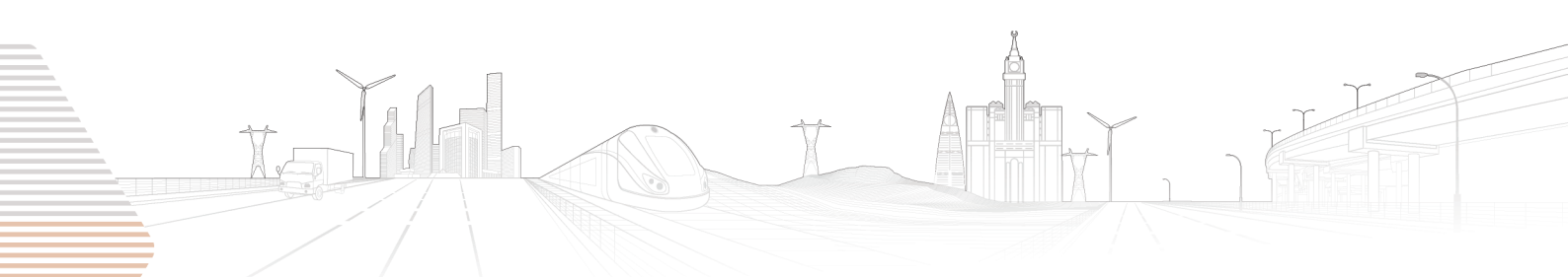
Size	Max. DC Resistance @ 20°C	Inductance	Capacitance	Adiabatic Short Circuit Current for 1 second			Current Carrying Capacity (2)				Voltage drop per phase
				Conductor	CUT	CUW	CUT		CUW		
							Direct Buried	In Air	Direct Buried	In Air	
mm <sup>2</sup>	Ohm/km	mH/km	μF/km	kA	kA	kA	Amps	Amps	Amps	Amps	V/A.Km
25	0.727	0.387	0.21	3.575	1.149	2.000	150	147	143	140	0.829
35	0.524	0.368	0.23	5.005	1.218	2.000	178	176	171	168	0.618
50	0.387	0.355	0.25	7.150	1.302	2.000	209	208	202	200	0.476
70	0.268	0.342	0.29	10.010	1.416	2.000	254	256	246	246	0.351
95	0.193	0.335	0.31	13.585	1.533	2.000	302	308	293	297	0.273
120	0.153	0.326	0.34	17.160	1.638	2.000	340	351	332	340	0.231
150	0.124	0.319	0.37	21.450	1.737	3.125	379	394	369	381	0.200
185	0.0991	0.313	0.40	26.455	1.854	3.125	424	445	414	432	0.173
240	0.0754	0.305	0.44	34.320	2.022	3.125	481	513	472	501	0.148
300	0.0601	0.297	0.48	42.900	2.163	3.125	532	573	523	561	0.131

(1) The code numbers to be read in conjunction with 03020123 at the beginning. Example for 150 mm<sup>2</sup> cable, the code number is 0302012316

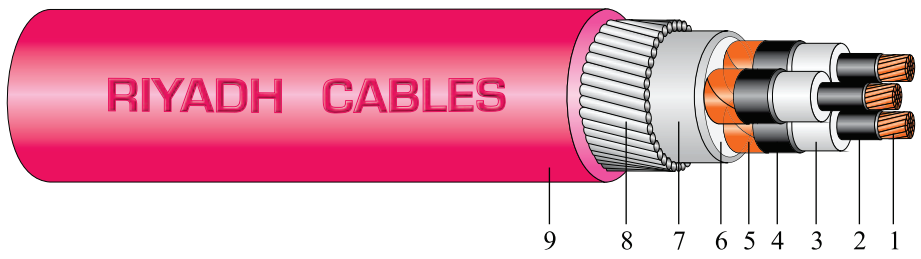
Code number for other types of insulation screen: Replace the 6<sup>th</sup> digit as follows:  
2 for S + CUW ; 3 for B + CUT ; 4 for B + CUW

(2) Laying conditions: Underground temperature of soil 20°C, Ground thermal resistivity 100°C cm/W, Ambient temperature 30°C. Depth of laying = 700 mm (For other laying conditions, please refer to page 71 and 72 for de-rating factors)





**ARMOURED THREE CORE CABLES**  
**COPPER CONDUCTORS**                      **IEC 60502-2**                      **U<sub>0</sub>/U(U<sub>m</sub>)=8.7/15(17.5) kV**



- |                                     |                      |
|-------------------------------------|----------------------|
| 1. Conductor                        | 6. PP Filler         |
| 2. Conductor Screen                 | 7. Bedding           |
| 3. XLPE Insulation                  | 8. Steel Wire Armour |
| 4. Insulation Screen (non-metallic) | 9. Outer Sheath      |
| 5. Insulation Screen (Metallic)     |                      |

Item code (1)	Size	Diameter of Conductor (Approx.)	Nominal Insulation Thickness	Diameter over insulation (Approx.)	Nominal Diameter of Steel Wire	Nominal Outer Sheath thickness		Overall Diameter (Approx.)		Weight of Cable (Approx.)	
						CUT/CUW	CUT	CUW	CUT	CUW	CUT
	mm <sup>2</sup>	mm	mm	mm	mm	mm	mm	mm	mm	kg/km	kg/km
10	25	5.9	4.5	16.1	2.5	2.6	2.6	52	55	5175	5400
11	35	6.9	4.5	17.5	2.5	2.7	2.7	56	59	5400	5650
12	50	8.1	4.5	18.7	2.5	2.8	2.8	60	62	6100	6300
13	70	9.7	4.5	20.3	2.5	2.9	2.9	63	66	7050	7300
14	95	11.4	4.5	22.0	2.5	3.0	3.1	67	71	8200	8600
15	120	12.9	4.5	23.5	2.5	3.2	3.2	72	74	9500	9725
16	150	14.3	4.5	24.9	2.5/3.15	3.3	3.4	75	79	10650	11900
17	185	16.0	4.5	26.6	3.15	3.4	3.5	80	83	13000	13400
18	240	18.4	4.5	29.0	3.15	3.6	3.7	86	89	15400	15800
19	300	20.4	4.5	31.0	3.15	3.8	3.8	91	94	17725	18100

Size	Max. DC Resistance @ 20°C	Inductance	Capacitance	Adiabatic Short Circuit Current for 1 second			Current Carrying Capacity (2)				Voltage drop per phase
				Conductor	CUT	CUW	CUT		CUW		
							Direct Buried	In Air	Direct Buried	In Air	
mm <sup>2</sup>	Ohm/km	mH/km	μF/km	kA	kA	kA	Amps	Amps	Amps	Amps	V/A.Km
25	0.727	0.413	0.17	3.575	1.302	2.000	150	149	143	141	0.835
35	0.524	0.394	0.19	5.005	1.371	2.000	178	177	171	169	0.624
50	0.387	0.379	0.21	7.150	1.455	2.000	208	209	201	201	0.481
70	0.268	0.364	0.23	10.010	1.569	2.000	253	258	245	247	0.357
95	0.193	0.356	0.25	13.585	1.686	2.000	301	309	292	298	0.278
120	0.153	0.346	0.27	17.160	1.791	2.000	339	351	330	340	0.235
150	0.124	0.338	0.29	21.450	1.89	3.125	377	395	366	381	0.204
185	0.0991	0.330	0.32	26.455	2.007	3.125	421	445	411	432	0.177
240	0.0754	0.321	0.35	34.320	2.175	3.125	479	513	470	500	0.152
300	0.0601	0.312	0.39	42.900	2.316	3.125	530	573	520	560	0.134

(1) The code numbers to be read in conjunction with 04020123 at the beginning. Example for 150 mm<sup>2</sup> cable, the code number is 0402012316

Code number for other types of insulation screen: Replace the 6<sup>th</sup> digit as follows:  
 2 for S + CUW ; 3 for B + CUT ; 4 for B + CUW

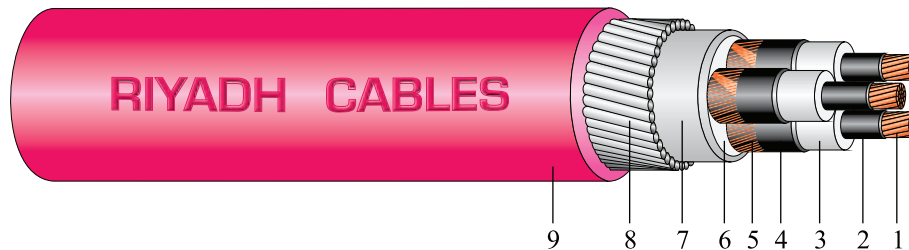
(2) Laying conditions: Underground temperature of soil 20°C, Ground thermal resistivity 100°C cm/W, Ambient temperature 30°C. Depth of laying = 700 mm (For other laying conditions, please refer to page 71 and 72 for de-rating factors)

## ARMoured THREE CORE CABLES

COPPER CONDUCTORS

IEC 60502-2

U<sub>o</sub>/U(U<sub>m</sub>)=12/20(24) kV



- |                                     |                      |
|-------------------------------------|----------------------|
| 1. Conductor                        | 6. PP Filler         |
| 2. Conductor Screen                 | 7. Bedding           |
| 3. XLPE Insulation                  | 8. Steel Wire Armour |
| 4. Insulation Screen (non-metallic) | 9. Outer Sheath      |
| 5. Insulation Screen (Metallic)     |                      |

Item code (1)	Size	Diameter of Conductor (Approx.)	Nominal Insulation Thickness	Diameter over insulation (Approx.)	Nominal diameter of Steel Wire	Nominal Outer Sheath thickness		Overall Diameter (Approx.)		Weight of Cable (Approx.)	
						CUT	CUW	CUT	CUW	CUT	CUW
	mm <sup>2</sup>	mm	mm	mm	mm	mm	mm	mm	mm	kg/km	kg/km
10	25	5.9	6.0	19.5	2.5	2.8	2.9	61	64	5800	6075
11	35	6.9	5.5	19.5	2.5	2.8	2.9	61	64	6050	6300
12	50	8.1	5.5	20.7	2.5	2.9	3.0	64	67	6700	7000
13	70	9.7	5.5	22.3	2.5	3.1	3.1	68	71	7750	8100
14	95	11.4	5.5	24.0	2.5	3.2	3.3	73	76	9100	9400
15	120	12.9	5.5	25.5	3.15	3.4	3.4	78	81	11050	11450
16	150	14.3	5.5	26.9	3.15	3.5	3.5	81	84	12300	12600
17	185	16.0	5.5	28.6	3.15	3.6	3.6	85	88	14000	14200
18	240	18.4	5.5	31.0	3.15	3.8	3.8	91	94	16300	16650
19	300	20.4	5.5	33.0	3.15	3.9	4.0	96	99	18600	19050

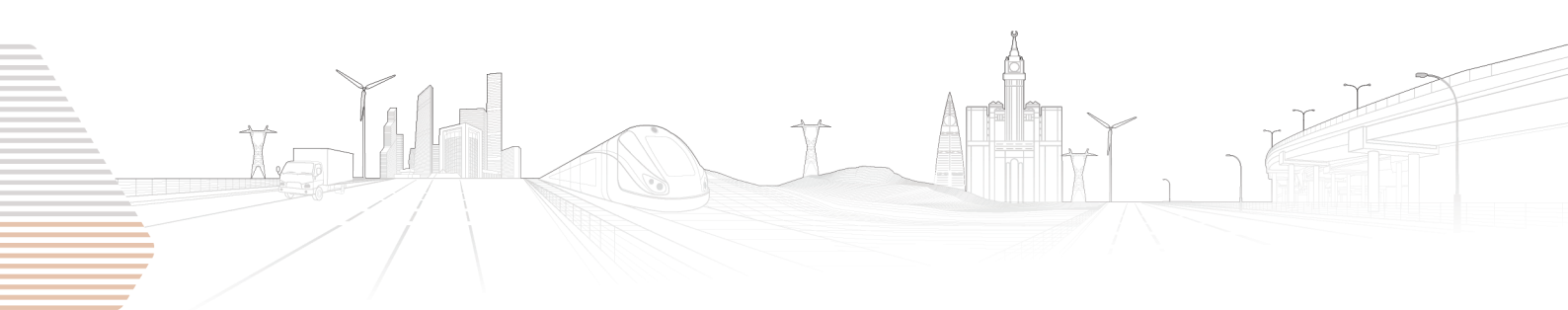
Size	Max. DC Resistance @ 20°C	Inductance	Capacitance	Adiabatic Short Circuit Current for 1 second			Current Carrying Capacity (2) (Both Ends Bonded)				Voltage drop per phase
				Conductor	CUT	CUW	CUT		CUW		
							Direct Buried	In Air	Direct Buried	In Air	
mm <sup>2</sup>	Ohm/km	mH/km	μF/km	kA	kA	kA	Amps	Amps	Amps	Amps	V/A.Km
25	0.727	0.444	0.14	3.575	1.512	2.000	150	150	143	141	0.842
35	0.524	0.415	0.16	5.005	1.512	2.000	177	178	170	169	0.629
50	0.387	0.399	0.18	7.150	1.596	2.000	207	210	200	201	0.486
70	0.268	0.382	0.20	10.010	1.707	2.000	252	258	244	248	0.361
95	0.193	0.373	0.21	13.585	1.827	2.000	300	309	291	298	0.282
120	0.153	0.362	0.23	17.160	1.932	2.000	337	352	328	340	0.239
150	0.124	0.353	0.25	21.450	2.028	3.125	375	394	366	382	0.208
185	0.0991	0.345	0.27	26.455	2.148	3.125	419	444	410	431	0.180
240	0.0754	0.335	0.30	34.320	2.316	3.125	477	512	468	499	0.155
300	0.0601	0.320	0.33	42.900	2.457	3.125	528	572	518	559	0.136

(1) The code numbers to be read in conjunction with 05020123 at the beginning. Example for 150 mm<sup>2</sup> cable, the code number is 0502012316

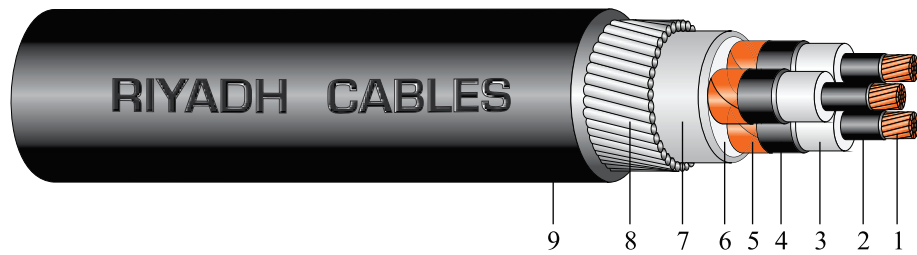
Code number for other types of insulation screen: Replace the 6<sup>th</sup> digit as follows:  
2 for S + CUW ; 3 for B + CUT ; 4 for B + CUW

(2) Laying conditions: Underground temperature of soil 20°C, Ground thermal resistivity 100°C cm/W, Ambient temperature 30°C. Depth of laying = 700 mm (For other laying conditions, please refer to page 71 and 72 for de-rating factors)





**ARMOURED THREE CORE CABLES**  
**COPPER CONDUCTORS**                      **IEC 60502-2**                      **U<sub>o</sub>/U<sub>Um</sub>=18/30(36) kV**



- |                                     |                      |
|-------------------------------------|----------------------|
| 1. Conductor                        | 6. PP Filler         |
| 2. Conductor Screen                 | 7. Bedding           |
| 3. XLPE Insulation                  | 8. Steel Wire Armour |
| 4. Insulation Screen (non-metallic) | 9. Outer Sheath      |
| 5. Insulation Screen (Metallic)     |                      |

Item code (1)	Size	Diameter of Conductor (Approx.)	Nominal Insulation Thickness	Diameter over insulation (Approx.)	Nominal diameter of Steel Wire	Nominal Outer Sheath thickness		Overall Diameter (Approx.)		Weight of Cable (Approx.)	
						CUT	CUW	CUT	CUW	CUT	CUW
	mm <sup>2</sup>	mm	mm	mm	mm	mm	mm	mm	mm	kg/km	kg/km
12	50	8.1	8.0	25.7	3.15	3.4	3.5	78	81	9550	9850
13	70	9.7	8.0	27.3	3.15	3.5	3.6	82	85	10650	11100
14	95	11.4	8.0	29.0	3.15	3.6	3.7	86	89	12000	12300
15	120	12.9	8.0	30.5	3.15	3.8	3.8	90	93	13200	13600
16	150	14.3	8.0	31.9	3.15	3.9	3.9	93	96	14450	14900
17	185	16.0	8.0	33.6	3.15	4.0	4.0	97	100	16200	16500
18	240	18.4	8.0	36.0	3.15	4.2	4.2	103	106	18600	19000
19	300	20.4	8.0	38.0	3.15	4.3	4.4	108	111	21100	21500

Size	Max. DC Resistance @ 20°C	Inductance	Capacitance	Adiabatic Short Circuit Current for 1 second			Current Carrying Capacity (2)				Voltage drop per phase
				Conductor	CUT	CUW	CUT		CUW		
							Direct Buried	In Air	Direct Buried	In Air	
mm <sup>2</sup>	Ohm/km	mH/km	μF/km	kA	kA	kA	Amps	Amps	Amps	Amps	V/A.Km
50	0.387	0.449	0.14	7.150	1.947	2.000	205	210	199	202	0.497
70	0.268	0.430	0.16	10.010	2.058	2.000	249	257	242	248	0.372
95	0.193	0.419	0.17	13.585	2.175	2.000	296	309	289	298	0.292
120	0.153	0.405	0.18	17.160	2.28	2.000	334	351	326	339	0.248
150	0.124	0.395	0.19	21.450	2.379	3.125	372	393	363	380	0.217
185	0.0991	0.384	0.21	26.455	2.496	3.125	415	443	406	430	0.189
240	0.0754	0.371	0.23	34.320	2.664	3.125	473	510	464	497	0.163
300	0.0601	0.358	0.25	42.900	2.805	3.125	524	570	515	557	0.143

(1) The code numbers to be read in conjunction with 06020123 at the beginning. Example for 150 mm<sup>2</sup> cable, the code number is 0602012316

Code number for other types of insulation screen: Replace the 6<sup>th</sup> digit as follows:  
 2 for S + CUW ; 3 for B + CUT ; 4 for B + CUW

(2) Laying conditions: Underground temperature of soil 20°C, Ground thermal resistivity 100°C cm/W, Ambient temperature 30°C. Depth of laying = 700 mm (For other laying conditions, please refer to page 71 and 72 for de-rating factors)



**Current Carrying Capacity for Aluminium Wire  
Armoured Cables with Single Point Bonding**

**3.5/6 (7.2) kV CU/XLPE/AWA/PVC**

Size	CUT		CUW	
	Direct Buried	In Air	Direct Buried	In Air
mm <sup>2</sup>	Amps	Amps	Amps	Amps
25	166	168	167	171
35	198	204	199	207
50	234	244	235	247
70	286	303	287	307
95	342	369	342	372
120	389	425	388	428
150	436	483	433	487
185	493	558	486	555
240	571	658	559	652
300	641	750	626	740
400	724	865	694	845
500	820	1005	775	962
630	917	1147	859	1087

**6/10 (12) kV CU/XLPE/AWA/PVC**

Size	CUT		CUW	
	Direct Buried	In Air	Direct Buried	In Air
mm <sup>2</sup>	Amps	Amps	Amps	Amps
25	166	170	167	172
35	198	205	199	208
50	234	246	234	249
70	286	305	286	308
95	342	371	342	374
120	390	431	389	434
150	437	489	432	489
185	493	560	486	558
240	570	659	560	654
300	640	751	626	742
400	727	873	694	843
500	820	1005	776	963
630	917	1148	859	1087

**8.7/15 (17.5) kV CU/XLPE/AWA/PVC**

Size	CUT		CUW	
	Direct Buried	In Air	Direct Buried	In Air
mm <sup>2</sup>	Amps	Amps	Amps	Amps
25	166	171	166	173
35	198	207	198	209
50	234	247	234	250
70	285	307	286	310
95	343	376	342	379
120	389	433	388	435
150	436	491	432	490
185	492	561	486	559
240	569	661	560	656
300	640	753	627	747
400	727	874	695	846
500	821	1006	777	965
630	920	1150	863	1093

**12/20(24) kV CU/XLPE/AWA/PVC**

Size	CUT		CUW	
	Direct Buried	In Air	Direct Buried	In Air
mm <sup>2</sup>	Amps	Amps	Amps	Amps
25	165	172	166	174
35	198	208	198	210
50	233	249	234	253
70	286	311	286	313
95	342	377	342	380
120	389	434	388	436
150	436	492	432	492
185	491	562	486	561
240	569	662	560	660
300	641	759	627	748
400	727	875	696	847
500	821	1007	779	967
630	921	1151	865	1095

**18/30 (36) kV CU/XLPE/AWA/PVC**

Size	CUT		CUW	
	Direct Buried	In Air	Direct Buried	In Air
mm <sup>2</sup>	Amps	Amps	Amps	Amps
50	233	253	233	254
70	285	313	385	315
95	341	380	341	382
120	388	436	387	440
150	435	497	431	495
185	492	567	486	564
240	569	667	560	661
300	641	760	627	750
400	727	875	697	849
500	820	1006	782	971
630	921	1148	870	1100

For Aluminium Tape Armoured Cables, the current mentioned above shall be 1% less.

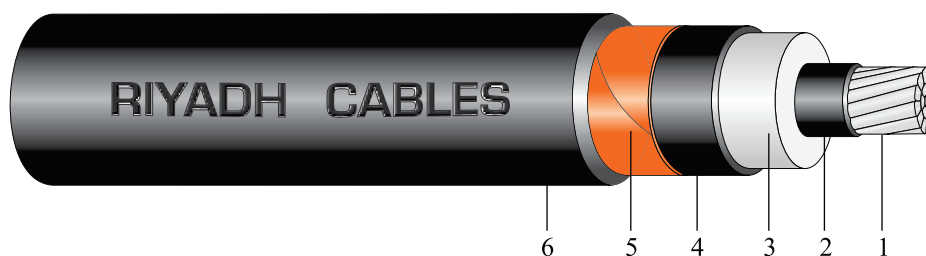


## UNARMOURED SINGLE CORE CABLES

**ALUMINIUM CONDUCTORS**

**IEC 60502-2**

**U<sub>0</sub>/U<sub>Um</sub>=3.5/6(7.2) kV**



- |                     |                                     |
|---------------------|-------------------------------------|
| 1. Conductor        | 4. Insulation Screen (Non-metallic) |
| 2. Conductor Screen | 5. Insulation Screen (Metallic)     |
| 3. XLPE Insulation  | 6. Outer Sheath                     |

Item code (1)	Size	Diameter of Conductor (Approx.)	Nominal Insulation Thickness	Diameter over insulation (Approx.)	Nominal Outer Sheath thickness		Overall Diameter (Approx.)		Weight of Cable (Approx.)	
					CUT	CUW	CUT	CUW	CUT	CUW
	mm <sup>2</sup>	mm	mm	mm	mm	mm	mm	mm	kg/km	kg/km
10	25	6.0	2.5	12.6	1.5	1.5	18	20	375	550
11	35	7.1	2.5	13.7	1.5	1.6	19	21	425	550
12	50	8.3	2.5	14.9	1.6	1.6	21	22	500	675
13	70	9.7	2.5	16.3	1.6	1.6	22	24	600	750
14	95	11.55	2.5	18.15	1.7	1.7	24	26	700	900
15	120	12.95	2.5	19.55	1.7	1.8	26	27	800	1000
16	150	14.3	2.5	20.9	1.8	1.8	27	29	925	1200
17	185	15.9	2.5	22.5	1.8	1.9	29	30	1100	1350
18	240	18.4	2.6	25.2	1.9	1.9	31	33	1300	1600
19	300	20.5	2.8	27.7	2.0	2.0	34	36	1550	1825
20	400	24.0	3.0	31.6	2.1	2.2	38	40	1925	2325
21	500	27.0	3.2	35.0	2.2	2.3	42	44	2350	2775
22	630	30.4	3.2	38.4	2.3	2.4	46	47	2850	3275

Size	Max. DC Resistance @ 20°C	Inductance		Capacitance	Adiabatic Short Circuit Current for 1 second			Current Carrying Capacity (2)				Voltage drop per phase
		Trefoil	Flat		Conductor	CUT	CUW	CUT		CUW		
								Direct Buried	In Air	Direct Buried	In Air	
mm <sup>2</sup>	Ohm/km	mH/km	mH/km	μF/km	kA	kA	kA	Amps	Amps	Amps	Amps	V/A.Km
25	1.20	0.444	0.760	0.26	2.360	0.341	2.000	128	123	129	126	1.3316
35	0.868	0.426	0.745	0.29	3.304	0.364	2.000	153	149	154	153	0.9868
50	0.641	0.412	0.726	0.31	4.720	0.392	2.000	180	179	182	184	0.7508
70	0.443	0.388	0.694	0.37	6.608	0.430	2.000	220	223	222	228	0.5422
95	0.320	0.378	0.679	0.39	8.968	0.469	2.000	264	274	265	279	0.4143
120	0.253	0.364	0.660	0.44	11.328	0.504	2.000	300	317	301	322	0.3423
150	0.206	0.354	0.645	0.48	14.160	0.537	3.125	336	360	337	336	0.2921
185	0.164	0.343	0.630	0.52	17.464	0.576	3.125	381	415	380	420	0.2464
240	0.125	0.332	0.611	0.56	22.656	0.637	3.125	442	494	441	498	0.2047
300	0.100	0.324	0.596	0.58	28.320	0.693	3.125	498	568	496	572	0.1773
400	0.0778	0.313	0.573	0.61	37.760	0.767	4.375	572	671	562	668	0.1524
500	0.0605	0.306	0.564	0.64	47.200	0.858	4.375	650	781	636	772	0.1335
630	0.0469	0.296	0.548	0.71	59.472	0.944	4.375	737	904	716	889	0.1179

(1) The code numbers to be read in conjunction with 02120101 at the beginning. Example for 150 mm<sup>2</sup> cable, the code number is 0212010116

Code number for other types of insulation screen: Replace the 6<sup>th</sup> digit as follows:  
2 for S + CUW ; 3 for B + CUT ; 4 for B + CUW

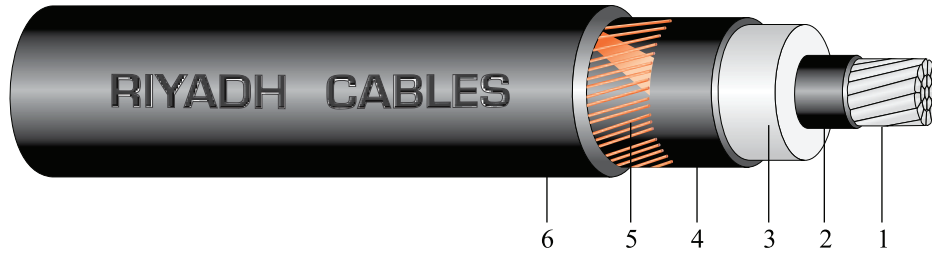
(2) Laying conditions: Underground temperature of soil 20°C, Ground thermal resistivity 100°C cm/W, Ambient temperature 30°C. Depth of laying = 700 mm (For other laying conditions, please refer to page 71 and 72 for de-rating factors)

## UNARMoured SINGLE CORE CABLES

ALUMINIUM CONDUCTORS

IEC 60502-2

$U_0/U(U_m)=6/10(12)$  kV



- |                     |                                     |
|---------------------|-------------------------------------|
| 1. Conductor        | 4. Insulation Screen (Non-metallic) |
| 2. Conductor Screen | 5. Insulation Screen (Metallic)     |
| 3. XLPE Insulation  | 6. Outer Sheath                     |

Item code (1)	Size	Diameter of Conductor (Approx.)	Nominal Insulation Thickness	Diameter over insulation (Approx.)	Nominal Outer Sheath thickness		Overall Diameter (Approx.)		Weight of Cable (Approx.)		
					CUT	CUW	CUT	CUW	CUT	CUW	
	mm <sup>2</sup>	mm	mm	mm	mm	mm	mm	mm	mm	kg/km	kg/km
10	25	6.0	3.4	14.4	1.5	1.6	20	22	450	625	
11	35	7.1	3.4	15.5	1.6	1.6	21	23	500	700	
12	50	8.3	3.4	16.7	1.6	1.7	23	24	575	750	
13	70	9.7	3.4	18.1	1.7	1.7	24	26	675	850	
14	95	11.55	3.4	19.95	1.7	1.8	26	28	800	1000	
15	120	12.95	3.4	21.35	1.8	1.8	28	29	900	1100	
16	150	14.3	3.4	22.7	1.8	1.9	29	31	1000	1300	
17	185	15.9	3.4	24.3	1.9	1.9	31	32	1150	1425	
18	240	18.4	3.4	26.8	2.0	2.0	33	35	1400	1700	
19	300	20.5	3.4	28.9	2.0	2.1	35	37	1625	1925	
20	400	24.0	3.4	32.4	2.1	2.2	39	41	1975	2375	
21	500	27.0	3.4	35.4	2.2	2.3	42	44	2375	2800	
22	630	30.4	3.4	38.8	2.3	2.4	46	48	2875	3300	

Size	Max. DC Resistance @ 20°C	Inductance		Capacitance	Adiabatic Short Circuit Current for 1 second			Current Carrying Capacity (2)				Voltage drop per phase
		Trefoil	Flat		Conductor	CUT	CUW	CUT		CUW		
				Direct Buried				In Air	Direct Buried	In Air		
mm <sup>2</sup>	Ohm/km	mH/km	mH/km	μF/km	kA	kA	kA	Amps	Amps	Amps	Amps	V/A.Km
25	1.20	0.460	0.770	0.21	2.360	0.383	2.000	128	125	129	128	1.3352
35	0.868	0.440	0.751	0.23	3.304	0.406	2.000	153	152	154	155	0.9899
50	0.641	0.424	0.731	0.25	4.720	0.434	2.000	180	182	181	186	0.7535
70	0.443	0.401	0.700	0.29	6.608	0.472	2.000	220	226	222	231	0.5451
95	0.320	0.383	0.681	0.31	8.968	0.511	2.000	264	277	265	282	0.4154
120	0.253	0.376	0.666	0.34	11.328	0.546	2.000	300	320	301	325	0.3450
150	0.206	0.364	0.650	0.37	14.160	0.579	3.125	336	363	336	369	0.2943
185	0.164	0.354	0.635	0.40	17.464	0.618	3.125	380	418	380	423	0.2489
240	0.125	0.341	0.615	0.45	22.656	0.674	3.125	442	497	440	501	0.2067
300	0.100	0.329	0.599	0.49	28.320	0.721	3.125	498	570	495	573	0.1784
400	0.0778	0.318	0.580	0.55	37.760	0.786	4.375	571	672	562	669	0.1535
500	0.0605	0.308	0.565	0.60	47.200	0.867	4.375	651	781	636	773	0.1339
630	0.0469	0.299	0.549	0.68	59.472	0.954	4.375	736	905	716	889	0.1186

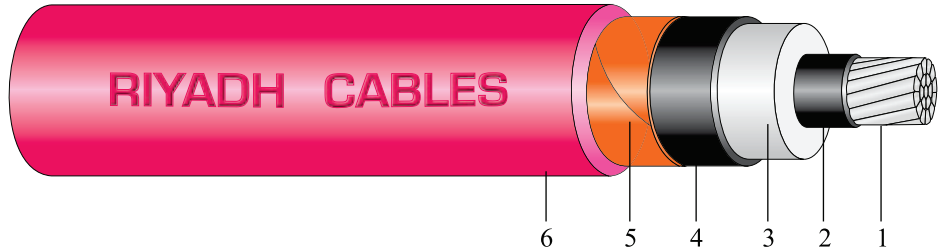
(1) The code numbers to be read in conjunction with 03120101 at the beginning. Example for 150 mm<sup>2</sup> cable, the code number is 0312010116

Code number for other types of insulation screen: Replace the 6<sup>th</sup> digit as follows:  
2 for S + CUW ; 3 for B + CUT ; 4 for B + CUW

(2) Laying conditions: Underground temperature of soil 20°C, Ground thermal resistivity 100°C cm/W, Ambient temperature 30°C. Depth of laying = 700 mm (For other laying conditions, please refer to page 71 and 72 for de-rating factors)



**UNARMoured SINGLE CORE CABLES**  
**ALUMINIUM CONDUCTORS**      **IEC 60502-2**      **U<sub>0</sub>/U(U<sub>m</sub>)=8.7/15(17.5) kV**



- |                     |                                     |
|---------------------|-------------------------------------|
| 1. Conductor        | 4. Insulation Screen (Non-metallic) |
| 2. Conductor Screen | 5. Insulation Screen (Metallic)     |
| 3. XLPE Insulation  | 6. Outer Sheath                     |

Item code (1)	Size	Diameter of Conductor (Approx.)	Nominal Insulation Thickness	Diameter over insulation (Approx.)	Nominal Outer Sheath thickness		Overall Diameter (Approx.)		Weight of Cable (Approx.)	
					CUT	CUW	CUT	CUW	CUT	CUW
	mm <sup>2</sup>	mm	mm	mm	mm	mm	mm	mm	kg/km	kg/km
10	25	6.0	4.5	16.6	1.6	1.7	22	24	525	725
11	35	7.1	4.5	17.7	1.7	1.7	24	25	600	775
12	50	8.3	4.5	18.9	1.7	1.7	25	26	675	850
13	70	9.7	4.5	20.3	1.7	1.8	27	28	775	975
14	95	11.55	4.5	22.15	1.8	1.8	28	30	900	1100
15	120	12.95	4.5	23.55	1.9	1.9	30	31	1025	1225
16	150	14.3	4.5	24.9	1.9	1.9	31	33	1150	1400
17	185	15.9	4.5	26.5	2.0	2.0	33	34	1300	1575
18	240	18.4	4.5	29.0	2.0	2.1	36	37	1550	1825
19	300	20.5	4.5	31.1	2.1	2.1	38	39	1775	2050
20	400	24.0	4.5	34.6	2.2	2.3	42	43	2150	2550
21	500	27.0	4.5	37.6	2.3	2.4	45	47	2550	3000
22	630	30.4	4.5	41.0	2.4	2.5	49	50	3075	3500

Size	Max. DC Resistance @ 20°C	Inductance		Capacitance	Adiabatic Short Circuit Current for 1 second			Current Carrying Capacity (2)				Voltage drop per phase
		Trefoil	Flat		Conductor	CUT	CUW	CUT		CUW		
								Direct Buried	In Air	Direct Buried	In Air	
mm <sup>2</sup>	Ohm/km	mH/km	mH/km	μF/km	kA	kA	kA	Amps	Amps	Amps	Amps	V/A.Km
25	1.20	0.470	0.780	0.17	2.360	0.434	2.000	128	127	129	130	1.3375
35	0.868	0.456	0.758	0.19	3.304	0.457	2.000	153	154	154	157	0.9935
50	0.641	0.440	0.738	0.20	4.720	0.485	2.000	180	185	181	188	0.7571
70	0.443	0.415	0.706	0.23	6.608	0.523	2.000	220	230	221	233	0.5483
95	0.320	0.402	0.690	0.25	8.968	0.562	2.000	264	280	265	284	0.4197
120	0.253	0.389	0.672	0.27	11.328	0.597	2.000	300	324	301	328	0.3480
150	0.206	0.377	0.656	0.29	14.160	0.630	3.125	336	367	336	371	0.2973
185	0.164	0.366	0.641	0.32	17.464	0.669	3.125	380	422	380	426	0.2516
240	0.125	0.352	0.621	0.35	22.656	0.725	3.125	441	500	440	504	0.2092
300	0.100	0.340	0.605	0.39	28.320	0.772	3.125	498	574	495	575	0.1809
400	0.0778	0.327	0.585	0.43	37.760	0.837	4.375	572	676	562	672	0.1556
500	0.0605	0.318	0.570	0.48	47.200	0.919	4.375	651	785	637	776	0.1362
630	0.0469	0.307	0.554	0.53	59.472	1.005	4.375	738	908	718	893	0.1204

(1) The code numbers to be read in conjunction with 04120101 at the beginning. Example for 150 mm<sup>2</sup> cable, the code number is 0412010116

Code number for other types of insulation screen: Replace the 6<sup>th</sup> digit as follows:  
 2 for S + CUW ; 3 for B + CUT ; 4 for B + CUW

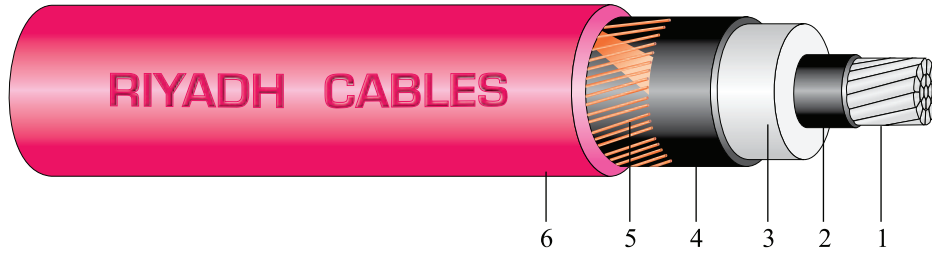
(2) Laying conditions: Underground temperature of soil 20°C, Ground thermal resistivity 100°C cm/W, Ambient temperature 30°C. Depth of laying = 700 mm (For other laying conditions, please refer to page 71 and 72 for de-rating factors)

## UNARMOURED SINGLE CORE CABLES

**ALUMINIUM CONDUCTORS**

**IEC 60502-2**

**U<sub>o</sub>/U(U<sub>m</sub>)=12/20(24) kV**



- |                     |                                     |
|---------------------|-------------------------------------|
| 1. Conductor        | 4. Insulation Screen (Non-metallic) |
| 2. Conductor Screen | 5. Insulation Screen (Metallic)     |
| 3. XLPE Insulation  | 6. Outer Sheath                     |

Item code (1)	Size	Diameter of Conductor (Approx.)	Nominal Insulation Thickness	Diameter over insulation (Approx.)	Nominal Outer Sheath thickness		Overall Diameter (Approx.)		Weight of Cable (Approx.)	
					CUT	CUW	CUT	CUW	CUT	CUW
	mm <sup>2</sup>	mm	mm	mm	mm	mm	mm	mm	kg/km	kg/km
10	25	6.0	6.0	19.6	1.7	1.8	26	27	675	850
11	35	7.1	5.5	19.7	1.8	1.8	26	27	700	875
12	50	8.3	5.5	20.9	1.8	1.8	27	29	775	950
13	70	9.7	5.5	22.3	1.8	1.9	29	30	875	1175
14	95	11.55	5.5	24.15	1.9	1.9	31	32	1025	1225
15	120	12.95	5.5	25.55	1.9	2.0	32	34	1125	1350
16	150	14.3	5.5	26.9	2.0	2.0	34	35	1250	1525
17	185	15.9	5.5	28.5	2.0	2.1	35	37	1425	1700
18	240	18.4	5.5	31.0	2.1	2.1	38	39	1675	1950
19	300	20.5	5.5	33.1	2.2	2.2	40	42	1925	2200
20	400	24.0	5.5	36.6	2.3	2.3	44	46	2300	2700
21	500	27.0	5.5	39.6	2.4	2.4	47	49	2725	3125
22	630	30.4	5.5	43.0	2.5	2.5	51	52	3250	3675

Size	Max. DC Resistance @ 20°C	Inductance		Capacitance	Adiabatic Short Circuit Current for 1 second			Current Carrying Capacity (2)				Voltage drop per phase
		Trefoil	Flat		Conductor	CUT	CUW	CUT		CUW		
				Direct Buried				In Air	Direct Buried	In Air		
mm <sup>2</sup>	Ohm/km	mH/km	mH/km	μF/km	kA	kA	kA	Amps	Amps	Amps	Amps	V/A.Km
25	1.20	0.497	0.792	0.14	2.360	0.504	2.000	128	129	128	131	1.3436
35	0.868	0.468	0.763	0.16	3.304	0.504	2.000	153	156	153	159	0.9963
50	0.641	0.453	0.744	0.18	4.720	0.532	2.000	180	187	181	190	0.7601
70	0.443	0.426	0.712	0.20	6.608	0.569	2.000	220	232	221	235	0.5508
95	0.320	0.414	0.696	0.21	8.968	0.609	2.000	263	283	264	287	0.4224
120	0.253	0.399	0.677	0.23	11.328	0.644	2.000	300	326	300	330	0.3503
150	0.206	0.388	0.662	0.25	14.160	0.676	3.125	335	370	336	373	0.2998
185	0.164	0.375	0.646	0.27	17.464	0.716	3.125	380	424	379	428	0.2536
240	0.125	0.361	0.626	0.30	22.656	0.772	3.125	441	503	440	505	0.2113
300	0.100	0.350	0.610	0.33	28.320	0.819	3.125	498	576	495	578	0.1832
400	0.0778	0.336	0.590	0.37	37.760	0.884	4.375	572	678	563	674	0.1576
500	0.0605	0.326	0.575	0.40	47.200	0.965	4.375	651	787	638	778	0.1380
630	0.0469	0.315	0.558	0.45	59.472	1.051	4.375	739	911	719	896	0.1222

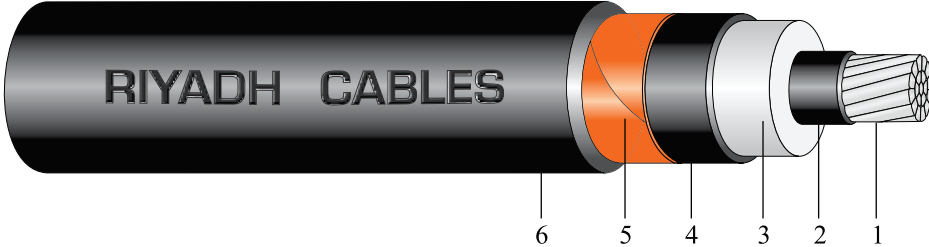
(1) The code numbers to be read in conjunction with 05120101 at the beginning. Example for 150 mm<sup>2</sup> cable, the code number is 0512010116

Code number for other types of insulation screen: Replace the 6<sup>th</sup> digit as follows:  
2 for S + CUW ; 3 for B + CUT ; 4 for B + CUW

(2) Laying conditions: Underground temperature of soil 20°C, Ground thermal resistivity 100°C cm/W, Ambient temperature 30°C. Depth of laying = 700 mm (For other laying conditions, please refer to page 71 and 72 for de-rating factors)



**UNARMoured SINGLE CORE CABLES**  
**ALUMINIUM CONDUCTORS IEC 60502-2 U<sub>o</sub>/U(U<sub>m</sub>)=18/30(36) kV**



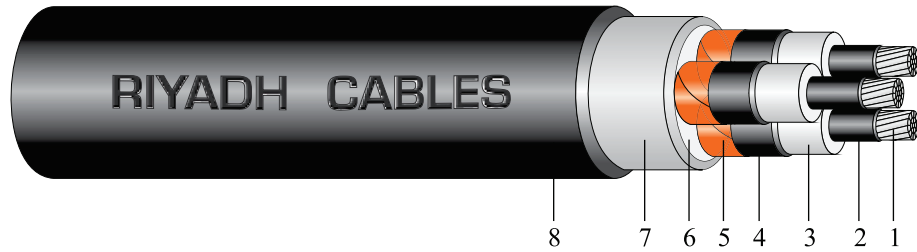
- 1. Conductor
- 2. Conductor Screen
- 3. XLPE Insulation
- 4. Insulation Screen (Non-metallic)
- 5. Insulation Screen (Metallic)
- 6. Outer Sheath

Item code (1)	Size	Diameter of Conductor (Approx.)	Nominal Insulation Thickness	Diameter over insulation (Approx.)	Nominal Outer Sheath thickness		Overall Diameter (Approx.)		Weight of Cable (Approx.)	
					CUT	CUW	CUT	CUW	CUT	CUW
	mm <sup>2</sup>	mm	mm	mm	mm	mm	mm	mm	kg/km	kg/km
12	50	8.3	8.0	25.9	1.9	2.0	32	34	1025	1250
13	70	9.7	8.0	27.3	2.0	2.0	34	35	1150	1350
14	95	11.55	8.0	29.15	2.1	2.1	36	38	1325	1525
15	120	12.95	8.0	30.55	2.1	2.1	38	39	1450	1650
16	150	14.3	8.0	31.9	2.1	2.2	39	40	1575	1875
17	185	15.9	8.0	33.5	2.2	2.2	41	42	1750	2050
18	240	18.4	8.0	36.0	2.3	2.3	43	45	2050	2350
19	300	20.5	8.0	38.1	2.3	2.4	46	47	2300	2625
20	400	24.0	8.0	41.6	2.5	2.5	49	51	2725	3150
21	500	27.0	8.0	44.6	2.5	2.6	53	54	3175	3600
22	630	30.4	8.0	48.0	2.7	2.7	56	58	3725	4175

Size	Max. DC Resistance @ 20°C	Inductance		Capacitance	Adiabatic Short Circuit Current for 1 second			Current Carrying Capacity (2)				Voltage drop per phase
		Trefoil	Flat		Conductor	CUT	CUW	CUT		CUW		
		mH/km	mH/km	μF/km				kA	kA	kA	Direct Buried	
mm <sup>2</sup>	Ohm/km	mH/km	mH/km	μF/km	kA	kA	kA	Amps	Amps	Amps	Amps	V/A.Km
50	0.641	0.487	0.761	0.14	4.720	0.649	2.000	180	191	180	193	0.7678
70	0.443	0.459	0.728	0.16	6.608	0.686	2.000	220	236	220	239	0.5582
95	0.320	0.446	0.712	0.17	8.968	0.725	2.000	263	287	264	290	0.4297
120	0.253	0.430	0.693	0.18	11.328	0.760	2.000	299	331	300	334	0.3573
150	0.206	0.417	0.677	0.19	14.160	0.793	3.125	335	374	335	377	0.3063
185	0.164	0.404	0.661	0.21	17.464	0.832	3.125	379	429	379	431	0.2602
240	0.125	0.388	0.641	0.23	22.656	0.888	3.125	441	507	439	509	0.2174
300	0.100	0.375	0.624	0.25	28.320	0.935	3.125	497	581	494	581	0.1888
400	0.0778	0.360	0.604	0.27	37.760	1.000	4.375	572	682	563	677	0.1630
500	0.0605	0.349	0.589	0.30	47.200	1.081	4.375	651	790	639	782	0.1432
630	0.0469	0.336	0.571	0.33	59.472	1.168	4.375	740	914	721	900	0.1270

- (1) The code numbers to be read in conjunction with 06120101 at the beginning. Example for 150 mm<sup>2</sup> cable, the code number is 0612010116
- Code number for other types of insulation screen: Replace the 6<sup>th</sup> digit as follows:  
 2 for S + CUW ; 3 for B + CUT ; 4 for B + CUW
- (2) Laying conditions: Underground temperature of soil 20°C, Ground thermal resistivity 100°C cm/W, Ambient temperature 30°C. Depth of laying = 700 mm (For other laying conditions, please refer to page 71 and 72 for de-rating factors)

**UNARMoured THREE CORE CABLES**  
**ALUMINIUM CONDUCTORS**                      **IEC 60502-2**                      **U<sub>o</sub>/U<sub>Um</sub>=3.5/6(7.2) kV**



- |                                     |                                 |
|-------------------------------------|---------------------------------|
| 1. Conductor                        | 5. Insulation Screen (Metallic) |
| 2. Conductor Screen                 | 6. PP Filler                    |
| 3. XLPE Insulation                  | 7. Bedding                      |
| 4. Insulation Screen (Non-metallic) | 8. Outer Sheath                 |

Item code (1)	Size	Diameter of Conductor (Approx.)	Nominal Insulation Thickness	Diameter over insulation (Approx.)	Nominal Outer Sheath thickness		Overall Diameter (Approx.)		Weight of Cable (Approx.)	
					CUT	CUW	CUT	CUW	CUT	CUW
	mm <sup>2</sup>	mm	mm	mm	mm	mm	mm	mm	kg/km	kg/km
10	25	6.0	2.5	12.6	2.1	2.1	40	43	1350	1475
11	35	7.1	2.5	13.7	2.1	2.2	42	45	1700	1825
12	50	8.3	2.5	14.9	2.2	2.3	45	48	1975	2100
13	70	9.7	2.5	16.3	2.3	2.4	49	51	2325	2450
14	95	11.55	2.5	18.15	2.5	2.5	53	56	2800	2900
15	120	12.95	2.5	19.55	2.6	2.6	57	59	3225	3350
16	150	14.3	2.5	20.9	2.7	2.8	60	63	3650	3875
17	185	15.9	2.5	22.50	2.8	2.9	63	67	4250	4375
18	240	18.4	2.6	25.2	3.0	3.0	70	72	5075	5225
19	300	20.50	2.8	27.70	3.2	3.2	76	78	6050	6200

Size	Max. DC Resistance @ 20°C	Nominal Inductance	Capacitance	Adiabatic Short Circuit Current for 1 second			Current Carrying Capacity (2)				Voltage drop per phase
				Conductor	CUT	CUW	CUT		CUW		
							Direct Buried	In Air	Direct Buried	In Air	
mm <sup>2</sup>	Ohm/km	mH/km	μF/km	kA	kA	kA	Amps	Amps	Amps	Amps	V/A.Km
25	1.20	0.305	0.26	2.360	1.023	2.000	120	115	115	110	1.3002
35	0.868	0.294	0.29	3.304	1.092	2.000	143	139	137	133	0.9569
50	0.641	0.283	0.31	4.720	1.176	2.000	168	166	162	159	0.7216
70	0.443	0.272	0.36	6.608	1.29	2.000	205	205	199	197	0.5159
95	0.320	0.266	0.39	8.968	1.407	2.000	246	249	238	240	0.3890
120	0.253	0.259	0.43	11.328	1.512	2.000	278	285	271	276	0.3186
150	0.206	0.253	0.47	14.160	1.611	3.125	311	322	303	312	0.2692
185	0.164	0.250	0.52	17.464	1.728	3.125	352	369	344	358	0.2253
240	0.125	0.243	0.56	22.656	1.911	3.125	408	434	400	423	0.1846
300	0.100	0.236	0.58	28.320	2.079	3.125	458	494	450	483	0.1574

(1) The code numbers to be read in conjunction with 02120103 at the beginning. Example for 150 mm<sup>2</sup> cable, the code number is 0212010316

Code number for other types of insulation screen: Replace the 6<sup>th</sup> digit as follows:  
 2 for S + CUW ; 3 for B + CUT ; 4 for B + CUW

(2) Laying conditions: Underground temperature of soil 20°C, Ground thermal resistivity 100°C cm/W, Ambient temperature 30°C. Depth of laying = 700 mm (For other laying conditions, please refer to page 71 and 72 for de-rating factors)

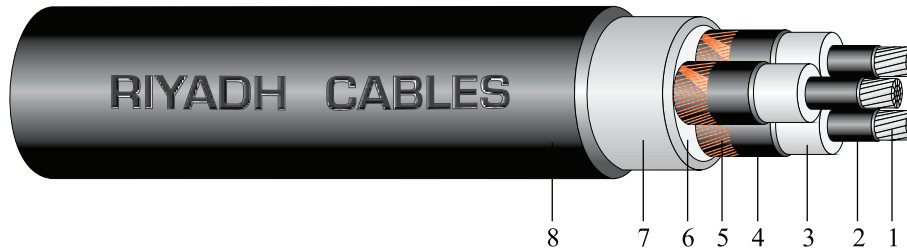


## UNARMoured THREE CORE CABLES

ALUMINIUM CONDUCTORS

IEC 60502-2

U<sub>o</sub>/U<sub>(Um)</sub>=6/10(12) kV



- |                                     |                                 |
|-------------------------------------|---------------------------------|
| 1. Conductor                        | 5. Insulation Screen (Metallic) |
| 2. Conductor Screen                 | 6. PP Filler                    |
| 3. XLPE Insulation                  | 7. Bedding                      |
| 4. Insulation Screen (Non-metallic) | 8. Outer Sheath                 |

Item code (1)	Size	Diameter of Conductor (Approx.)	Nominal Insulation Thickness	Diameter over insulation (Approx.)	Nominal Outer Sheath thickness		Overall Diameter (Approx.)		Weight of Cable (Approx.)	
					CUT	CUW	CUT	CUW	CUT	CUW
	mm <sup>2</sup>	mm	mm	mm	mm	mm	mm	mm	kg/km	kg/km
10	25	6.0	3.4	14.4	2.2	2.2	44	46	1575	1675
11	35	7.1	3.4	15.5	2.3	2.3	47	49	2025	2150
12	50	8.3	3.4	16.7	2.4	2.4	50	52	2300	2400
13	70	9.7	3.4	18.1	2.5	2.5	53	55	2675	2750
14	95	11.55	3.4	19.95	2.7	2.7	58	60	3225	3325
15	120	12.95	3.4	21.35	2.7	2.8	61	63	3600	3725
16	150	14.3	3.4	22.7	2.8	2.9	64	67	4025	4250
17	185	15.9	3.4	24.3	2.9	3.0	67	70	4575	4750
18	240	18.4	3.4	26.8	3.1	3.2	74	76	5525	5725
19	300	20.5	3.4	28.9	3.3	3.3	79	81	6375	6525

Size	Max. DC Resistance @ 20°C	Nominal Inductance	Capacitance	Adiabatic Short Circuit Current for 1 second			Current Carrying Capacity (2)				Voltage drop per phase
				Conductor	CUT	CUW	CUT		CUW		
							Direct Buried	In Air	Direct Buried	In Air	
mm <sup>2</sup>	Ohm/km	mH/km	μF/km	kA	kA	kA	Amps	Amps	Amps	Amps	V/A.Km
25	1.20	0.331	0.21	2.360	1.149	2.000	120	117	115	111	1.3061
35	0.868	0.318	0.23	3.304	1.218	2.000	143	140	137	134	0.9623
50	0.641	0.308	0.25	4.720	1.302	2.000	168	167	162	160	0.7273
70	0.443	0.292	0.29	6.608	1.416	2.000	205	207	198	198	0.5204
95	0.320	0.285	0.31	8.968	1.533	2.000	245	250	237	241	0.3933
120	0.253	0.276	0.34	11.328	1.638	2.000	278	287	270	277	0.3224
150	0.206	0.269	0.37	14.160	1.737	3.125	310	323	302	313	0.2728
185	0.164	0.263	0.40	17.464	1.854	3.125	351	370	343	358	0.2283
240	0.125	0.255	0.44	22.656	2.022	3.125	407	435	398	422	0.1873
300	0.100	0.248	0.48	28.320	2.163	3.125	458	494	449	482	0.1601

(1) The code numbers to be read in conjunction with 03120103 at the beginning. Example for 150 mm<sup>2</sup> cable, the code number is 0312010316

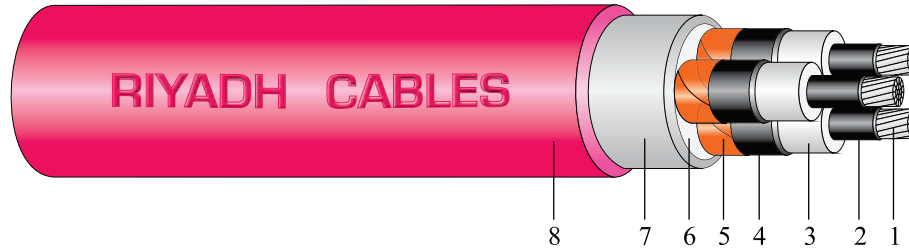
Code number for other types of insulation screen: Replace the 6<sup>th</sup> digit as follows:  
2 for S + CUW ; 3 for B + CUT ; 4 for B + CUW

(2) Laying conditions: Underground temperature of soil 20°C, Ground thermal resistivity 100°C cm/W, Ambient temperature 30°C. Depth of laying = 700 mm (For other laying conditions, please refer to page 71 and 72 for de-rating factors)



## UNARMoured THREE CORE CABLES

ALUMINIUM CONDUCTORS      IEC 60502-2      U<sub>o</sub>/U<sub>(Um)</sub>=8.7/15(17.5) kV



- |                                     |                                 |
|-------------------------------------|---------------------------------|
| 1. Conductor                        | 5. Insulation Screen (Metallic) |
| 2. Conductor Screen                 | 6. PP Filler                    |
| 3. XLPE Insulation                  | 7. Bedding                      |
| 4. Insulation Screen (Non-metallic) | 8. Outer Sheath                 |

Item code (1)	Size	Diameter of Conductor (Approx.)	Nominal Insulation Thickness	Diameter over insulation (Approx.)	Nominal Outer Sheath thickness		Overall Diameter (Approx.)		Weight of Cable (Approx.)	
					CUT	CUW	CUT	CUW	CUT	CUW
	mm <sup>2</sup>	mm	mm	mm	mm	mm	mm	mm	kg/km	kg/km
10	25	6.0	4.5	16.6	2.4	2.4	49	52	1950	2025
11	35	7.1	4.5	17.7	2.5	2.5	52	55	2425	2525
12	50	8.3	4.5	18.9	2.6	2.6	55	57	2700	2800
13	70	9.7	4.5	20.3	2.7	2.7	58	61	3150	3250
14	95	11.55	4.5	22.15	2.8	2.8	63	65	3675	3875
15	120	12.95	4.5	23.55	2.9	2.9	66	68	4075	4200
16	150	14.3	4.5	24.9	3.0	3.1	69	72	4525	4725
17	185	15.9	4.5	26.5	3.1	3.2	73	76	5175	5350
18	240	18.4	4.5	29.0	3.3	3.3	79	81	6125	6275
19	300	20.5	4.5	31.1	3.4	3.5	84	86	6975	7150

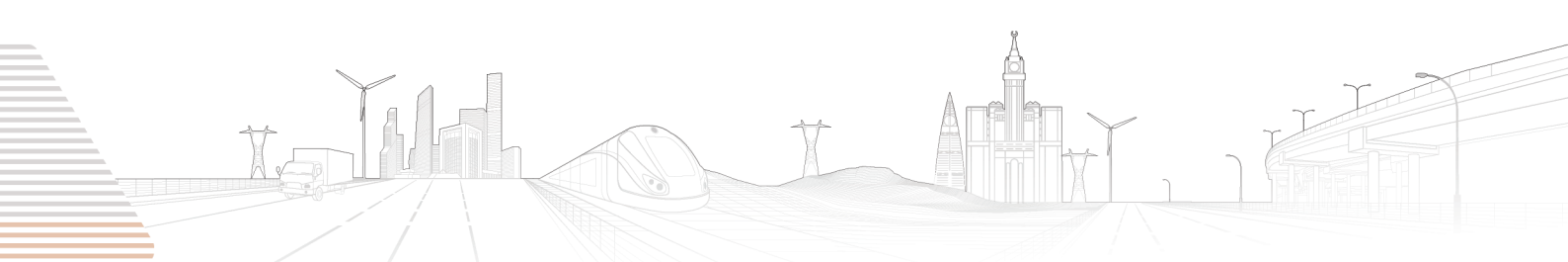
Size	Max. DC Resistance @ 20°C	Nominal Inductance	Capacitance	Adiabatic Short Circuit Current for 1 second			Current Carrying Capacity (2)				Voltage drop per phase
				Conductor	CUT	CUW	CUT		CUW		
							Direct Buried	In Air	Direct Buried	In Air	
mm <sup>2</sup>	Ohm/km	mH/km	μF/km	kA	kA	kA	Amps	Amps	Amps	Amps	V/A.Km
25	1.20	0.359	0.17	2.360	1.302	2.000	120	119	114	112	1.3125
35	0.868	0.344	0.19	3.304	1.371	2.000	142	142	137	135	0.9682
50	0.641	0.332	0.20	4.720	1.455	2.000	168	169	161	161	0.7327
70	0.443	0.314	0.23	6.608	1.569	2.000	204	208	197	199	0.5254
95	0.320	0.306	0.25	8.968	1.686	2.000	244	251	236	242	0.3980
120	0.253	0.296	0.27	11.328	1.791	2.000	277	288	269	278	0.3270
150	0.206	0.288	0.29	14.160	1.89	3.125	310	325	301	313	0.2771
185	0.164	0.280	0.32	17.464	2.007	3.125	350	371	341	358	0.2321
240	0.125	0.271	0.35	22.656	2.175	3.125	405	434	397	422	0.1909
300	0.100	0.260	0.39	28.320	2.316	3.125	456	494	448	481	0.1628

(1) The code numbers to be read in conjunction with 04120103 at the beginning. Example for 150 mm<sup>2</sup> cable, the code number is 0412010316

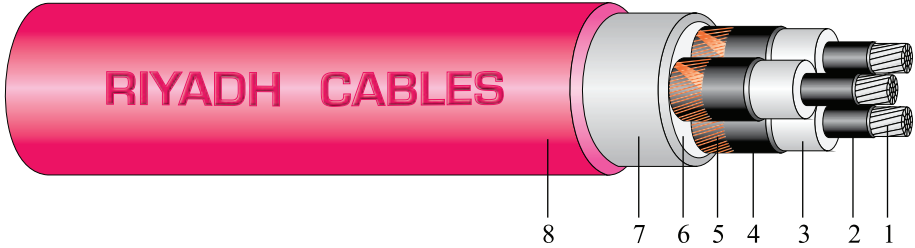
Code number for other types of insulation screen: Replace the 6<sup>th</sup> digit as follows:  
2 for S + CUW ; 3 for B + CUT ; 4 for B + CUW

(2) Laying conditions: Underground temperature of soil 20°C, Ground thermal resistivity 100°C cm/W, Ambient temperature 30°C. Depth of laying = 700 mm (For other laying conditions, please refer to page 71 and 72 for de-rating factors)





**UNARMoured THREE CORE CABLES**  
**ALUMINIUM CONDUCTORS**                      **IEC 60502-2**                      **U<sub>o</sub>/U<sub>(Um)</sub>=12/20(24) kV**



- |                                     |                                 |
|-------------------------------------|---------------------------------|
| 1. Conductor                        | 5. Insulation Screen (Metallic) |
| 2. Conductor Screen                 | 6. PP Filler                    |
| 3. XLPE Insulation                  | 7. Bedding                      |
| 4. Insulation Screen (Non-metallic) | 8. Outer Sheath                 |

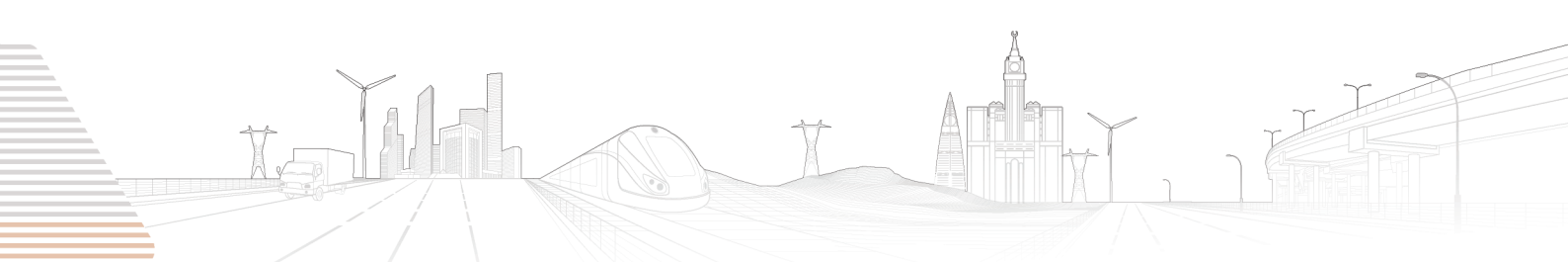
Item code (1)	Size	Diameter of Conductor (Approx.)	Nominal Insulation Thickness	Diameter over insulation (Approx.)	Nominal Outer Sheath thickness		Overall Diameter (Approx.)		Weight of Cable (Approx.)	
					CUT	CUW	CUT	CUW	CUT	CUW
	mm <sup>2</sup>	mm	mm	mm	mm	mm	mm	mm	kg/km	kg/km
10	25	6.0	6.0	19.6	2.6	2.6	56	59	2425	2575
11	35	7.1	5.5	19.7	2.6	2.7	57	60	2850	3000
12	50	8.3	5.5	20.9	2.7	2.8	60	61	3150	3125
13	70	9.7	5.5	22.3	2.8	2.9	63	66	3550	3700
14	95	11.55	5.5	24.15	2.9	3.0	67	70	4100	4250
15	120	12.95	5.5	25.55	3.0	3.1	70	73	4525	4700
16	150	14.3	5.5	26.9	3.1	3.2	74	77	5075	5250
17	185	15.9	5.5	28.5	3.3	3.3	78	80	5700	5850
18	240	18.4	5.5	31.0	3.4	3.5	83	86	6650	6925
19	300	20.5	5.5	33.1	3.6	3.6	88	91	7575	7700

Size	Max. DC Resistance @ 20°C	Nominal Inductance	Capacitance	Adiabatic Short Circuit Current for 1 second			Current Carrying Capacity (2)				Voltage drop per phase
				Conductor	CUT	CUW	CUT		CUW		
							Direct Buried	In Air	Direct Buried	In Air	
mm <sup>2</sup>	Ohm/km	mH/km	μF/km	kA	kA	kA	Amps	Amps	Amps	Amps	V/A.Km
25	1.20	0.394	0.14	2.360	1.512	2.000	120	120	114	113	1.3203
35	0.868	0.365	0.16	3.304	1.512	2.000	142	143	136	136	0.9730
50	0.641	0.352	0.18	4.720	1.596	2.000	167	169	161	162	0.7372
70	0.443	0.332	0.20	6.608	1.707	2.000	204	209	197	200	0.5295
95	0.320	0.323	0.21	8.968	1.827	2.000	243	252	236	242	0.4019
120	0.253	0.312	0.23	11.328	1.932	2.000	276	289	268	278	0.3306
150	0.206	0.303	0.25	14.160	2.028	3.125	308	325	300	313	0.2805
185	0.164	0.295	0.27	17.464	2.148	3.125	349	370	340	358	0.2355
240	0.125	0.285	0.30	22.656	2.316	3.125	404	434	395	422	0.1941
300	0.100	0.270	0.33	28.320	2.457	3.125	456	494	447	481	0.1651

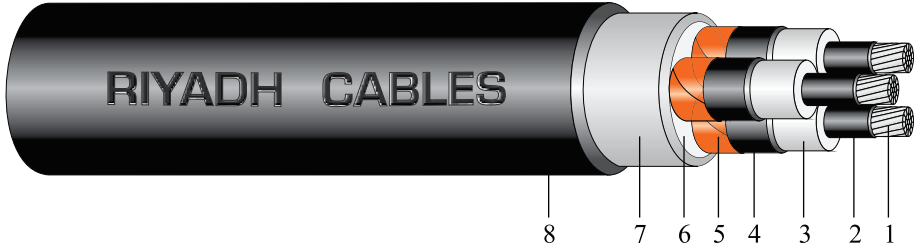
(1) The code numbers to be read in conjunction with 05120103 at the beginning. Example for 150 mm<sup>2</sup> cable, the code number is 0512010316

Code number for other types of insulation screen: Replace the 6<sup>th</sup> digit as follows:  
 2 for S + CUW ; 3 for B + CUT ; 4 for B + CUW

(2) Laying conditions: Underground temperature of soil 20°C, Ground thermal resistivity 100°C cm/W, Ambient temperature 30°C. Depth of laying = 700 mm (For other laying conditions, please refer to page 71 and 72 for de-rating factors)



**UNARMoured THREE CORE CABLES**  
**ALUMINIUM CONDUCTORS**                      **IEC 60502-2**                      **U<sub>o</sub>/U(U<sub>m</sub>)=18/30(36) kV**



- |                                     |                                 |
|-------------------------------------|---------------------------------|
| 1. Conductor                        | 5. Insulation Screen (Metallic) |
| 2. Conductor Screen                 | 6. PP Filler                    |
| 3. XLPE Insulation                  | 7. Bedding                      |
| 4. Insulation Screen (Non-metallic) | 8. Outer Sheath                 |

Item code (1)	Size	Diameter of Conductor (Approx.)	Nominal Insulation Thickness	Diameter over insulation (Approx.)	Nominal Outer Sheath thickness		Overall Diameter (Approx.)		Weight of Cable (Approx.)	
					CUT	CUW	CUT	CUW	CUT	CUW
	mm <sup>2</sup>	mm	mm	mm	mm	mm	mm	mm	kg/km	kg/km
12	50	8.30	8.0	25.9	3.1	3.1	72	74	4300	4425
13	70	9.7	8.0	27.3	3.2	3.2	75	77	4825	4950
14	95	11.55	8.0	29.15	3.4	3.4	79	82	5475	5600
15	120	12.95	8.0	30.55	3.4	3.5	82	85	5925	6100
16	150	14.3	8.0	31.9	3.5	3.6	85	88	6450	6625
17	185	15.9	8.0	33.5	3.6	3.7	89	92	7100	7275
18	240	18.4	8.0	36.0	3.8	3.9	95	98	8275	8475
19	300	20.5	8.0	38.1	4.0	4.0	100	103	9275	9425

Size	Max. DC Resistance @ 20°C	Nominal Inductance	Capacitance	Adiabatic Short Circuit Current for 2 second			Current Carrying Capacity (2)				Voltage drop per phase
				Conductor	CUT	CUW	CUT		CUW		
							Direct Buried	In Air	Direct Buried	In Air	
mm <sup>2</sup>	Ohm/km	mH/km	μF/km	kA	kA	kA	Amps	Amps	Amps	Amps	V/A Km
50	0.641	0.404	0.14	4.720	1.947	2.000	166	170	160	163	0.7490
70	0.443	0.380	0.16	6.608	2.058	2.000	201	208	196	201	0.5404
95	0.320	0.369	0.17	8.968	2.175	2.000	241	252	234	243	0.4123
120	0.253	0.355	0.18	11.328	2.28	2.000	274	289	267	278	0.3403
150	0.206	0.345	0.19	14.160	2.379	3.125	306	325	299	314	0.2900
185	0.164	0.334	0.21	17.464	2.496	3.125	347	370	338	358	0.2443
240	0.125	0.321	0.23	22.656	2.664	3.125	402	433	393	420	0.2022
300	0.100	0.308	0.25	28.320	2.805	3.125	452	492	444	479	0.1737

(1) The code numbers to be read in conjunction with 06120103 at the beginning. Example for 150 mm<sup>2</sup> cable, the code number is 0612010316

Code number for other types of insulation screen: Replace the 6<sup>th</sup> digit as follows:  
 2 for S + CUW ; 3 for B + CUT ; 4 for B + CUW

(2) Laying conditions: Underground temperature of soil 20°C, Ground thermal resistivity 100°C cm/W, Ambient temperature 30°C. Depth of laying = 700 mm (For other laying conditions, please refer to page 71 and 72 for de-rating factors)

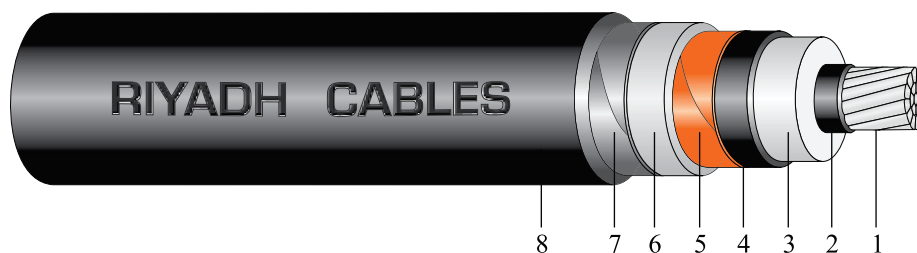


## ARMoured SINGLE CORE CABLES

ALUMINIUM CONDUCTORS

IEC 60502-2

U<sub>o</sub>/U<sub>m</sub>=3.5/6(7.2) kV



- |                                     |                                 |
|-------------------------------------|---------------------------------|
| 1. Conductor                        | 5. Insulation Screen (Metallic) |
| 2. Conductor Screen                 | 6. Bedding                      |
| 3. XLPE Insulation                  | 7. Aluminium Tape Armour        |
| 4. Insulation Screen (non-metallic) | 8. Outer Sheath                 |

Item code (1)	Size	Diameter of Conductor (Approx.)	Nominal Insulation Thickness	Diameter over insulation (Approx.)	Number & Nominal Thickness of Aluminium Tape	Nominal Outer Sheath thickness		Overall Diameter (Approx.)		Weight of Cable (Approx.)	
						CUT	CUW	CUT	CUW	CUT	CUW
	mm <sup>2</sup>	mm	mm	mm	mm	mm	mm	mm	mm	kg/km	kg/km
10	25	6.0	2.5	12.6	2x0.5	1.8	1.8	23	25	650	850
11	35	7.1	2.5	13.7	2x0.5	1.8	1.8	24	26	700	900
12	50	8.3	2.5	14.9	2x0.5	1.8	1.8	26	27	775	975
13	70	9.7	2.5	16.3	2x0.5	1.8	1.8	27	28	900	1075
14	95	11.55	2.5	18.15	2x0.5	1.8	1.9	29	30	1025	1250
15	120	12.95	2.5	19.55	2x0.5	1.9	1.9	30	32	1150	1350
16	150	14.3	2.5	20.9	2x0.5	1.9	2.0	32	33	1275	1575
17	185	15.9	2.5	22.5	2x0.5	2.0	2.0	33	35	1450	1725
18	240	18.4	2.6	25.2	2x0.5	2.1	2.1	36	38	1725	2000
19	300	20.5	2.8	27.7	2x0.5	2.1	2.2	39	40	2000	2300
20	400	24.0	3.0	31.6	2x0.5	2.3	2.3	43	45	2450	2875
21	500	27.0	3.2	35.0	2x0.5	2.4	2.4	47	49	2925	3350
22	630	30.4	3.2	38.4	2x0.5	2.5	2.5	51	52	3500	3925

Size	Max. DC Resistance @ 20°C	Inductance		Capacitance	Adiabatic Short Circuit Current for 1 second			Current Carrying Capacity (2)				Voltage drop per phase
		Trefoil	Flat		Conductor	CUT	CUW	CUT		CUW		
				Direct Buried				In Air	Direct Buried	In Air		
mm <sup>2</sup>	Ohm/km	mH/km	mH/km	µF/km	kA	kA	kA	Amps	Amps	Amps	Amps	V/A.Km
25	1.20	0.473	0.785	0.26	2.360	0.341	2.000	128	129	129	131	1.3382
35	0.868	0.461	0.760	0.29	3.304	0.364	2.000	153	156	154	159	0.9947
50	0.641	0.444	0.740	0.31	4.720	0.392	2.000	181	187	182	190	0.7580
70	0.443	0.418	0.708	0.37	6.608	0.430	2.000	221	232	222	235	0.5489
95	0.320	0.406	0.692	0.39	8.968	0.469	2.000	265	283	265	287	0.4206
120	0.253	0.392	0.637	0.44	11.328	0.504	2.000	301	326	301	330	0.3487
150	0.206	0.380	0.658	0.48	14.160	0.537	3.125	336	369	335	373	0.2980
185	0.164	0.369	0.642	0.52	17.464	0.576	3.125	380	424	379	427	0.2523
240	0.125	0.356	0.623	0.56	22.656	0.637	3.125	441	502	438	504	0.2101
300	0.100	0.346	0.608	0.58	28.320	0.693	3.125	496	575	492	576	0.1823
400	0.0778	0.334	0.589	0.61	37.760	0.767	4.375	567	675	556	668	0.1571
500	0.0605	0.327	0.576	0.64	47.200	0.858	4.375	644	782	629	770	0.1382
630	0.0469	0.315	0.558	0.71	59.472	0.944	4.375	728	902	706	882	0.1222

(1) The code numbers to be read in conjunction with 02120131 at the beginning. Example for 150 mm<sup>2</sup> cable, the code number is 0212013116

Code number for other types of insulation screen: Replace the 6<sup>th</sup> digit as follows:  
2 for S + CUW ; 3 for B + CUT ; 4 for B + CUW

(2) Laying conditions: Underground temperature of soil 20°C, Ground thermal resistivity 100°C cm/W, Ambient temperature 30°C. Depth of laying = 700 mm (For other laying conditions, please refer to page 71 and 72 for de-rating factors)

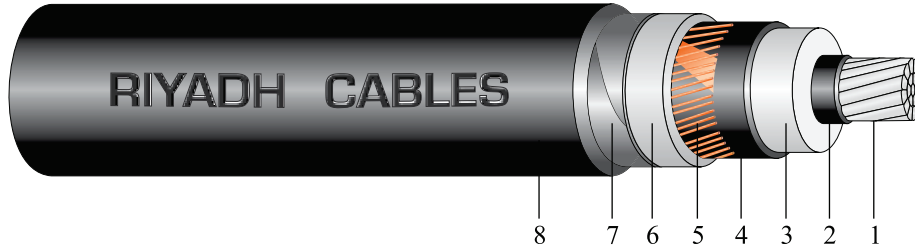
(3) For current carrying capacity of cables with single point bonding please refer to page 70

## ARMoured SINGLE CORE CABLES

**ALUMINIUM CONDUCTORS**

**IEC 60502-2**

**U<sub>0</sub>/U<sub>(Um)</sub>=6/10(12) kV**



- |                                     |                                 |
|-------------------------------------|---------------------------------|
| 1. Conductor                        | 5. Insulation Screen (Metallic) |
| 2. Conductor Screen                 | 6. Bedding                      |
| 3. XLPE Insulation                  | 7. Aluminium Tape Armour        |
| 4. Insulation Screen (non-metallic) | 8. Outer Sheath                 |

Item code (1)	Size	Diameter of Conductor (Approx.)	Nominal Insulation Thickness	Diameter over insulation (Approx.)	Number & Nominal Thickness of Aluminium Tape	Nominal Outer Sheath thickness		Overall Diameter (Approx.)		Weight of Cable (Approx.)	
						CUT	CUW	CUT	CUW	CUT	CUW
	mm <sup>2</sup>	mm	mm	mm	mm	mm	mm	mm	mm	kg/km	kg/km
10	25	6.0	3.4	14.4	2x0.5	1.8	1.8	25	26	725	900
11	35	7.1	3.4	15.5	2x0.5	1.8	1.8	26	27	800	1000
12	50	8.3	3.4	16.7	2x0.5	1.8	1.8	27	29	875	1075
13	70	9.7	3.4	18.1	2x0.5	1.8	1.9	29	30	975	1200
14	95	11.55	3.4	19.95	2x0.5	1.9	1.9	31	32	1150	1350
15	120	12.95	3.4	21.35	2x0.5	1.9	2.0	32	34	1250	1475
16	150	14.3	3.4	22.7	2x0.5	2.0	2.0	34	35	1400	1675
17	185	15.9	3.4	24.3	2x0.5	2.0	2.1	35	37	1550	1850
18	240	18.4	3.4	26.8	2x0.5	2.1	2.2	38	40	1850	2150
19	300	20.5	3.4	28.9	2x0.5	2.2	2.2	40	42	2100	2400
20	400	24.0	3.4	32.4	2x0.5	2.3	2.3	44	46	2500	2925
21	500	27.0	3.4	35.4	2x0.5	2.4	2.4	47	49	2950	3375
22	630	30.4	3.4	38.8	2x0.5	2.5	2.6	51	53	3525	4000

Size	Max. DC Resistance @ 20°C	Inductance		Capacitance	Adiabatic Short Circuit Current for 1 second			Current Carrying Capacity (2)				Voltage drop per phase
		Trefoil	Flat		Conductor	CUT	CUW	CUT		CUW		
				Direct Buried				In Air	Direct Buried	In Air		
mm <sup>2</sup>	Ohm/km	mH/km	mH/km	μF/km	kA	kA	kA	Amps	Amps	Amps	Amps	V/A.Km
25	1.20	0.488	0.790	0.21	2.360	0.383	2.000	128	130	129	132	1.3416
35	0.868	0.472	0.765	0.23	3.304	0.406	2.000	153	157	154	160	0.9972
50	0.641	0.455	0.745	0.25	4.720	0.434	2.000	181	188	182	191	0.7605
70	0.443	0.428	0.713	0.29	6.608	0.472	2.000	221	234	221	237	0.5512
95	0.320	0.416	0.697	0.31	8.968	0.511	2.000	264	285	265	288	0.4229
120	0.253	0.401	0.678	0.34	11.328	0.546	2.000	300	328	301	331	0.3507
150	0.206	0.390	0.663	0.37	14.160	0.579	3.125	336	371	335	375	0.3002
185	0.164	0.378	0.647	0.40	17.464	0.618	3.125	380	426	379	429	0.2543
240	0.125	0.363	0.627	0.45	22.656	0.674	3.125	441	504	438	506	0.2117
300	0.100	0.351	0.611	0.49	28.320	0.721	3.125	496	577	492	577	0.1834
400	0.0778	0.338	0.591	0.55	37.760	0.786	4.375	567	676	557	669	0.1581
500	0.0605	0.328	0.576	0.60	47.200	0.867	4.375	644	782	629	771	0.1384
630	0.0469	0.317	0.560	0.68	59.472	0.954	4.375	729	902	706	882	0.1227

(1) The code numbers to be read in conjunction with 03120131 at the beginning. Example for 150 mm<sup>2</sup> cable, the code number is 0312013116

Code number for other types of insulation screen: Replace the 6<sup>th</sup> digit as follows:  
2 for S + CUW ; 3 for B + CUT ; 4 for B + CUW

(2) Laying conditions: Underground temperature of soil 20°C, Ground thermal resistivity 100°C cm/W, Ambient temperature 30°C. Depth of laying = 700 mm (For other laying conditions, please refer to page 71 and 72 for de-rating factors)

(3) For current carrying capacity of cables with single point bonding please refer to page 70

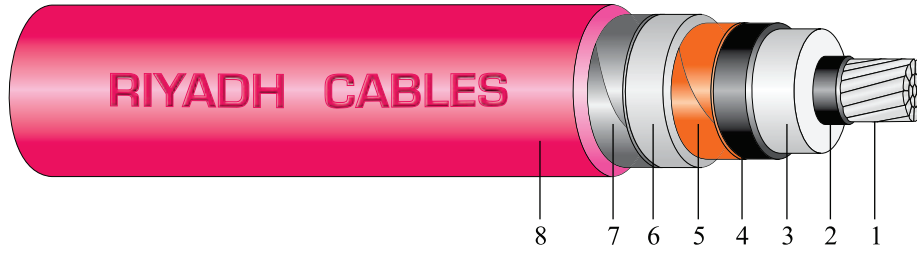


## ARMoured SINGLE CORE CABLES

ALUMINIUM CONDUCTORS

IEC 60502-2

$U_0/U(U_m)=8.7/15(17.5)$  kV



- |                                     |                                 |
|-------------------------------------|---------------------------------|
| 1. Conductor                        | 5. Insulation Screen (Metallic) |
| 2. Conductor Screen                 | 6. Bedding                      |
| 3. XLPE Insulation                  | 7. Aluminium Tape Armour        |
| 4. Insulation Screen (non-metallic) | 8. Outer Sheath                 |

Item code (1)	Size	Diameter of Conductor (Approx.)	Nominal Insulation Thickness	Diameter over insulation (Approx.)	Number & Nominal Thickness of Aluminium Tape	Nominal Outer Sheath thickness		Overall Diameter (Approx.)		Weight of Cable (Approx.)	
						CUT	CUW	CUT	CUW	CUT	CUW
	mm <sup>2</sup>	mm	mm	mm	mm	mm	mm	mm	mm	kg/km	kg/km
10	25	6.0	4.5	16.6	2x0.5	1.8	1.8	27	29	825	1025
11	35	7.1	4.5	17.7	2x0.5	1.8	1.8	28	30	900	1100
12	50	8.3	4.5	18.9	2x0.5	1.9	1.9	30	31	1000	1200
13	70	9.7	4.5	20.3	2x0.5	1.9	1.9	31	33	1125	1325
14	95	11.55	4.5	22.15	2x0.5	2.0	2.0	33	35	1300	1500
15	120	12.95	4.5	23.55	2x0.5	2.0	2.0	35	36	1400	1625
16	150	14.3	4.5	24.9	2x0.5	2.1	2.1	36	38	1550	1850
17	185	15.9	4.5	26.5	2x0.5	2.1	2.2	38	39	1725	1850
18	240	18.4	4.5	29.0	2x0.5	2.2	2.2	41	42	2000	2300
19	300	20.5	4.5	31.1	2x0.5	2.3	2.3	43	44	2300	2600
20	400	24.0	4.5	34.6	2x0.5	2.4	2.4	47	48	2725	3125
21	500	27.0	4.5	37.6	2x0.5	2.5	2.5	50	52	3200	3625
22	630	30.4	4.5	41.0	2x0.5	2.6	2.6	54	55	3750	4200

Size	Max. DC Resistance @ 20°C	Inductance		Capacitance	Adiabatic Short Circuit Current for 1 second			Current Carrying Capacity (2)				Voltage drop per phase
		Trefoil	Flat		Conductor	CUT	CUW	CUT		CUW		
								Direct Buried	In Air	Direct Buried	In Air	
mm <sup>2</sup>	Ohm/km	mH/km	mH/km	μF/km	kA	kA	kA	Amps	Amps	Amps	Amps	V/A.Km
25	1.20	0.505	0.796	0.17	2.360	0.434	2.000	128	132	129	133	1.3454
35	0.868	0.484	0.771	0.19	3.304	0.457	2.000	153	159	154	161	0.9999
50	0.641	0.468	0.751	0.20	4.720	0.485	2.000	181	190	181	193	0.7635
70	0.443	0.441	0.719	0.23	6.608	0.523	2.000	220	235	221	238	0.5542
95	0.320	0.428	0.703	0.25	8.968	0.562	2.000	264	287	264	290	0.4256
120	0.253	0.413	0.684	0.27	11.328	0.597	2.000	300	330	301	333	0.3534
150	0.206	0.401	0.668	0.29	14.160	0.630	3.125	335	373	335	376	0.3027
185	0.164	0.388	0.652	0.32	17.464	0.669	3.125	380	428	378	431	0.2566
240	0.125	0.373	0.632	0.35	22.656	0.725	3.125	440	506	437	507	0.2140
300	0.100	0.361	0.616	0.39	28.320	0.772	3.125	495	578	491	577	0.1857
400	0.0778	0.346	0.596	0.43	37.760	0.837	4.375	567	678	557	671	0.1599
500	0.0605	0.337	0.582	0.48	47.200	0.919	4.375	645	784	629	772	0.1405
630	0.0469	0.325	0.565	0.53	59.472	1.005	4.375	730	904	708	885	0.1245

(1) The code numbers to be read in conjunction with 04120131 at the beginning. Example for 150 mm<sup>2</sup> cable, the code number is 0412013116

Code number for other types of insulation screen: Replace the 6<sup>th</sup> digit as follows:  
2 for S + CUW ; 3 for B + CUT ; 4 for B + CUW

(2) Laying conditions: Underground temperature of soil 20°C, Ground thermal resistivity 100°C cm/W, Ambient temperature 30°C. Depth of laying = 700 mm (For other laying conditions, please refer to page 71 and 72 for de-rating factors)

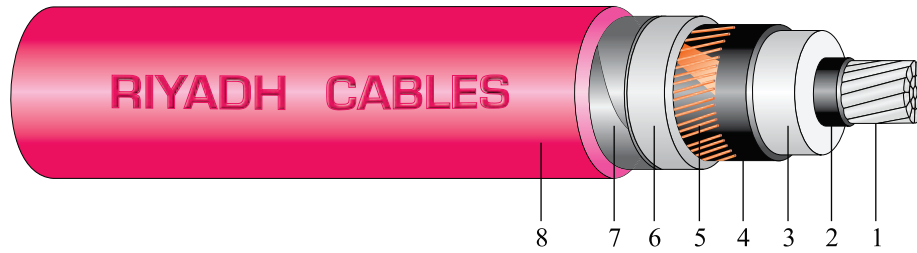
(3) For current carrying capacity of cables with single point bonding please refer to page 70

## ARMOURED SINGLE CORE CABLES

ALUMINIUM CONDUCTORS

IEC 60502-2

U<sub>o</sub>/U<sub>m</sub>=12/20(24) kV



- |                                     |                                 |
|-------------------------------------|---------------------------------|
| 1. Conductor                        | 5. Insulation Screen (Metallic) |
| 2. Conductor Screen                 | 6. Bedding                      |
| 3. XLPE Insulation                  | 7. Aluminium Tape Armour        |
| 4. Insulation Screen (non-metallic) | 8. Outer Sheath                 |

Item code (1)	Size	Diameter of Conductor (Approx.)	Nominal Insulation Thickness	Diameter over insulation (Approx.)	Number & Nominal Thickness of Aluminium Tape	Nominal Outer Sheath thickness		Overall Diameter (Approx.)		Weight of Cable (Approx.)	
						CUT	CUW	CUT	CUW	CUT	CUW
	mm <sup>2</sup>	mm	mm	mm	mm	mm	mm	mm	mm	kg/km	kg/km
10	25	6.0	6.0	19.6	2x0.5	1.9	1.9	31	32	1000	1225
11	35	7.1	5.5	19.7	2x0.5	1.9	1.9	31	32	1025	1225
12	50	8.3	5.5	20.9	2x0.5	1.9	2.0	32	33	1125	1350
13	70	9.7	5.5	22.3	2x0.5	2.0	2.0	33	35	1250	1450
14	95	11.55	5.5	24.15	2x0.5	2.0	2.1	35	37	1409	1650
15	120	12.95	5.5	25.55	2x0.5	2.1	2.1	37	38	1550	1775
16	150	14.3	5.5	26.9	2x0.5	2.1	2.2	38	40	1700	2000
17	185	15.9	5.5	28.5	2x0.5	2.2	2.2	40	41	1875	2175
18	240	18.4	5.5	31.0	2x0.5	2.3	2.3	43	44	2200	2500
19	300	20.5	5.5	33.1	2x0.5	2.3	2.4	45	47	2450	2775
20	400	24.0	5.5	36.6	2x0.5	2.4	2.5	49	51	2900	3350
21	500	27.0	5.5	39.6	2x0.5	2.5	2.6	52	54	3375	3825
22	630	30.4	5.5	43.0	2x0.5	2.6	2.7	56	58	3975	4450

Size	Max. DC Resistance @ 20°C	Inductance		Capacitance	Adiabatic Short Circuit Current for 1 second			Current Carrying Capacity (2)				Voltage drop per phase
		Trefoil	Flat		Conductor	CUT	CUW	CUT		CUW		
								Direct Buried	In Air	Direct Buried	In Air	
mm <sup>2</sup>	Ohm/km	mH/km	mH/km	μF/km	kA	kA	kA	Amps	Amps	Amps	Amps	V/A.Km
25	1.20	0.524	0.805	0.14	2.360	0.504	2.000	128	133	129	134	1.3497
35	0.868	0.496	0.776	0.16	3.304	0.504	2.000	153	160	153	162	1.0026
50	0.641	0.478	0.756	0.18	4.720	0.532	2.000	180	191	181	194	0.7657
70	0.443	0.452	0.724	0.20	6.608	0.569	2.000	220	237	221	239	0.5566
95	0.320	0.438	0.708	0.21	8.968	0.609	2.000	264	288	264	291	0.4279
120	0.253	0.423	0.689	0.23	11.328	0.644	2.000	300	332	300	335	0.3557
150	0.206	0.410	0.673	0.25	14.160	0.676	3.125	335	375	335	378	0.3047
185	0.164	0.397	0.657	0.27	17.464	0.716	3.125	379	430	378	432	0.2586
240	0.125	0.382	0.637	0.30	22.656	0.772	3.125	439	507	437	508	0.2160
300	0.100	0.370	0.621	0.33	28.320	0.819	3.125	495	579	491	579	0.1877
400	0.0778	0.355	0.601	0.37	37.760	0.884	4.375	567	679	557	672	0.1619
500	0.0605	0.345	0.586	0.40	47.200	0.965	4.375	645	785	630	774	0.1423
630	0.0469	0.333	0.569	0.45	59.472	1.051	4.375	730	905	709	887	0.1263

(1) The code numbers to be read in conjunction with 05120131 at the beginning. Example for 150 mm<sup>2</sup> cable, the code number is 0512013116

Code number for other types of insulation screen: Replace the 6<sup>th</sup> digit as follows:  
2 for S + CUW ; 3 for B + CUT ; 4 for B + CUW

(2) Laying conditions: Underground temperature of soil 20°C, Ground thermal resistivity 100°C cm/W, Ambient temperature 30°C. Depth of laying = 700 mm (For other laying conditions, please refer to page 71 and 72 for de-rating factors)

(3) For current carrying capacity of cables with single point bonding please refer to page 70

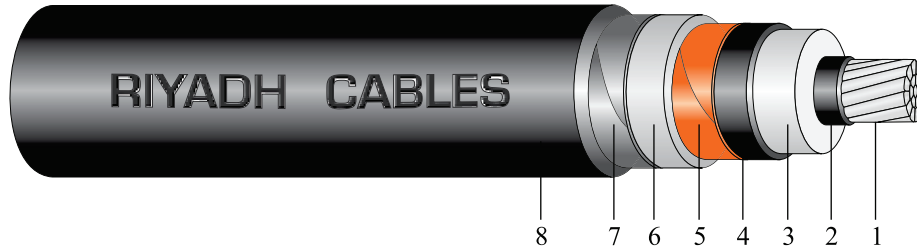


## ARMoured SINGLE CORE CABLES

ALUMINIUM CONDUCTORS

IEC 60502-2

U<sub>o</sub>/U<sub>(Um)</sub>=18/30(36) kV



- |                                     |                                 |
|-------------------------------------|---------------------------------|
| 1. Conductor                        | 5. Insulation Screen (Metallic) |
| 2. Conductor Screen                 | 6. Bedding                      |
| 3. XLPE Insulation                  | 7. Aluminium Tape Armour        |
| 4. Insulation Screen (non-metallic) | 8. Outer Sheath                 |

Item code (1)	Size	Diameter of Conductor (Approx.)	Nominal Insulation Thickness	Diameter over insulation (Approx.)	Number & Nominal Thickness of Aluminium Tape	Nominal Outer Sheath thickness		Overall Diameter (Approx.)		Weight of Cable (Approx.)	
						CUT	CUW	CUT	CUW	CUT	CUW
	mm <sup>2</sup>	mm	mm	mm	mm	mm	mm	mm	mm	kg/km	kg/km
12	50	8.3	8.0	25.9	2x0.5	2.1	2.1	37	39	1450	1675
13	70	9.7	8.0	27.3	2x0.5	2.1	2.2	39	40	1600	1825
14	95	11.55	8.0	29.15	2x0.5	2.2	2.2	41	42	1775	2000
15	120	12.95	8.0	30.55	2x0.5	2.3	2.3	43	44	1950	2200
16	150	14.3	8.0	31.9	2x0.5	2.3	2.4	44	45	2100	2425
17	185	15.9	8.0	33.5	2x0.5	2.4	2.4	46	47	2300	2625
18	240	18.4	8.0	36.0	2x0.5	2.4	2.5	49	50	2625	2975
19	300	20.5	8.0	38.1	2x0.5	2.5	2.6	51	52	2925	3275
20	400	24.0	8.0	41.6	2x0.5	2.6	2.7	55	56	3425	3875
21	500	27.0	8.0	44.6	2x0.5	2.7	2.8	58	60	3900	4375
22	630	30.4	8.0	48.0	2x0.5	2.8	2.9	62	63	4550	5025

Size	Max. DC Resistance @ 20°C	Inductance		Capacitance	Adiabatic Short Circuit Current for 1 second			Current Carrying Capacity (2)				Voltage drop per phase
		Trefoil	Flat		Conductor	CUT	CUW	CUT		CUW		
				Direct Buried				In Air	Direct Buried	In Air		
mm <sup>2</sup>	Ohm/km	mH/km	mH/km	μF/km	kA	kA	kA	Amps	Amps	Amps	Amps	V/A.Km
50	0.641	0.509	0.772	0.14	4.720	0.649	2.000	180	194	181	196	0.7727
70	0.443	0.481	0.740	0.16	6.608	0.686	2.000	220	240	220	241	0.5632
95	0.320	0.467	0.723	0.17	8.968	0.725	2.000	263	291	263	293	0.4344
120	0.253	0.450	0.704	0.18	11.328	0.760	2.000	299	334	299	336	0.3618
150	0.206	0.437	0.688	0.19	14.160	0.793	3.125	334	377	333	379	0.3108
185	0.164	0.424	0.672	0.21	17.464	0.832	3.125	378	432	377	433	0.2647
240	0.125	0.407	0.652	0.23	22.656	0.888	3.125	439	509	436	509	0.2217
300	0.100	0.394	0.635	0.25	28.320	0.935	3.125	495	582	490	580	0.1931
400	0.0778	0.377	0.614	0.27	37.760	1.000	4.375	567	681	557	674	0.1669
500	0.0605	0.366	0.599	0.30	47.200	1.081	4.375	645	786	629	774	0.1470
630	0.0469	0.353	0.582	0.33	59.472	1.168	4.375	728	903	708	886	0.1308

(1) The code numbers to be read in conjunction with 06120131 at the beginning. Example for 150 mm<sup>2</sup> cable, the code number is 0612013116

Code number for other types of insulation screen: Replace the 6<sup>th</sup> digit as follows:  
2 for S + CUW ; 3 for B + CUT ; 4 for B + CUW

(2) Laying conditions: Underground temperature of soil 20°C, Ground thermal resistivity 100°C cm/W, Ambient temperature 30°C. Depth of laying = 700 mm (For other laying conditions, please refer to page 71 and 72 for de-rating factors)

(3) For current carrying capacity of cables with single point bonding please refer to page 70

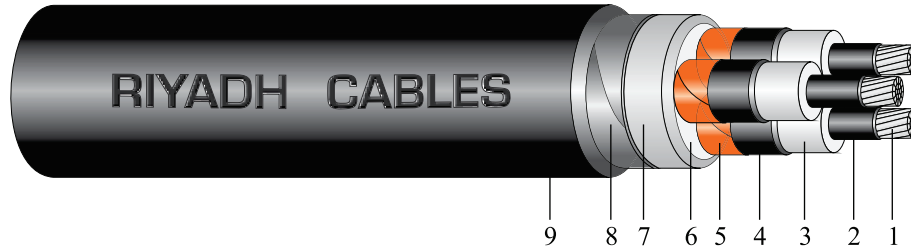


## ARMoured THREE CORE CABLES

ALUMINIUM CONDUCTORS

IEC 60502-2

U<sub>o</sub>/U<sub>m</sub>=3.5/6(7.2) kV



- |                                     |                             |
|-------------------------------------|-----------------------------|
| 1. Conductor                        | 6. PP Filler                |
| 2. Conductor Screen                 | 7. Bedding                  |
| 3. XLPE Insulation                  | 8. Double Steel Tape Armour |
| 4. Insulation Screen (Non-metallic) | 9. Outer Sheath             |
| 5. Insulation Screen (Metallic)     |                             |

Item code (1)	Size	Diameter of Conductor (Approx.)	Nominal Insulation Thickness	Diameter over insulation (Approx.)	Number & Nominal Thickness of Steel Tape	Nominal Outer Sheath thickness		Overall Diameter (Approx.)		Weight of Cable (Approx.)	
						CUT	CUW	CUT	CUW	CUT	CUW
	mm <sup>2</sup>	mm	mm	mm	mm	mm	mm	mm	mm	kg/km	kg/km
10	25	6.0	2.5	12.6	2x0.5	2.2	2.2	42	45	2000	2150
11	35	7.1	2.5	13.7	2x0.5	2.3	2.3	45	48	2400	2575
12	50	8.3	2.5	14.9	2x0.5	2.4	2.4	48	50	2700	2900
13	70	9.7	2.5	16.3	2x0.5	2.5	2.5	51	54	3125	3275
14	95	11.55	2.5	18.15	2x0.5	2.6	2.6	55	58	3650	3800
15	120	12.95	2.5	19.55	2x0.5	2.7	2.8	59	61	4100	4300
16	150	14.3	2.5	20.9	2x0.5	2.8	2.9	62	65	4600	4875
17	185	15.9	2.5	22.5	2x0.5	2.9	3.0	66	69	5175	5450
18	240	18.4	2.6	25.2	2x0.5	3.1	3.2	72	75	6225	6450
19	300	20.5	2.8	27.7	2x0.5	3.3	3.4	78	81	7275	7500

Size	Max. DC Resistance @ 20°C	Inductance	Capacitance	Adiabatic Short Circuit Current for 1 second			Current Carrying Capacity (2)				Voltage drop per phase
				Conductor	CUT	CUW	CUT		CUW		
							Direct Buried	In Air	Direct Buried	In Air	
mm <sup>2</sup>	Ohm/km	mH/km	μF/km	kA	kA	kA	Amps	Amps	Amps	Amps	V/A.Km
25	1.20	0.363	0.26	2.360	1.023	2.000	116	111	111	106	1.3133
35	0.868	0.344	0.29	3.304	1.092	2.000	137	133	132	128	0.9682
50	0.641	0.333	0.31	4.720	1.176	2.000	162	159	157	153	0.7329
70	0.443	0.322	0.36	6.608	1.29	2.000	197	195	191	198	0.5272
95	0.320	0.316	0.39	8.968	1.407	2.000	236	237	229	229	0.4003
120	0.253	0.309	0.43	11.328	1.512	2.000	267	270	260	263	0.3299
150	0.206	0.303	0.47	14.160	1.611	3.125	297	304	291	296	0.2805
185	0.164	0.300	0.52	17.464	1.728	3.125	336	347	329	339	0.2367
240	0.125	0.293	0.56	22.656	1.911	3.125	489	407	382	398	0.1959
300	0.100	0.286	0.58	28.320	2.079	3.125	436	462	429	453	0.1687

(1) The code numbers to be read in conjunction with 02120143 at the beginning. Example for 150 mm<sup>2</sup> cable, the code number is 0212014316

Code number for other types of insulation screen: Replace the 6<sup>th</sup> digit as follows:  
2 for S + CUW ; 3 for B + CUT ; 4 for B + CUW

(2) Laying conditions: Underground temperature of soil 20°C, Ground thermal resistivity 100°C cm/W, Ambient temperature 30°C. Depth of laying = 700 mm (For other laying conditions, please refer to page 71 and 72 for de-rating factors)

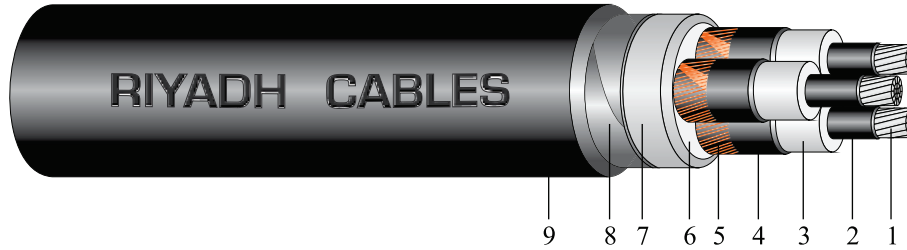


## ARMOURED THREE CORE CABLES

ALUMINIUM CONDUCTORS

IEC 60502-2

U<sub>0</sub>/U(U<sub>m</sub>)=6/10(12) kV



- |                                     |                             |
|-------------------------------------|-----------------------------|
| 1. Conductor                        | 6. PP Filler                |
| 2. Conductor Screen                 | 7. Bedding                  |
| 3. XLPE Insulation                  | 8. Double Steel Tape Armour |
| 4. Insulation Screen (Non-metallic) | 9. Outer Sheath             |
| 5. Insulation Screen (Metallic)     |                             |

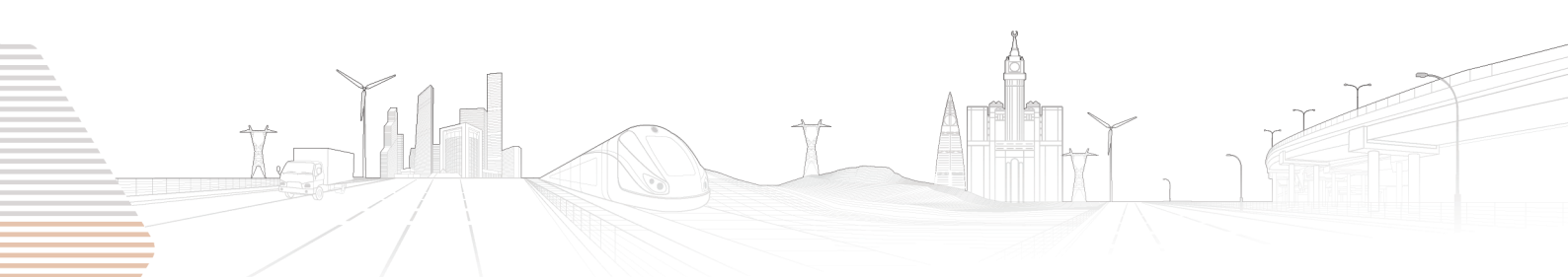
Item code (1)	Size	Diameter of Conductor (Approx.)	Nominal Insulation Thickness	Diameter over insulation (Approx.)	Number & Nominal Thickness of Steel Tape	Nominal Outer Sheath thickness		Overall Diameter (Approx.)		Weight of Cable (Approx.)	
						CUT	CUW	CUT	CUW	CUT	CUW
	mm <sup>2</sup>	mm	mm	mm	mm	mm	mm	mm	mm	kg/km	kg/km
10	25	6.0	3.4	14.4	2x0.5	2.3	2.4	46	49	2300	2450
11	35	7.1	3.4	15.5	2x0.5	2.4	2.5	49	52	2750	2925
12	50	8.3	3.4	16.7	2x0.5	2.5	2.6	51	55	3100	3275
13	70	9.7	3.4	18.1	2x0.5	2.6	2.7	55	58	3550	3700
14	95	11.55	3.4	19.95	2x0.5	2.8	2.8	60	62	4100	4250
15	120	12.95	3.4	21.35	2x0.5	2.9	2.9	63	66	4600	4750
16	150	14.3	3.4	22.7	2x0.5	3.0	3.0	66	69	5075	5350
17	185	15.9	3.4	24.3	2x0.5	3.1	3.1	70	73	5700	5900
18	240	18.4	3.4	26.8	2x0.5	3.3	3.3	76	79	6750	6950
19	300	20.5	3.4	28.9	2x0.5	3.4	3.5	81	84	7675	7925

Size	Max. DC Resistance @ 20°C	Inductance	Capacitance	Adiabatic Short Circuit Current for 1 second			Current Carrying Capacity (2)				Voltage drop per phase
				Conductor	CUT	CUW	CUT		CUW		
							Direct Buried	In Air	Direct Buried	In Air	
mm <sup>2</sup>	Ohm/km	mH/km	μF/km	kA	kA	kA	Amps	Amps	Amps	Amps	V/A Km
25	1.20	0.387	0.21	2.360	1.149	2.000	116	112	111	107	1.3187
35	0.868	0.368	0.23	3.304	1.218	2.000	137	135	132	129	0.9736
50	0.641	0.358	0.25	4.720	1.302	2.000	161	160	156	154	0.7386
70	0.443	0.342	0.29	6.608	1.416	2.000	196	196	190	189	0.5318
95	0.320	0.335	0.31	8.968	1.533	2.000	235	238	228	230	0.4046
120	0.253	0.326	0.34	11.328	1.638	2.000	261	271	259	263	0.3337
150	0.206	0.319	0.37	14.160	1.737	3.125	297	306	290	296	0.2842
185	0.164	0.313	0.40	17.464	1.854	3.125	335	348	328	339	0.2396
240	0.125	0.305	0.44	22.656	2.022	3.125	388	407	381	398	0.1986
300	0.100	0.297	0.48	28.320	2.163	3.125	435	461	428	452	0.1508

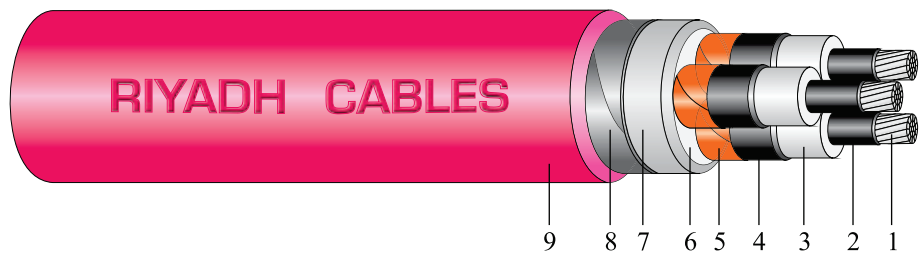
(1) The code numbers to be read in conjunction with 03120143 at the beginning. Example for 150 mm<sup>2</sup> cable, the code number is 0312014316

Code number for other types of insulation screen: Replace the 6<sup>th</sup> digit as follows:  
2 for S + CUW ; 3 for B + CUT ; 4 for B + CUW

(2) Laying conditions: Underground temperature of soil 20°C, Ground thermal resistivity 100°C cm/W, Ambient temperature 30°C. Depth of laying = 700 mm (For other laying conditions, please refer to page 71 and 72 for de-rating factors)



**ARMOURED THREE CORE CABLES**  
**ALUMINIUM CONDUCTORS**                      **IEC 60502-2**                      **U<sub>0</sub>/U(U<sub>m</sub>)=8.7/15(17.5) kV**



- |                                     |                             |
|-------------------------------------|-----------------------------|
| 1. Conductor                        | 6. PP Filler                |
| 2. Conductor Screen                 | 7. Bedding                  |
| 3. XLPE Insulation                  | 8. Double Steel Tape Armour |
| 4. Insulation Screen (Non-metallic) | 9. Outer Sheath             |
| 5. Insulation Screen (Metallic)     |                             |

Item code (1)	Size	Diameter of Conductor (Approx.)	Nominal Insulation Thickness	Diameter over insulation (Approx.)	Number & Nominal Thickness of Steel Tape	Nominal Outer Sheath thickness		Overall Diameter (Approx.)		Weight of Cable (Approx.)	
						CUT	CUW	CUT	CUW	CUT	CUW
	mm <sup>2</sup>	mm	mm	mm	mm	mm	mm	mm	mm	kg/km	kg/km
10	25	6.0	4.5	16.6	2x0.5	2.5	2.5	52	54	2750	2850
11	35	7.1	4.5	17.7	2x0.5	2.6	2.6	54	56	3250	3400
12	50	8.3	4.5	18.9	2x0.5	2.7	2.7	57	60	3625	3750
13	70	9.7	4.5	20.3	2x0.5	2.8	2.8	61	63	4075	4225
14	95	11.55	4.5	22.15	2x0.5	2.9	3.0	65	68	4650	4850
15	120	12.95	4.5	23.55	2x0.5	3.0	3.1	68	71	5175	5350
16	150	14.3	4.5	24.9	2x0.5	3.1	3.2	71	74	5675	5950
17	185	15.9	4.5	26.5	2x0.5	3.3	3.3	75	78	6375	6575
18	240	18.4	4.5	29.0	2x0.5	3.4	3.5	81	84	7425	7650
19	300	20.5	4.5	31.1	2x0.8	3.6	3.7	88	90	9225	9500

Size	Max. DC Resistance @ 20°C	Inductance	Capacitance	Adiabatic Short Circuit Current for 1 second			Current Carrying Capacity (2)				Voltage drop per phase
				Conductor	CUT	CUW	CUT		CUW		
							Direct Buried	In Air	Direct Buried	In Air	
mm <sup>2</sup>	Ohm/km	mH/km	μF/km	kA	kA	kA	Amps	Amps	Amps	Amps	V/A.Km
25	1.20	0.413	0.17	2.360	1.302	2.000	116	114	110	108	1.3246
35	0.868	0.394	0.19	3.304	1.371	2.000	137	136	132	130	0.9795
50	0.641	0.382	0.21	4.720	1.455	2.000	161	161	156	154	0.7440
70	0.443	0.364	0.23	6.608	1.569	2.000	196	198	190	190	0.5367
95	0.320	0.356	0.25	8.968	1.686	2.000	234	238	227	230	0.4093
120	0.253	0.346	0.27	11.328	1.791	2.000	265	272	258	264	0.3383
150	0.206	0.338	0.29	14.160	1.89	3.125	296	306	289	296	0.2885
185	0.164	0.330	0.32	17.464	2.007	3.125	334	348	327	339	0.2434
240	0.125	0.321	0.35	22.656	2.175	3.125	386	407	379	397	0.2022
300	0.100	0.312	0.39	28.320	2.316	3.125	435	463	427	453	0.1746

(1) The code numbers to be read in conjunction with 04120143 at the beginning. Example for 150 mm<sup>2</sup> cable, the code number is 0412014316

Code number for other types of insulation screen: Replace the 6<sup>th</sup> digit as follows:  
 2 for S + CUW ; 3 for B + CUT ; 4 for B + CUW

(2) Laying conditions: Underground temperature of soil 20°C, Ground thermal resistivity 100°C cm/W, Ambient temperature 30°C. Depth of laying = 700 mm (For other laying conditions, please refer to page 71 and 72 for de-rating factors)

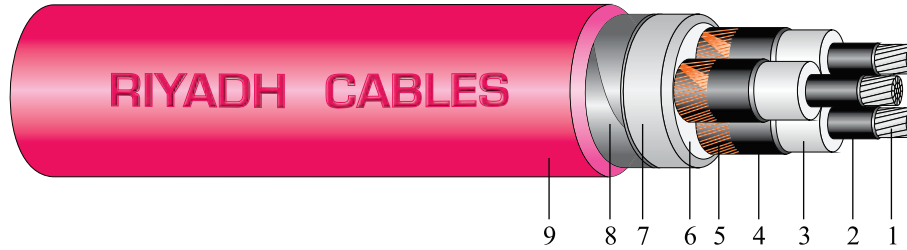


## ARMoured THREE CORE CABLES

ALUMINIUM CONDUCTORS

IEC 60502-2

U<sub>o</sub>/U<sub>(Um)</sub>=12/20(24) kV



- |                                     |                             |
|-------------------------------------|-----------------------------|
| 1. Conductor                        | 6. PP Filler                |
| 2. Conductor Screen                 | 7. Bedding                  |
| 3. XLPE Insulation                  | 8. Double Steel Tape Armour |
| 4. Insulation Screen (Non-metallic) | 9. Outer Sheath             |
| 5. Insulation Screen (Metallic)     |                             |

Item code (1)	Size	Diameter of Conductor (Approx.)	Nominal Insulation Thickness	Diameter over insulation (Approx.)	Number & Nominal Thickness of Steel Tape	Nominal Outer Sheath thickness		Overall Diameter (Approx.)		Weight of Cable (Approx.)	
						CUT	CUW	CUT	CUW	CUT	CUW
	mm <sup>2</sup>	mm	mm	mm	mm	mm	mm	mm	mm	kg/km	kg/km
10	25	6.0	6.0	19.6	2x0.5	2.7	2.8	59	61	3350	3500
11	35	7.1	5.5	19.7	2x0.5	2.7	2.8	59	62	3725	3900
12	50	8.3	5.5	20.9	2x0.5	2.8	2.9	62	63	4100	4100
13	70	9.7	5.5	22.3	2x0.5	2.9	3.0	65	68	4550	4750
14	95	11.55	5.5	24.15	2x0.5	3.1	3.1	70	72	5250	5400
15	120	12.95	5.5	25.55	2x0.5	3.2	3.2	73	76	5775	5950
16	150	14.3	5.5	26.9	2x0.5	3.3	3.4	76	79	6300	6525
17	185	15.9	5.5	28.5	2x0.5	3.4	3.5	80	83	7000	7225
18	240	18.4	5.5	31.0	2x0.8	3.6	3.7	87	90	8925	9175
19	300	20.5	5.5	33.1	2x0.8	3.8	3.9	92	95	10025	10275

Size	Max. DC Resistance @ 20°C	Inductance	Capacitance	Adiabatic Short Circuit Current for 1 second			Current Carrying Capacity (2)				Voltage drop per phase
				Conductor	CUT	CUW	CUT		CUW		
							Direct Buried	In Air	Direct Buried	In Air	
mm <sup>2</sup>	Ohm/km	mH/km	μF/km	kA	kA	kA	Amps	Amps	Amps	Amps	V/A.Km
25	1.20	0.444	0.14	2.360	1.512	2.000	116	115	110	108	1.3316
35	0.868	0.415	0.16	3.304	1.512	2.000	137	136	132	130	0.9843
50	0.641	0.402	0.18	4.720	1.596	2.000	161	161	155	155	0.7485
70	0.443	0.382	0.20	6.608	1.707	2.000	196	198	190	191	0.5408
95	0.320	0.373	0.21	8.968	1.827	2.000	233	239	227	231	0.4132
120	0.253	0.362	0.23	11.328	1.932	2.000	265	273	258	264	0.3419
150	0.206	0.353	0.25	14.160	2.028	3.125	296	307	288	297	0.2918
185	0.164	0.345	0.27	17.464	2.148	3.125	333	348	326	338	0.2468
240	0.125	0.335	0.30	22.656	2.316	3.125	386	408	379	398	0.2054
300	0.100	0.320	0.33	28.320	2.457	3.125	434	463	426	452	0.1764

(1) The code numbers to be read in conjunction with 05120143 at the beginning. Example for 150 mm<sup>2</sup> cable, the code number is 0512014316

Code number for other types of insulation screen: Replace the 6<sup>th</sup> digit as follows:  
2 for S + CUW ; 3 for B + CUT ; 4 for B + CUW

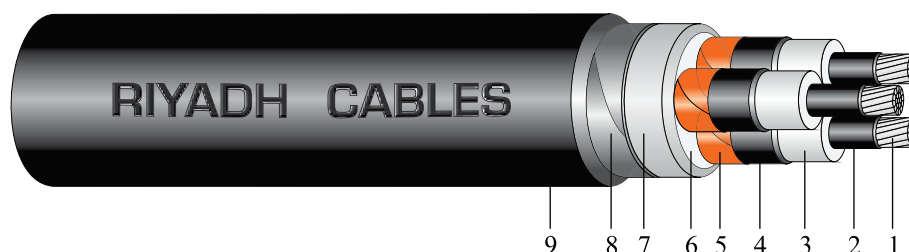
(2) Laying conditions: Underground temperature of soil 20°C, Ground thermal resistivity 100°C cm/W, Ambient temperature 30°C. Depth of laying = 700 mm (For other laying conditions, please refer to page 71 and 72 for de-rating factors)

## ARMOURED THREE CORE CABLES

ALUMINIUM CONDUCTORS

IEC 60502-2

U<sub>o</sub>/U<sub>(Um)</sub>=18/30(36) kV



- |                                     |                             |
|-------------------------------------|-----------------------------|
| 1. Conductor                        | 6. PP Filler                |
| 2. Conductor Screen                 | 7. Bedding                  |
| 3. XLPE Insulation                  | 8. Double Steel Tape Armour |
| 4. Insulation Screen (Non-metallic) | 9. Outer Sheath             |
| 5. Insulation Screen (Metallic)     |                             |

Item code (1)	Size	Diameter of Conductor (Approx.)	Nominal Insulation Thickness	Diameter over insulation (Approx.)	Number & Nominal Thickness of Steel Tape	Nominal Outer Sheath thickness		Overall Diameter (Approx.)		Weight of Cable (Approx.)	
						CUT	CUW	CUT	CUW	CUT	CUW
	mm <sup>2</sup>	mm	mm	mm	mm	mm	mm	mm	mm	kg/km	kg/km
12	50	8.3	8.0	25.9	2x0.5	3.2	3.3	74	77	5500	5725
13	70	9.7	8.0	27.3	2x0.5	3.3	3.4	77	80	6050	6275
14	95	11.55	8.0	29.15	2x0.5	3.5	3.5	82	84	6775	6950
15	120	12.95	8.0	30.55	2x0.8	3.6	3.7	86	89	8150	8400
16	150	14.3	8.0	31.9	2x0.8	3.7	3.8	89	92	8775	9075
17	185	15.9	8.0	33.5	2x0.8	3.9	3.9	93	96	9600	9825
18	240	18.4	8.0	36.0	2x0.8	4.1	4.1	100	102	10900	11125
19	300	20.5	8.0	38.1	2x0.8	4.2	4.2	104	107	12050	12275

Size	Max. DC Resistance @ 20°C	Inductance	Capacitance	Adiabatic Short Circuit Current for 1 second			Current Carrying Capacity (2)				Voltage drop per phase
				Conductor	CUT	CUW	CUT		CUW		
							Direct Buried	In Air	Direct Buried	In Air	
mm <sup>2</sup>	Ohm/km	mH/km	μF/km	kA	kA	kA	Amps	Amps	Amps	Amps	V/A.Km
50	0.641	0.454	0.14	4.720	1.947	2.000	159	162	155	156	0.7603
70	0.443	0.430	0.16	6.608	2.058	2.000	194	198	189	192	0.5517
95	0.320	0.419	0.17	8.968	2.175	2.000	232	239	226	232	0.4236
120	0.253	0.405	0.18	11.328	2.28	2.000	263	274	257	265	0.3516
150	0.206	0.395	0.19	14.160	2.379	3.125	294	308	287	298	0.3013
185	0.164	0.384	0.21	17.464	2.496	3.125	332	349	325	339	0.2557
240	0.125	0.371	0.23	22.656	2.664	3.125	384	407	376	397	0.2135
300	0.100	0.358	0.25	28.320	2.805	3.125	432	461	424	451	0.1850

(1) The code numbers to be read in conjunction with 06120143 at the beginning. Example for 150 mm<sup>2</sup> cable, the code number is 0612014316

Code number for other types of insulation screen: Replace the 6<sup>th</sup> digit as follows:  
2 for S + CUW ; 3 for B + CUT ; 4 for B + CUW

(2) Laying conditions: Underground temperature of soil 20°C, Ground thermal resistivity 100°C cm/W, Ambient temperature 30°C. Depth of laying = 700 mm (For other laying conditions, please refer to page 71 and 72 for de-rating factors)

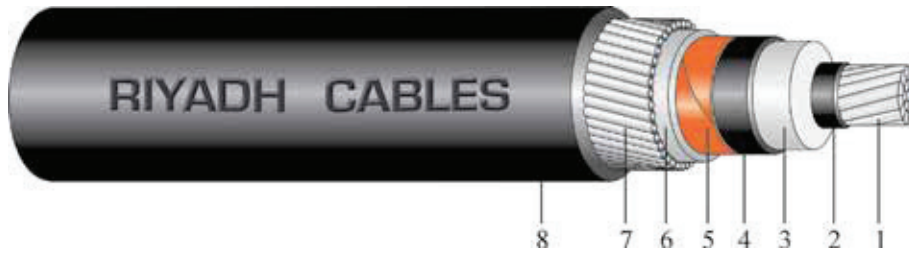


## ARMOURED SINGLE CORE CABLES

ALUMINIUM CONDUCTORS

IEC 60502-2

U<sub>0</sub>/U(U<sub>m</sub>)=3.5/6(7.2) kV



- |                                     |                                 |
|-------------------------------------|---------------------------------|
| 1. Conductor                        | 5. Insulation Screen (Metallic) |
| 2. Conductor Screen                 | 6. Bedding                      |
| 3. XLPE Insulation                  | 7. Aluminium Wire Armour        |
| 4. Insulation Screen (Non-metallic) | 8. Outer Sheath                 |

Item code (1)	Size	Diameter of Conductor (Approx.)	Nominal Insulation Thickness	Diameter over insulation (Approx.)	Nominal diameter of Aluminium Wire	Nominal Outer Sheath Thickness		Overall Diameter (Approx.)		Weight of Cable (Approx.)	
						CUT/CUW	CUT	CUW	CUT	CUW	CUT
10	25	6.0	2.5	12.6	1.6	1.8	1.8	24	26	750	950
11	35	7.1	2.5	13.7	1.6	1.8	1.8	25	27	825	1025
12	50	8.3	2.5	14.9	1.6	1.8	1.8	27	28	900	1100
13	70	9.7	2.5	16.3	1.6	1.8	1.8	28	29	1025	1225
14	95	11.55	2.5	18.15	1.6	1.9	1.9	30	31	1175	1400
15	120	12.95	2.5	19.55	1.6	1.9	1.9	31	33	1300	1500
16	150	14.3	2.5	20.9	2.0	2.0	2.0	34	35	1550	1850
17	185	15.9	2.5	22.5	2.0	2.0	2.1	35	37	1725	2000
18	240	18.4	2.6	25.2	2.0	2.1	2.2	38	40	2000	2325
19	300	20.5	2.8	27.7	2.0	2.2	2.2	41	42	2325	2625
20	400	24.0	3.0	31.6	2.5	2.3	2.4	46	48	2950	3400
21	500	27.0	3.2	35.0	2.5	2.5	2.5	50	52	3475	3900
22	630	30.4	3.2	38.4	2.5	2.6	2.6	54	56	4100	4550

Size	Max. DC Resistance @ 20 C	Inductance		Capacitance	Adiabatic Short Circuit Current for 1 second			Current Carrying Capacity (2) (Both Ends Bonded)				Voltage drop per phase	
		Trefoil	Flat		Con-ductor	CUT	CUW	Size	CUT		CUW		
									Direct Buried	In Air	Direct Buried		In Air
mm <sup>2</sup>	Ohm/km	mH/km	mH/km	μF/km	kA	kA	kA	mm <sup>2</sup>	Amps	Amps	Amps	Amps	V/A. Km
25	1.20	0.473	0.785	0.26	2.360	0.341	2.000	25	129	131	129	133	1.3382
35	0.868	0.461	0.760	0.29	3.304	0.364	2.000	35	154	158	154	160	0.9947
50	0.641	0.444	0.735	0.31	4.720	0.392	2.000	50	181	189	182	192	0.7580
70	0.443	0.418	0.708	0.37	6.608	0.430	2.000	70	221	233	221	237	0.5489
95	0.320	0.406	0.692	0.39	8.968	0.469	2.000	95	263	284	263	287	0.4206
120	0.253	0.392	0.637	0.44	11.328	0.504	2.000	120	298	326	298	330	0.3487
150	0.206	0.380	0.658	0.48	14.160	0.537	3.125	150	332	368	330	372	0.2980
185	0.164	0.369	0.642	0.52	17.464	0.576	3.125	185	371	421	370	423	0.2523
240	0.125	0.356	0.623	0.56	22.656	0.637	3.125	240	426	493	424	495	0.2101
300	0.100	0.346	0.608	0.58	28.320	0.693	3.125	300	474	558	471	559	0.1823
400	0.0778	0.334	0.589	0.61	37.760	0.767	4.375	400	533	644	521	638	0.1571
500	0.0605	0.327	0.576	0.64	47.200	0.858	4.375	500	583	723	577	721	0.1382
630	0.0469	0.315	0.558	0.71	59.472	0.944	4.375	630	641	811	633	807	0.1222

(1) The code numbers to be read in conjunction with 02120111 at the beginning. Example for 150 mm<sup>2</sup> cable, the code number is 0212011116

Code number for other types of insulation screen: Replace the 6<sup>th</sup> digit as follows:  
2 for S + CUW ; 3 for B + CUT ; 4 for B + CUW

(2) Laying conditions: Underground temperature of soil 20°C, Ground thermal resistivity 100°C cm/W, Ambient temperature 30°C. Depth of laying = 700 mm (For other laying conditions, please refer to page 71 and 72 for de-rating factors)

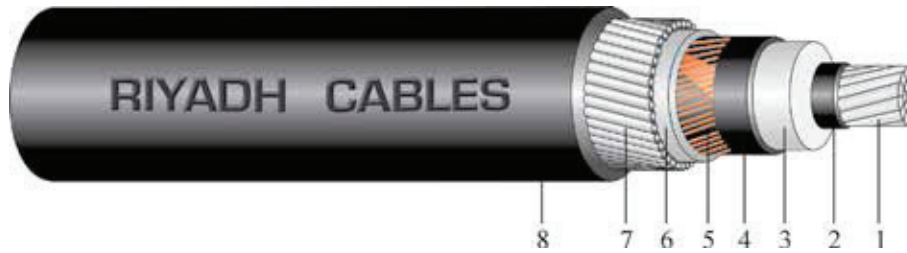
(3) For current carrying capacity of cables with single point bonding please refer to page 70

## ARMoured SINGLE CORE CABLES

**ALUMINIUM CONDUCTORS**

**IEC 60502-2**

**U<sub>o</sub>/U(U<sub>m</sub>)=6/10(12) kV**



- |                                     |                                 |
|-------------------------------------|---------------------------------|
| 1. Conductor                        | 5. Insulation Screen (Metallic) |
| 2. Conductor Screen                 | 6. Bedding                      |
| 3. XLPE Insulation                  | 7. Aluminium Wire Armour        |
| 4. Insulation Screen (Non-metallic) | 8. Outer Sheath                 |

Item code (1)	Size	Diameter of Conductor (Approx.)	Nominal Insulation Thickness	Diameter over insulation (Approx.)	Nominal diameter of Aluminium Wire	Nominal Outer Sheath Thickness		Overall Diameter (Approx.)		Weight of Cable (Approx.)	
						CUT/CUW	CUT	CUW	CUT	CUW	CUT
10	25	6.0	3.4	14.4	1.6	1.8	1.8	26	28	850	1050
11	35	7.1	3.4	15.5	1.6	1.8	1.8	27	29	925	1125
12	50	8.3	3.4	16.7	1.6	1.8	1.9	29	30	1025	1225
13	70	9.7	3.4	18.1	1.6	1.9	1.9	30	31	1150	1350
14	95	11.55	3.4	19.95	1.6	1.9	2.0	32	33	1300	1525
15	120	12.95	3.4	21.35	2.0	2.0	2.0	34	36	1525	1750
16	150	14.3	3.4	22.7	2.0	2.1	2.1	36	37	1675	1975
17	185	15.9	3.4	24.3	2.0	2.1	2.1	37	39	1850	2150
18	240	18.4	3.4	26.8	2.0	2.2	2.2	40	41	2150	2450
19	300	20.5	3.4	28.9	2.0	2.2	2.3	42	44	2400	2725
20	400	24.0	3.4	32.4	2.5	2.4	2.4	47	49	3025	3450
21	500	27.0	3.4	35.4	2.5	2.5	2.5	51	52	3500	3950
22	630	30.4	3.4	38.8	2.5	2.6	2.7	55	56	4125	4600

Size	Max. DC Resistance @ 20 C	Inductance		Capacitance	Adiabatic Short Circuit Current for 1 second			Current Carrying Capacity (2) (Both Ends Bonded)					Voltage drop per phase
		Trefoil	Flat		Conductor	CUT	CUW	Size	CUT		CUW		
									Direct Buried	In Air	Direct Buried	In Air	
mm <sup>2</sup>	Ohm/km	mH/km	mH/km	μF/km	kA	kA	kA	mm <sup>2</sup>	Amps	Amps	Amps	Amps	V/A. Km
25	1.20	0.488	0.790	0.21	2.360	0.383	2.000	25	129	132	129	134	1.3416
35	0.868	0.472	0.765	0.23	3.304	0.406	2.000	35	153	159	154	161	0.9972
50	0.641	0.455	0.745	0.25	4.720	0.434	2.000	50	181	190	181	193	0.7605
70	0.443	0.428	0.713	0.29	6.608	0.472	2.000	70	220	235	221	238	0.5512
95	0.320	0.416	0.697	0.31	8.968	0.511	2.000	95	263	285	263	289	0.4229
120	0.253	0.401	0.678	0.34	11.328	0.546	2.000	120	297	329	297	332	0.3507
150	0.206	0.390	0.663	0.37	14.160	0.579	3.125	150	330	370	330	373	0.3002
185	0.164	0.378	0.647	0.40	17.464	0.618	3.125	185	371	422	370	425	0.2543
240	0.125	0.363	0.627	0.45	22.656	0.674	3.125	240	425	494	423	496	0.2117
300	0.100	0.351	0.611	0.49	28.320	0.721	3.125	300	473	559	470	560	0.1834
400	0.0778	0.338	0.591	0.55	37.760	0.786	4.375	400	526	639	521	638	0.1581
500	0.0605	0.328	0.576	0.60	47.200	0.867	4.375	500	584	724	577	721	0.1384
630	0.0469	0.317	0.560	0.68	59.472	0.954	4.375	630	641	812	633	807	0.1227

(1) The code numbers to be read in conjunction with 03120111 at the beginning. Example for 150 mm<sup>2</sup> cable, the code number is 0312011116

Code number for other types of insulation screen: Replace the 6<sup>th</sup> digit as follows:  
2 for S + CUW ; 3 for B + CUT ; 4 for B + CUW

(2) **Laying conditions:** Underground temperature of soil 20°C, Ground thermal resistivity 100°C cm/W, Ambient temperature 30°C. Depth of laying = 700 mm (For other laying conditions, please refer to page 71 and 72 for de-rating factors)

(3) For current carrying capacity of cables with single point bonding please refer to page 70

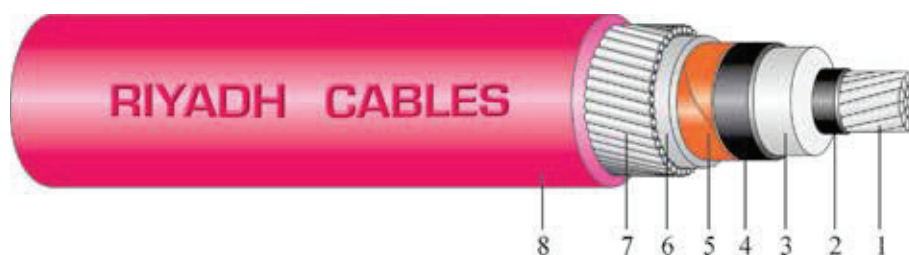


## ARMOURED SINGLE CORE CABLES

ALUMINIUM CONDUCTORS

IEC 60502-2

U<sub>0</sub>/U(U<sub>m</sub>)=8.7/15(17.5) kV



- |  |  |
|--|--|
| <ol style="list-style-type: none"> <li>1. Conductor</li> <li>2. Conductor Screen</li> <li>3. XLPE Insulation</li> <li>4. Insulation Screen (Non-metallic)</li> </ol> | <ol style="list-style-type: none"> <li>5. Insulation Screen (Metallic)</li> <li>6. Bedding</li> <li>7. Aluminium Wire Armour</li> <li>8. Outer Sheath</li> </ol> |
|--|--|

Item code (1)	Size	Diameter of Conductor (Approx.)	Nominal Insulation Thickness	Diameter over insulation (Approx.)	Nominal diameter of Aluminium Wire	Nominal Outer Sheath Thickness		Overall Diameter (Approx.)		Weight of Cable (Approx.)	
						CUT/CUW	CUT	CUW	CUT	CUW	CUT
10	25	6.0	4.5	16.6	1.6	1.8	1.9	28	30	975	1175
11	35	7.1	4.5	17.7	1.6	1.9	1.9	30	31	1050	1275
12	50	8.3	4.5	18.9	1.6	1.9	1.9	31	32	1150	1350
13	70	9.7	4.5	20.3	1.6	1.9	2.0	33	34	1275	1500
14	95	11.55	4.5	22.15	2.0	2.0	2.1	35	37	1550	1775
15	120	12.95	4.5	23.55	2.0	2.1	2.1	37	38	1700	1925
16	150	14.3	4.5	24.9	2.0	2.1	2.2	38	40	1850	2150
17	185	15.9	4.5	26.5	2.0	2.2	2.2	40	41	2025	2325
18	240	18.4	4.5	29.0	2.0	2.3	2.3	43	44	2350	2650
19	300	20.5	4.5	31.1	2.5	2.3	2.4	46	48	2800	3125
20	400	24.0	4.5	34.6	2.5	2.5	2.5	50	51	3275	3675
21	500	27.0	4.5	37.6	2.5	2.6	2.6	53	55	3775	4225
22	630	30.4	4.5	41.0	2.5	2.7	2.7	57	59	4375	4850

Size	Max. DC Resistance @ 20°C	Inductance		Capacitance	Adiabatic Short Circuit Current for 1 second			Current Carrying Capacity (2) (Both Ends Bonded)					Voltage drop per phase	
		Trefoil	Flat		Conductor	CUT	CUW	CUT		CUW				
								Size	Direct Buried	In Air	Direct Buried	In Air		
mm <sup>2</sup>	Ohm/km	mH/km	mH/km	µF/km	kA	kA	kA	mm <sup>2</sup>	Amps	Amps	Amps	Amps	Amps	V/A. Km
25	1.20	0.505	0.796	0.17	2.360	0.434	2.000	25	128	133	129	135	1.3454	
35	0.868	0.484	0.771	0.19	3.304	0.457	2.000	35	153	161	154	163	0.9999	
50	0.641	0.468	0.751	0.21	4.720	0.485	2.000	50	180	192	181	194	0.7635	
70	0.443	0.441	0.719	0.23	6.608	0.523	2.000	70	220	237	220	239	0.5542	
95	0.320	0.428	0.703	0.25	8.968	0.562	2.000	95	262	288	262	291	0.4256	
120	0.253	0.413	0.684	0.27	11.328	0.597	2.000	120	296	330	297	333	0.3534	
150	0.206	0.401	0.668	0.29	14.160	0.630	3.125	150	330	372	329	375	0.3027	
185	0.164	0.388	0.652	0.32	17.464	0.669	3.125	185	370	423	369	426	0.2566	
240	0.125	0.373	0.632	0.35	22.656	0.725	3.125	240	425	495	423	497	0.2140	
300	0.100	0.361	0.616	0.39	28.320	0.772	3.125	300	473	560	465	558	0.1857	
400	0.0778	0.346	0.596	0.43	37.760	0.837	4.375	400	524	640	521	640	0.1599	
500	0.0605	0.337	0.582	0.48	47.200	0.919	4.375	500	582	724	577	722	0.1405	
630	0.0469	0.325	0.656	0.53	59.472	1.005	4.375	630	641	813	634	810	0.1245	

(1) The code numbers to be read in conjunction with 04120111 at the beginning. Example for 150 mm<sup>2</sup> cable, the code number is 0412011116

Code number for other types of insulation screen: Replace the 6<sup>th</sup> digit as follows:  
2 for S + CUW ; 3 for B + CUT ; 4 for B + CUW

(2) Laying conditions: Underground temperature of soil 20°C, Ground thermal resistivity 100°C cm/W, Ambient temperature 30°C. Depth of laying = 700 mm (For other laying conditions, please refer to page 71 and 72 for de-rating factors)

(3) For current carrying capacity of cables with single point bonding please refer to page 70

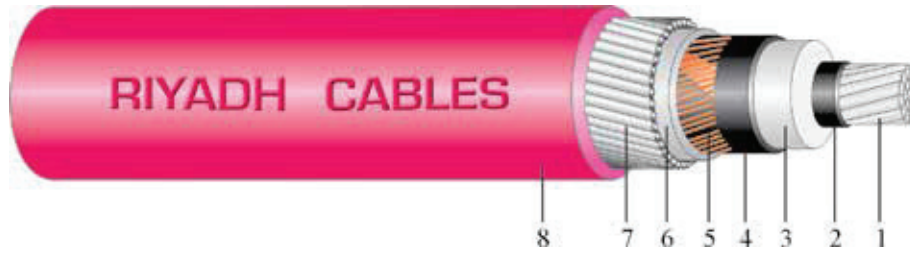


## ARMOURED SINGLE CORE CABLES

ALUMINIUM CONDUCTORS

IEC 60502-2

U<sub>o</sub>/U<sub>Um</sub>=12/20(24) kV



- |                                     |                                 |
|-------------------------------------|---------------------------------|
| 1. Conductor                        | 5. Insulation Screen (Metallic) |
| 2. Conductor Screen                 | 6. Bedding                      |
| 3. XLPE Insulation                  | 7. Aluminium Wire Armour        |
| 4. Insulation Screen (Non-metallic) | 8. Outer Sheath                 |

Item code (1)	Size	Diameter of Conductor (Approx.)	Nominal Insulation Thickness	Diameter over insulation (Approx.)	Nominal diameter of Aluminium Wire	Nominal Outer Sheath Thickness		Overall Diameter (Approx.)		Weight of Cable (Approx.)	
						CUT/CUW	CUT	CUW	CUT	CUW	CUT
10	25	6.0	6.0	19.6	1.6	1.9	2.0	32	33	1150	1375
11	35	7.1	5.5	19.7	1.6	1.9	2.0	32	33	1175	1400
12	50	8.3	5.5	20.9	2.0	2.0	2.0	34	35	1375	1600
13	70	9.7	5.5	22.3	2.0	2.0	2.1	36	37	1500	1750
14	95	11.55	5.5	24.15	2.0	2.1	2.1	37	39	1700	1925
15	120	12.95	5.5	25.55	2.0	2.1	2.2	39	40	1850	2100
16	150	14.3	5.5	26.9	2.0	2.2	2.2	40	42	2000	2300
17	185	15.9	5.5	28.5	2.0	2.2	2.3	42	44	2200	2525
18	240	18.4	5.5	31.0	2.0/2.5	2.3	2.4	45	48	2525	3025
19	300	20.5	5.5	33.1	2.5	2.4	2.5	47	50	2925	3325
20	400	24.0	5.5	36.6	2.5	2.5	2.6	52	54	3425	3950
21	500	27.0	5.5	39.6	2.5	2.6	2.7	56	57	3900	4450
22	630	30.4	5.5	43.0	2.5	2.8	2.8	59	61	4650	5100

Size	Max. DC Resistance @ 20°C	Inductance		Capacitance	Adiabatic Short Circuit Current for 1 second			Current Carrying Capacity (2) (Both Ends Bonded)					Voltage drop per phase
		Trefoil	Flat		Conductor	CUT	CUW	Size	CUT		CUW		
									Direct Buried	In Air	Direct Buried	In Air	
25	1.20	0.524	0.805	0.14	2.360	0.504	2.000	25	128	134	129	135	1.3497
35	0.868	0.496	0.776	0.16	3.304	0.504	2.000	35	153	161	153	163	0.0026
50	0.641	0.478	0.456	0.18	4.720	0.532	2.000	50	180	193	181	196	0.7657
70	0.443	0.452	0.724	0.20	6.608	0.569	2.000	70	219	239	220	241	0.5566
95	0.320	0.438	0.708	0.21	8.968	0.609	2.000	95	261	289	262	292	0.4279
120	0.253	0.423	0.689	0.23	11.328	0.644	2.000	120	295	331	296	334	0.3557
150	0.206	0.410	0.673	0.25	14.160	0.676	3.125	150	329	373	329	375	0.3047
185	0.164	0.397	0.657	0.27	17.464	0.716	3.125	185	369	424	369	427	0.2586
240	0.125	0.382	0.637	0.30	22.656	0.772	3.125	240	424	496	419	496	0.2160
300	0.100	0.370	0.621	0.33	28.320	0.819	3.125	300	467	557	465	559	0.1877
400	0.0778	0.355	0.601	0.37	37.760	0.884	4.375	400	524	641	520	640	0.1619
500	0.0605	0.345	0.586	0.40	47.200	0.965	4.375	500	582	725	577	723	0.1423
630	0.0469	0.333	0.569	0.45	59.472	1.051	4.375	630	640	814	634	811	0.1263

(1) The code numbers to be read in conjunction with 04120111 at the beginning. Example for 150 mm<sup>2</sup> cable, the code number is 0412011116

Code number for other types of insulation screen: Replace the 6<sup>th</sup> digit as follows:  
2 for S + CUW ; 3 for B + CUT ; 4 for B + CUW

(2) Laying conditions: Underground temperature of soil 20°C, Ground thermal resistivity 100°C cm/W, Ambient temperature 30°C. Depth of laying = 700 mm (For other laying conditions, please refer to page 71 and 72 for de-rating factors)

(3) For current carrying capacity of cables with single point bonding please refer to page 70

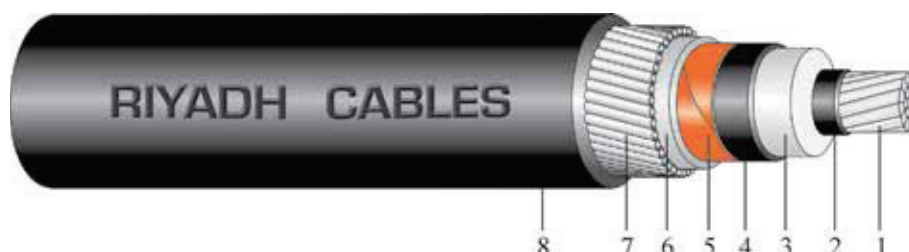


## ARMoured SINGLE CORE CABLES

ALUMINIUM CONDUCTORS

IEC 60502-2

U<sub>0</sub>/U<sub>(Um)</sub>=18/30(36) kV



- |                                     |                                 |
|-------------------------------------|---------------------------------|
| 1. Conductor                        | 5. Insulation Screen (Metallic) |
| 2. Conductor Screen                 | 6. Bedding                      |
| 3. XLPE Insulation                  | 7. Aluminium Wire Armour        |
| 4. Insulation Screen (Non-metallic) | 8. Outer Sheath                 |

Item code (1)	Size	Diameter of Conductor (Approx.)	Nominal Insulation Thickness	Diameter over insulation (Approx.)	Nominal diameter of Aluminium Wire	Nominal Outer Sheath Thickness		Overall Diameter (Approx.)		Weight of Cable (Approx.)	
						CUT/CUW	CUT	CUW	CUT	CUW	CUT
	mm <sup>2</sup>	mm	mm	mm	mm	mm	mm	mm	mm	kg/km	kg/km
12	50	8.3	8.0	25.9	2.0	2.2	2.2	39	41	1775	2000
13	70	9.7	8.0	27.3	2.0	2.2	2.3	41	42	1900	2150
14	95	11.55	8.0	29.15	2.0	2.3	2.3	43	44	2125	2350
15	120	12.95	8.0	30.55	2.5	2.3	2.4	46	47	2425	2700
16	150	14.3	8.0	31.9	2.5	2.4	2.5	47	49	2600	2950
17	185	15.9	8.0	33.5	2.5	2.5	2.5	49	50	2850	3150
18	240	18.4	8.0	36.0	2.5	2.5	2.6	52	53	3200	3550
19	300	20.5	8.0	38.1	2.5	2.6	2.7	54	55	3525	3875
20	400	24.0	8.0	41.6	2.5	2.7	2.8	58	60	4050	4550
21	500	27.0	8.0	44.6	2.5	2.8	2.9	61	63	4575	5075
22	630	30.4	8.0	48.0	2.5	2.9	3.0	65	67	5275	5775

Size	Max. DC Resistance @ 20°C	Inductance		Capacitance	Adiabatic Short Circuit Current for 1 second			Current Carrying Capacity (2) (Both Ends Bonded)				Voltage drop per phase	
		Trefoil	Flat		Conductor	CUT	CUW	Size	CUT		CUW		
									Direct Buried	In Air	Direct Buried		In Air
mm <sup>2</sup>	Ohm/km	mH/km	mH/km	μF/km	kA	kA	kA	mm <sup>2</sup>	Amps	Amps	Amps	Amps	V/A. Km
50	0.641	0.509	0.772	0.14	4.720	0.649	2.000	50	180	195	180	197	0.7727
70	0.443	0.481	0.740	0.16	6.608	0.686	2.000	70	219	241	219	242	0.5632
95	0.320	0.467	0.723	0.17	8.968	0.725	2.000	95	260	291	261	293	0.4344
120	0.253	0.450	0.704	0.18	11.328	0.760	2.000	120	294	336	295	333	0.3618
150	0.206	0.437	0.688	0.19	14.160	0.793	3.125	150	327	375	326	376	0.3108
185	0.164	0.424	0.672	0.21	17.464	0.832	3.125	185	366	425	366	427	0.2647
240	0.125	0.407	0.652	0.23	22.656	0.888	3.125	240	419	496	418	497	0.2217
300	0.100	0.394	0.635	0.25	28.320	0.935	3.125	300	465	559	464	560	0.1931
400	0.0778	0.377	0.614	0.27	37.760	1.000	4.375	400	522	641	519	641	0.1669
500	0.0605	0.366	0.599	0.30	47.200	1.081	4.375	500	581	726	576	725	0.1470
630	0.0469	0.353	0.582	0.33	59.472	1.168	4.375	630	639	815	635	814	0.1308

(1) The code numbers to be read in conjunction with 06120111 at the beginning. Example for 150 mm<sup>2</sup> cable, the code number is 0612011116

Code number for other types of insulation screen: Replace the 6<sup>th</sup> digit as follows:  
2 for S + CUW ; 3 for B + CUT ; 4 for B + CUW

(2) Laying conditions: Underground temperature of soil 20°C, Ground thermal resistivity 100°C cm/W, Ambient temperature 30°C. Depth of laying = 700 mm (For other laying conditions, please refer to page 71 and 72 for de-rating factors)

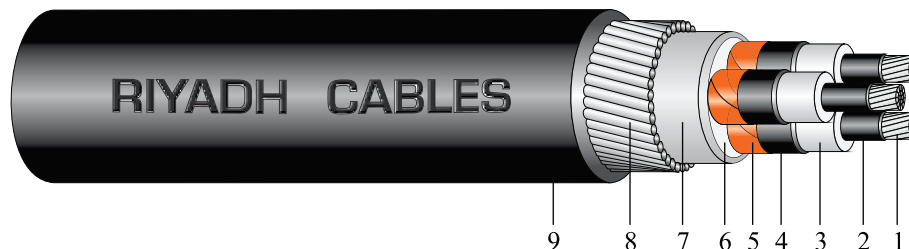
(3) For current carrying capacity of cables with single point bonding please refer to page 70

## ARMoured THREE CORE CABLES

ALUMINIUM CONDUCTORS

IEC 60502-2

U<sub>o</sub>/U<sub>(Um)</sub>=3.5/6(7.2) kV



- |                                     |                      |
|-------------------------------------|----------------------|
| 1. Conductor                        | 6. PP Filler         |
| 2. Conductor Screen                 | 7. Bedding           |
| 3. XLPE Insulation                  | 8. Steel Wire Armour |
| 4. Insulation Screen (Non-metallic) | 9. Outer Sheath      |
| 5. Insulation Screen (Metallic)     |                      |

Item code (1)	Size	Diameter of Conductor (Approx.)	Nominal Insulation Thickness	Diameter over insulation (Approx.)	Nominal Diameter of Steel Wire	Nominal Outer Sheath thickness		Overall Diameter (Approx.)		Weight of Cable (Approx.)	
						CUT/CUW	CUT	CUW	CUT	CUW	CUT
	mm <sup>2</sup>	mm	mm	mm	mm	mm	mm	mm	mm	kg/km	kg/km
10	25	6.0	2.5	12.6	2.0	2.3	2.3	44	47	2825	3075
11	35	7.10	2.5	13.7	2.0	2.3	2.4	41	51	3250	3975
12	50	8.3	2.5	14.9	2.5	2.5	2.5	51	53	4075	4300
13	70	9.7	2.5	16.3	2.5	2.6	2.6	54	57	4600	4825
14	95	11.55	2.5	18.15	2.5	2.7	2.8	58	61	5275	5500
15	120	12.95	2.5	19.55	2.5	2.8	2.9	62	64	5800	6075
16	150	14.3	2.5	20.9	2.5	2.9	3.0	65	68	6400	6775
17	185	15.9	2.5	22.5	2.5	3.1	3.1	70	73	7250	7575
18	240	18.4	2.6	25.2	2.5	3.3	3.4	76	80	8475	9725
19	300	20.5	2.8	27.7	3.15	3.5	3.6	83	86	10700	11025

Size	Max. DC Resistance @ 20°C	Inductance	Capacitance	Adiabatic Short Circuit Current for 1 second			Current Carrying Capacity (2)				Voltage drop per phase
				Conductor	CUT	CUW	CUT		CUW		
							Direct Buried	In Air	Direct Buried	In Air	
mm <sup>2</sup>	Ohm/km	mH/km	μF/km	kA	kA	kA	Amps	Amps	Amps	Amps	V/A.Km
25	1.20	0.363	0.26	2.360	1.023	2.000	117	113	112	108	1.3133
35	0.868	0.344	0.29	3.304	1.092	2.000	139	136	134	130	0.9682
50	0.641	0.333	0.32	4.720	1.176	2.000	163	162	158	156	0.7329
70	0.443	0.322	0.36	6.608	1.29	2.000	198	199	192	191	0.5272
95	0.320	0.316	0.39	8.968	1.407	2.000	237	240	230	232	0.4003
120	0.253	0.309	0.43	11.328	1.512	2.000	267	274	261	266	0.3299
150	0.206	0.303	0.47	14.160	1.611	3.125	297	307	291	299	0.2805
185	0.164	0.300	0.52	17.464	1.728	3.125	335	349	328	341	0.2367
240	0.125	0.293	0.56	22.656	1.911	3.125	385	407	377	399	0.1959
300	0.100	0.286	0.58	28.320	2.079	3.125	428	460	421	450	0.1687

(1) The code numbers to be read in conjunction with 02120123 at the beginning. Example for 150 mm<sup>2</sup> cable, the code number is 0212012316

Code number for other types of insulation screen: Replace the 6<sup>th</sup> digit as follows:  
2 for S + CUW ; 3 for B + CUT ; 4 for B + CUW

(2) Laying conditions: Underground temperature of soil 20°C, Ground thermal resistivity 100°C cm/W, Ambient temperature 30°C. Depth of laying = 700 mm (For other laying conditions, please refer to page 71 and 72 for de-rating factors)

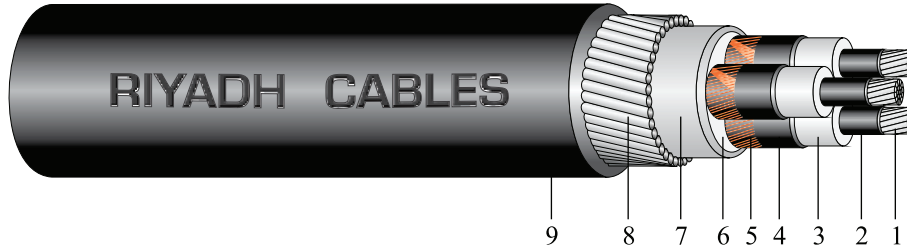


## ARMoured THREE CORE CABLES

ALUMINIUM CONDUCTORS

IEC 60502-2

U<sub>o</sub>/U(U<sub>m</sub>)=6/10(12) kV



- |                                     |                      |
|-------------------------------------|----------------------|
| 1. Conductor                        | 6. PP Filler         |
| 2. Conductor Screen                 | 7. Bedding           |
| 3. XLPE Insulation                  | 8. Steel Wire Armour |
| 4. Insulation Screen (Non-metallic) | 9. Outer Sheath      |
| 5. Insulation Screen (Metallic)     |                      |

Item code (1)	Size	Diameter of Conductor (Approx.)	Nominal Insulation Thickness	Diameter over insulation (Approx.)	Nominal Diameter of Steel Wire	Nominal Outer Sheath thickness		Overall Diameter (Approx.)		Weight of Cable (Approx.)	
						CUT/CUW	CUT	CUW	CUT	CUW	CUT
	mm <sup>2</sup>	mm	mm	mm	mm	mm	mm	mm	mm	kg/km	kg/km
10	25	6.0	3.4	14.4	2.5	2.4	2.5	49	52	3600	3875
11	35	7.1	3.4	15.5	2.5	2.5	2.6	52	55	4125	4450
12	50	8.3	3.4	16.7	2.5	2.6	2.7	55	58	4525	4850
13	70	9.7	3.4	18.1	2.5	2.7	2.8	58	61	5075	5400
14	95	11.55	3.4	19.95	2.5	2.9	2.9	63	65	5825	6075
15	120	12.95	3.4	21.35	2.5	3.0	3.0	66	69	6425	6800
16	150	14.3	3.4	22.7	2.5	3.1	3.2	70	73	7125	7550
17	185	15.9	3.4	24.3	2.5	3.2	3.3	74	77	7775	8200
18	240	18.4	3.4	26.8	3.15	3.4	3.5	81	84	9900	10500
19	300	20.5	3.4	28.9	3.15	3.6	3.6	86	89	11175	11550

Size	Max. DC Resistance @ 20°C	Inductance	Capacitance	Adiabatic Short Circuit Current for 1 second			Current Carrying Capacity (2)				Voltage drop per phase
				Conductor	CUT	CUW	CUT		CUW		
							Direct Buried	In Air	Direct Buried	In Air	
mm <sup>2</sup>	Ohm/km	mH/km	μF/km	kA	kA	kA	Amps	Amps	Amps	Amps	V/A.Km
25	1.20	0.387	0.21	2.360	1.149	2.000	117	114	112	109	1.3187
35	0.868	0.368	0.23	3.304	1.218	2.000	139	137	133	131	0.9736
50	0.641	0.358	0.25	4.720	1.302	2.000	163	162	157	156	0.7386
70	0.443	0.342	0.29	6.608	1.416	2.000	198	199	191	192	0.5318
95	0.320	0.335	0.31	8.968	1.533	2.000	236	241	229	232	0.4046
120	0.253	0.326	0.34	11.328	1.638	2.000	266	274	260	266	0.3337
150	0.206	0.319	0.37	14.160	1.737	3.125	297	308	289	298	0.2842
185	0.164	0.313	0.40	17.464	1.854	3.125	334	350	326	340	0.2396
240	0.125	0.305	0.44	22.656	2.022	3.125	383	407	376	397	0.1986
300	0.100	0.207	0.48	28.320	2.163	3.125	427	459	420	449	0.1508

(1) The code numbers to be read in conjunction with 03120123 at the beginning. Example for 150 mm<sup>2</sup> cable, the code number is 0312012316

Code number for other types of insulation screen: Replace the 6<sup>th</sup> digit as follows:  
2 for S + CUW ; 3 for B + CUT ; 4 for B + CUW

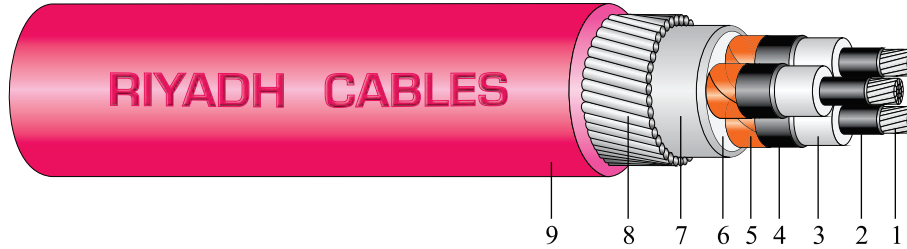
(2) Laying conditions: Underground temperature of soil 20°C, Ground thermal resistivity 100°C cm/W, Ambient temperature 30°C. Depth of laying = 700 mm (For other laying conditions, please refer to page 71 and 72 for de-rating factors)

## ARMOURED THREE CORE CABLES

ALUMINIUM CONDUCTORS

IEC 60502-2

U<sub>0</sub>/U<sub>m</sub>=8.7/15(17.5) kV



- |                                     |                      |
|-------------------------------------|----------------------|
| 1. Conductor                        | 6. PP Filler         |
| 2. Conductor Screen                 | 7. Bedding           |
| 3. XLPE Insulation                  | 8. Steel Wire Armour |
| 4. Insulation Screen (Non-metallic) | 9. Outer Sheath      |
| 5. Insulation Screen (Metallic)     |                      |

Item code (1)	Size	Diameter of Conductor (Approx.)	Nominal Insulation Thickness	Diameter over insulation (Approx.)	Nominal Diameter of Steel Wire	Nominal Outer Sheath thickness		Overall Diameter (Approx.)		Weight of Cable (Approx.)	
						CUT/CUW	CUT	CUW	CUT	CUW	CUT
	mm <sup>2</sup>	mm	mm	mm	mm	mm	mm	mm	mm	kg/km	kg/km
10	25	6.0	4.5	16.6	2.5	2.6	2.6	55	57	4200	4450
11	35	7.1	4.5	17.7	2.5	2.7	2.7	57	60	4800	5050
12	50	8.3	4.5	18.9	2.5	2.8	2.8	60	63	5300	5525
13	70	9.7	4.5	20.3	2.5	2.9	2.9	64	66	5825	6075
14	95	11.55	4.5	22.15	2.5	3.0	3.1	68	71	6475	6950
15	120	12.95	4.5	23.55	2.5	3.2	3.2	72	75	7300	7550
16	150	14.3	4.5	24.9	2.5	3.3	3.4	75	80	7925	9200
17	185	15.9	4.5	26.5	3.15	3.4	3.5	80	83	9575	9975
18	240	18.4	4.5	29.0	3.15	3.6	3.7	87	89	10925	11325
19	300	20.5	4.5	31.1	3.15	3.8	3.8	92	94	12200	12500

Size	Max. DC Resistance @ 20°C	Inductance	Capacitance	Adiabatic Short Circuit Current for 1 second			Current Carrying Capacity (2)				Voltage drop per phase
				Conductor	CUT	CUW	CUT		CUW		
							Direct Buried	In Air	Direct Buried	In Air	
mm <sup>2</sup>	Ohm/km	mH/km	μF/km	kA	kA	kA	Amps	Amps	Amps	Amps	V/A.Km
25	1.20	0.413	0.17	2.360	1.302	2.000	117	116	111	109	1.3246
35	0.868	0.394	0.19	3.304	1.371	2.000	138	138	133	132	0.9795
50	0.641	0.382	0.20	4.720	1.455	2.000	162	163	156	156	0.7440
70	0.443	0.364	0.23	6.608	1.569	2.000	197	200	191	192	0.5367
95	0.320	0.356	0.25	8.968	1.686	2.000	235	241	228	232	0.4093
120	0.253	0.346	0.27	11.328	1.791	2.000	265	275	258	265	0.3383
150	0.206	0.338	0.29	14.160	1.89	3.125	296	309	287	298	0.2885
185	0.164	0.330	0.32	17.464	2.007	3.125	332	350	324	339	0.2434
240	0.125	0.321	0.35	22.656	2.175	3.125	381	407	374	396	0.2022
300	0.100	0.312	0.39	28.320	2.316	3.125	425	458	418	447	0.1746

(1) The code numbers to be read in conjunction with 04120123 at the beginning. Example for 150 mm<sup>2</sup> cable, the code number is 0412012316

Code number for other types of insulation screen: Replace the 6<sup>th</sup> digit as follows:  
2 for S + CUW ; 3 for B + CUT ; 4 for B + CUW

(2) Laying conditions: Underground temperature of soil 20°C, Ground thermal resistivity 100°C cm/W, Ambient temperature 30°C. Depth of laying = 700 mm (For other laying conditions, please refer to page 71 and 72 for de-rating factors)

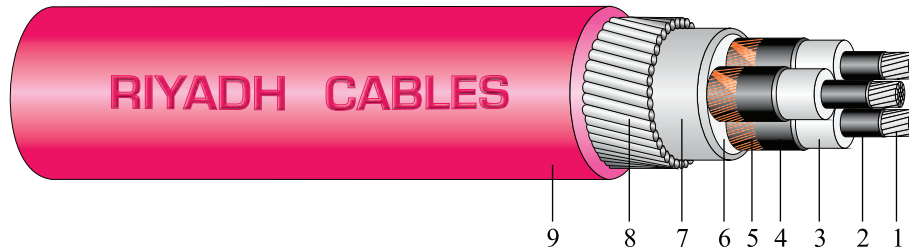


## ARMoured THREE CORE CABLES

ALUMINIUM CONDUCTORS

IEC 60502-2

U<sub>o</sub>/U<sub>(Um)</sub>=12/20(24) kV



- |                                     |                      |
|-------------------------------------|----------------------|
| 1. Conductor                        | 6. PP Filler         |
| 2. Conductor Screen                 | 7. Bedding           |
| 3. XLPE Insulation                  | 8. Steel Wire Armour |
| 4. Insulation Screen (Non-metallic) | 9. Outer Sheath      |
| 5. Insulation Screen (Metallic)     |                      |

Item code (1)	Size	Diameter of Conductor (Approx.)	Nominal Insulation Thickness	Diameter over insulation (Approx.)	Nominal diameter of Steel Wire	Nominal Outer Sheath thickness		Overall Diameter (Approx.)		Weight of Cable (Approx.)	
						CUT	CUW	CUT	CUW	CUT	CUW
	mm <sup>2</sup>	mm	mm	mm	mm	mm	mm	mm	mm	kg/km	kg/km
10	25	6.0	6.0	19.6	2.5	2.8	2.9	62	65	5050	5300
11	35	7.1	5.5	19.7	2.5	2.8	2.9	62	65	5450	5700
12	50	8.3	5.5	20.9	2.5	2.9	3.0	65	66	5925	5950
13	70	9.7	5.5	22.3	2.5	3.1	3.1	68	72	6475	6850
14	95	11.55	5.5	24.15	2.5	3.2	3.3	73	76	7400	7700
15	120	12.95	5.5	25.55	3.15	3.4	3.4	78	81	8975	9250
16	150	14.3	5.5	26.9	3.15	3.5	3.5	82	84	9600	9900
17	185	15.9	5.5	28.5	3.15	3.6	3.6	85	88	10450	10800
18	240	18.4	5.5	31.0	3.15	3.8	3.8	91	94	11900	12175
19	300	20.5	5.5	33.1	3.15	3.9	4.0	96	99	13100	13425

Size	Max. DC Resistance @ 20°C	Inductance	Capacitance	Adiabatic Short Circuit Current for 1 second			Current Carrying Capacity (2) (Both Ends Bonded)				Voltage drop per phase
				Conductor	CUT	CUW	CUT		CUW		
							Direct Buried	In Air	Direct Buried	In Air	
mm <sup>2</sup>	Ohm/km	mH/km	μF/km	kA	kA	kA	Amps	Amps	Amps	Amps	V/A.Km
25	1.20	0.444	0.14	2.360	1.512	2.000	116	116	111	110	1.3316
35	0.868	0.415	0.16	3.304	1.512	2.000	138	138	132	132	0.9843
50	0.641	0.402	0.18	4.720	1.596	2.000	161	163	156	157	0.7485
70	0.443	0.382	0.20	6.608	1.707	2.000	197	201	190	193	0.5408
95	0.320	0.373	0.21	8.968	1.827	2.000	234	241	227	232	0.4132
120	0.253	0.362	0.23	11.328	1.932	2.000	264	275	257	266	0.3419
150	0.206	0.353	0.25	14.160	2.028	3.125	294	309	287	299	0.2918
185	0.164	0.345	0.27	17.464	2.148	3.125	331	349	323	339	0.2468
240	0.125	0.335	0.30	22.656	2.316	3.125	380	406	372	395	0.2054
300	0.100	0.320	0.33	28.320	2.457	3.125	424	457	416	446	0.1764

(1) The code numbers to be read in conjunction with 05120123 at the beginning. Example for 150 mm<sup>2</sup> cable, the code number is 0512012316

Code number for other types of insulation screen: Replace the 6<sup>th</sup> digit as follows:  
2 for S + CUW ; 3 for B + CUT ; 4 for B + CUW

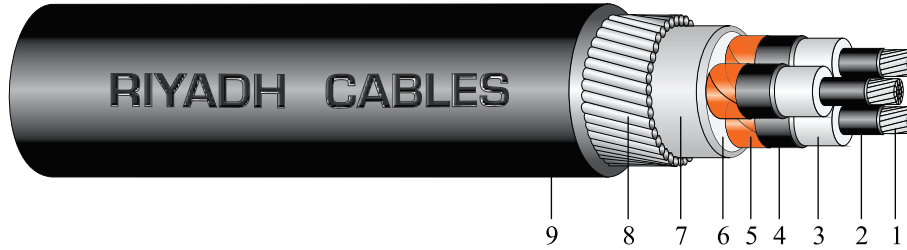
(2) Laying conditions: Underground temperature of soil 20°C, Ground thermal resistivity 100°C cm/W, Ambient temperature 30°C. Depth of laying = 700 mm (For other laying conditions, please refer to page 71 and 72 for de-rating factors)

## ARMOURED THREE CORE CABLES

ALUMINIUM CONDUCTORS

IEC 60502-2

U<sub>o</sub>/U<sub>(Um)</sub>=18/30(36) kV



- |                                     |                      |
|-------------------------------------|----------------------|
| 1. Conductor                        | 6. PP Filler         |
| 2. Conductor Screen                 | 7. Bedding           |
| 3. XLPE Insulation                  | 8. Steel Wire Armour |
| 4. Insulation Screen (Non-metallic) | 9. Outer Sheath      |
| 5. Insulation Screen (Metallic)     |                      |

Item code (1)	Size	Diameter of Conductor (Approx.)	Nominal Insulation Thickness	Diameter over insulation (Approx.)	Nominal diameter of Steel Wire	Nominal Outer Sheath thickness		Overall Diameter (Approx.)		Weight of Cable (Approx.)	
						CUT	CUW	CUT	CUW	CUT	CUW
	mm <sup>2</sup>	mm	mm	mm	mm	mm	mm	mm	mm	kg/km	kg/km
12	50	8.3	8.0	25.9	3.15	3.4	3.5	79	82	8700	9075
13	70	9.7	8.0	27.3	3.15	3.5	3.6	83	85	9425	9725
14	95	11.55	8.0	29.15	3.15	3.6	3.7	87	90	10300	10625
15	120	12.95	8.0	30.55	3.15	3.8	3.8	90	93	11100	11375
16	150	14.3	8.0	31.9	3.15	3.9	3.9	94	96	11775	12150
17	185	15.9	8.0	33.5	3.15	4.0	4.0	97	100	12675	13025
18	240	18.4	8.0	36.0	3.15	4.2	4.2	103	106	14175	14525
19	300	20.5	8.0	38.1	3.15	4.3	4.4	108	111	15525	15875

Size	Max. DC Resistance @ 20°C	Inductance	Capacitance	Adiabatic Short Circuit Current for 1 second			Current Carrying Capacity (2)				Voltage drop per phase
				Conductor	CUT	CUW	CUT		CUW		
							Direct Buried Amps	In Air Amps	Direct Buried Amps	In Air Amps	
mm <sup>2</sup>	Ohm/km	mH/km	μF/km	kA	kA	kA	Amps	Amps	Amps	Amps	V/A.Km
50	0.641	0.454	0.14	4.720	1.947	2.000	160	164	155	158	0.7603
70	0.443	0.430	0.16	6.608	2.058	2.000	194	200	189	193	0.5517
95	0.320	0.419	0.17	8.968	2.175	2.000	231	241	226	233	0.4236
120	0.253	0.405	0.18	11.328	2.28	2.000	262	274	255	266	0.3516
150	0.206	0.395	0.19	14.160	2.379	3.125	292	307	284	298	0.3013
185	0.164	0.384	0.21	17.464	2.496	3.125	328	348	321	338	0.2557
240	0.125	0.371	0.23	22.656	2.664	3.125	377	404	369	394	0.2135
300	0.100	0.358	0.25	28.320	2.805	3.125	420	455	413	444	0.1850

(1) The code numbers to be read in conjunction with 06120123 at the beginning. Example for 150 mm<sup>2</sup> cable, the code number is 0612012316

Code number for other types of insulation screen: Replace the 6<sup>th</sup> digit as follows:  
2 for S + CUW ; 3 for B + CUT ; 4 for B + CUW

(2) Laying conditions: Underground temperature of soil 20°C, Ground thermal resistivity 100°C cm/W, Ambient temperature 30°C. Depth of laying = 700 mm (For other laying conditions, please refer to page 71 and 72 for de-rating factors)



**Current Carrying Capacity for Aluminium Wire  
Armoured Cables with Single Point Bonding**

**3.5/6 (7.2) kV AL/XLPE/AWA/PVC**

Size	CUT		CUW	
	Direct Buried	In Air	Direct Buried	In Air
mm <sup>2</sup>	Amps	Amps	Amps	Amps
25	129	131	130	133
35	154	159	155	161
50	182	190	183	193
70	222	235	223	238
95	266	287	267	290
120	303	331	303	334
150	339	375	338	381
185	384	434	382	436
240	446	514	442	514
300	503	589	497	587
400	577	692	562	685
500	659	809	636	789
630	747	935	716	904

**6/10 (12) kV AL/XLPE/AWA/PVC**

Size	CUT		CUW	
	Direct Buried	In Air	Direct Buried	In Air
mm <sup>2</sup>	Amps	Amps	Amps	Amps
25	129	132	130	134
35	154	160	155	162
50	182	191	182	194
70	222	237	223	240
95	266	289	266	292
120	303	335	303	338
150	339	380	338	382
185	384	435	382	437
240	446	515	442	515
300	503	590	497	588
400	578	698	563	685
500	659	809	636	789
630	748	935	715	903

**8.7/15 (17.5) kV AL/XLPE/AWA/PVC**

Size	CUT		CUW	
	Direct Buried	In Air	Direct Buried	In Air
mm <sup>2</sup>	Amps	Amps	Amps	Amps
25	129	133	129	135
35	154	161	154	163
50	182	193	182	195
70	222	239	222	241
95	266	293	266	295
120	303	337	303	339
150	339	381	337	383
185	383	437	381	438
240	445	516	441	516
300	502	591	497	592
400	578	698	563	686
500	658	809	636	789
630	748	935	717	906

**12/20 (24) kV AL/XLPE/AWA/PVC**

Size	CUT		CUW	
	Direct Buried	In Air	Direct Buried	In Air
mm <sup>2</sup>	Amps	Amps	Amps	Amps
25	129	134	129	136
35	154	162	154	164
50	181	194	182	197
70	222	241	222	244
95	266	294	266	296
120	302	338	302	340
150	338	382	337	384
185	383	438	381	439
240	445	517	441	519
300	503	595	496	592
400	578	698	562	686
500	658	808	637	790
630	748	934	717	905

**18/30 (36) kV AL/XLPE/AWA/PVC**

Size	CUT		CUW	
	Direct Buried	In Air	Direct Buried	In Air
mm <sup>2</sup>	Amps	Amps	Amps	Amps
50	181	197	182	198
70	221	243	222	245
95	265	295	265	297
120	302	343	301	339
150	338	386	336	386
185	383	441	380	441
240	445	521	440	519
300	502	595	496	592
400	576	697	562	685
500	657	806	637	789
630	746	930	719	905

For Aluminium Tape Armoured Cables, the current mentioned above shall be 1% less.



**TABLE 1 (a)**  
**CORRECTION FACTOR FOR VARIATION IN THERMAL RESISTIVITY OF SOIL**

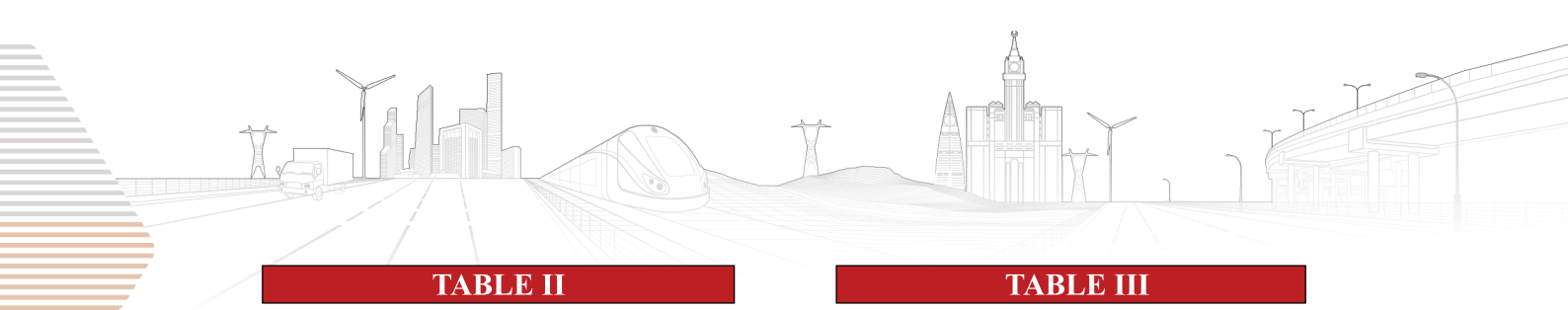
Soil Thermal Resistivity in °C CM/W	CORRECTION FACTOR	
	Group of 3 Single Core Cables	3 Core Cables
50	1.25	1.25
70	1.14	1.10
85	1.06	1.05
90	1.04	1.03
100	1.00	1.00
120	0.93	0.95
150	0.85	0.88
200	0.75	0.79
210	0.74	0.77
240	0.69	0.73
250	0.68	0.72
300	0.62	0.68
350	0.58	0.64
400	0.54	0.60
450	0.51	0.57

**Note :** The correction factors given above have been averaged over the range of conductor sizes.  
The overall accuracy of correction factors is within  $\pm 5\%$

**TABLE 1 (b)**  
**CORRECTION FACTOR FOR VARIATION IN LAYING DEPTH OF CABLES**

LAYING DEPTH (m)	CORRECTION/FACTOR
0.5	1.03
0.7	1.00
1.0	0.96
1.2	0.93
1.5	0.91
2.0	0.88
2.5	0.86





**TABLE II**

**TABLE III**

**CORRECTION FOR AMBIENT TEMPERATURE**

<b>LAID DIRECT IN GROUND</b>	
<b>Ambient Temp.(°C)</b>	<b>Correction Factor</b>
0	1.13
5	1.10
10	1.07
15	1.04
20	1.00
25	0.96
30	0.93
35	0.89
40	0.85
45	0.80
50	0.76
55	0.71
60	0.65
70	0.53

<b>CABLE IN AIR ( FREE AIR &amp; SHADED AREA )</b>	
<b>Ambient Temp.(°C)</b>	<b>Correction Factor</b>
0	1.22
5	1.19
10	1.15
15	1.12
20	1.08
25	1.04
30	1.00
35	0.95
40	0.90
45	0.85
50	0.79
55	0.73
60	0.67
70	0.53

**TABLE IV**  
**CABLES LAID UNDER GROUND**

**MULTI CORE CABLES**

No. cables	DISTANCE BETWEEN CABLES (m)-L-				
	Touching	One ext. dia	0.125	0.250	0.500
2	0.77	0.80	0.84	0.88	0.92
3	0.65	0.68	0.74	0.79	0.85
4	0.58	0.62	0.69	0.75	0.83
5	0.53	0.57	0.64	0.71	0.80
6	0.50	0.54	0.61	0.69	0.79

**Note :** The correction factors given above have been averaged over the range of conductor sizes.  
The overall accuracy of correction factors is within  $\pm 3\%$

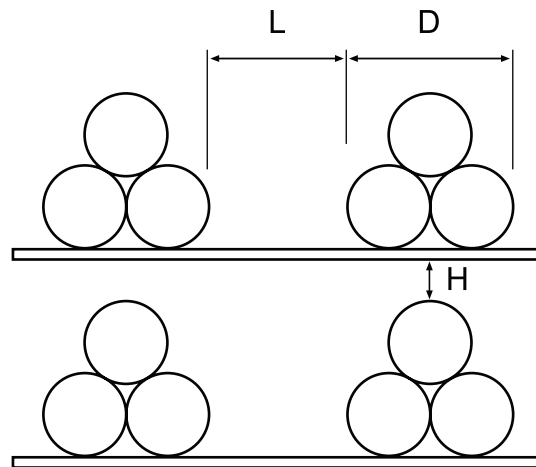
**SINGLE CORE CABLES**

No. of circuits	DISTANCE BETWEEN CABLES (m)-L-				
	Touching	One ext. dia	0.125	0.250	0.500
2	0.75	0.77	0.80	0.85	0.89
3	0.63	0.65	0.69	0.75	0.82
4	0.57	0.59	0.63	0.70	0.79
5	0.52	0.55	0.59	0.66	0.76
6	0.49	0.51	0.56	0.64	0.74

**Note :** The correction factors given above have been averaged over the range of conductor sizes.  
The overall accuracy of correction factors is within  $\pm 3\%$   
The space (L) is the clearance between circuits (distance between cable edges).



**TABLE V**  
**CORRECTION OF PROXIMITY EFFECT, CABLES IN AIR**



**SINGLE CORE CABLE**

Method of laying	Number of system:	1	2	3	
	Number of racks				
Touching	1	0.97	0.89	0.87	3 cables horizontal layer
	2	0.94	0.85	0.81	
	3	0.93	0.84	0.79	
Spaced out one diameter	1	1.00	0.98	0.96	3 cables in trefoil formation
	2	0.97	0.93	0.89	
	3	0.96	0.92	0.86	

**MULTI CORE CABLE**

Method of laying	Number of cables	1	2	3	4	5
	Number of racks					
Touching	1	1.0	0.88	0.82	0.78	0.76
	2	1.0	0.87	0.87	0.76	0.73
	3	1.0	0.86	0.79	0.75	0.71
Spaced out one diameter	1	1.0	1.0	0.98	0.95	0.91
	2	1.0	0.98	0.96	0.92	0.87
	3	1.0	0.98	0.95	0.91	0.85

**Note:** The space (H) between layers must not be less than 300 mm.  
The space (L) is the clearance between circuits (distance between cable edges).

**TABLE VI**  
**MAX. SHORT CIRCUIT CURRENT FOR CONDUCTORS AT 1 SEC.**

**COPPER CONDUCTORS :**

Construction	Cond. Max Temp. Normal Operation	Short Circuit Conductor Max. Temp.	Conductor Temp. at the beginning of short circuit								
			90	80	70	65	60	50	40	30	20
	°C	°C	SHORT CIRCUIT CURRENT A./mm <sup>2</sup>								
XLPE Cable	90	250	143	149	154	157	159	165	170	176	181

**ALUMINIUM CONDUCTORS :**

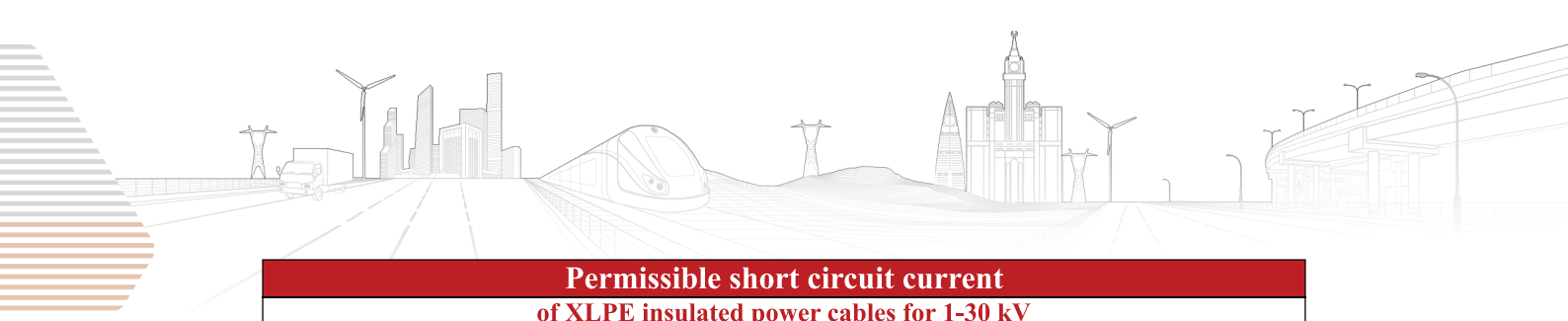
Construction	Cond. Max Temp. Normal Operation	Short Circuit Conductor Max. Temp.	Conductor Temp. at the beginning of short circuit								
			90	80	70	65	60	50	40	30	20
	°C	°C	SHORT CIRCUIT CURRENT A./mm <sup>2</sup>								
XLPE Cable	90	250	94	98	102	104	105	109	113	116	120

Isc for time (t) can be obtained from the following formula:

$$I_{sc}(t) = \frac{I_{sc}(1)}{\sqrt{t}}$$

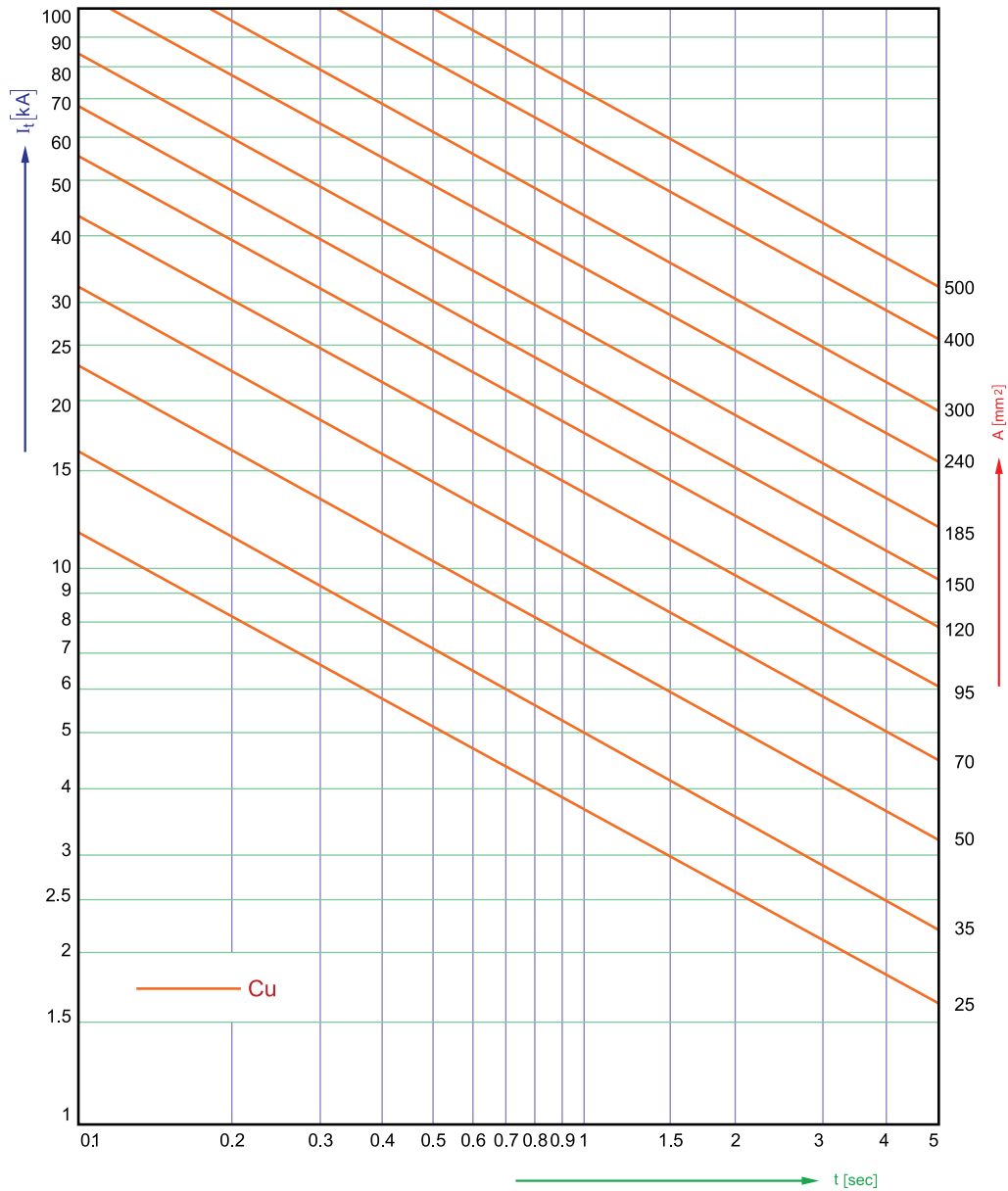
Where : I<sub>sc</sub> (1) = short circuit current at 1 sec.

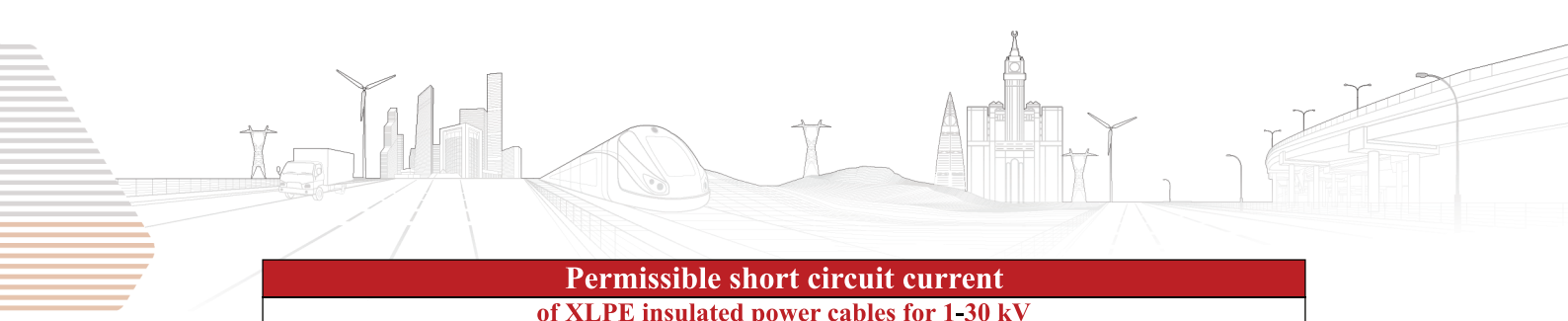




**Permissible short circuit current  
of XLPE insulated power cables for 1-30 kV**

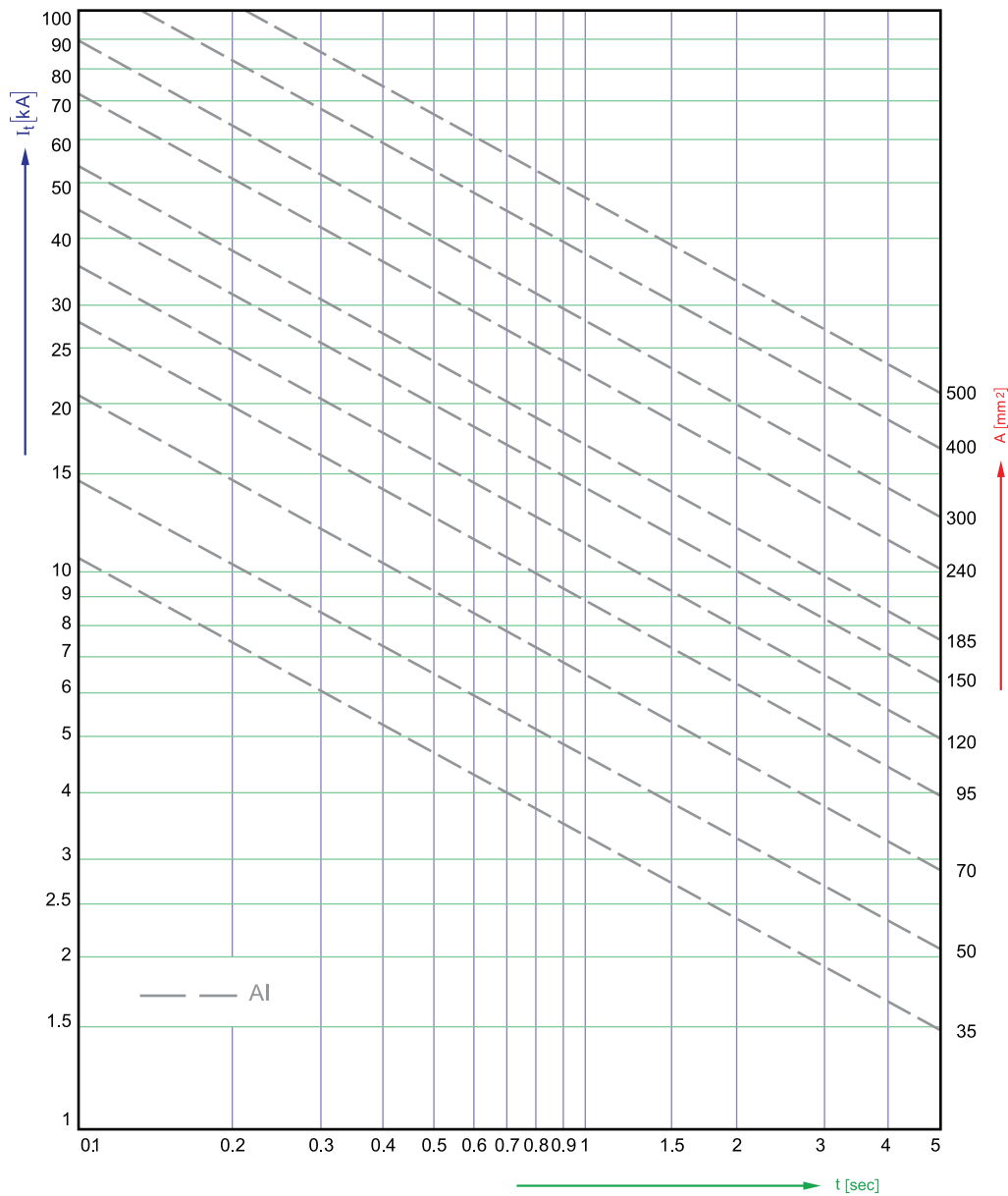
**(COPPER CONDUCTOR)**

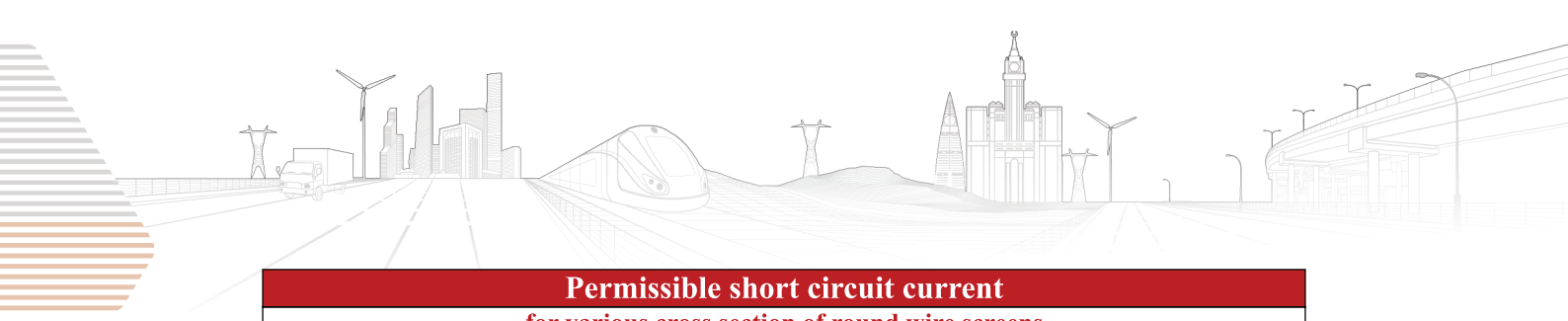




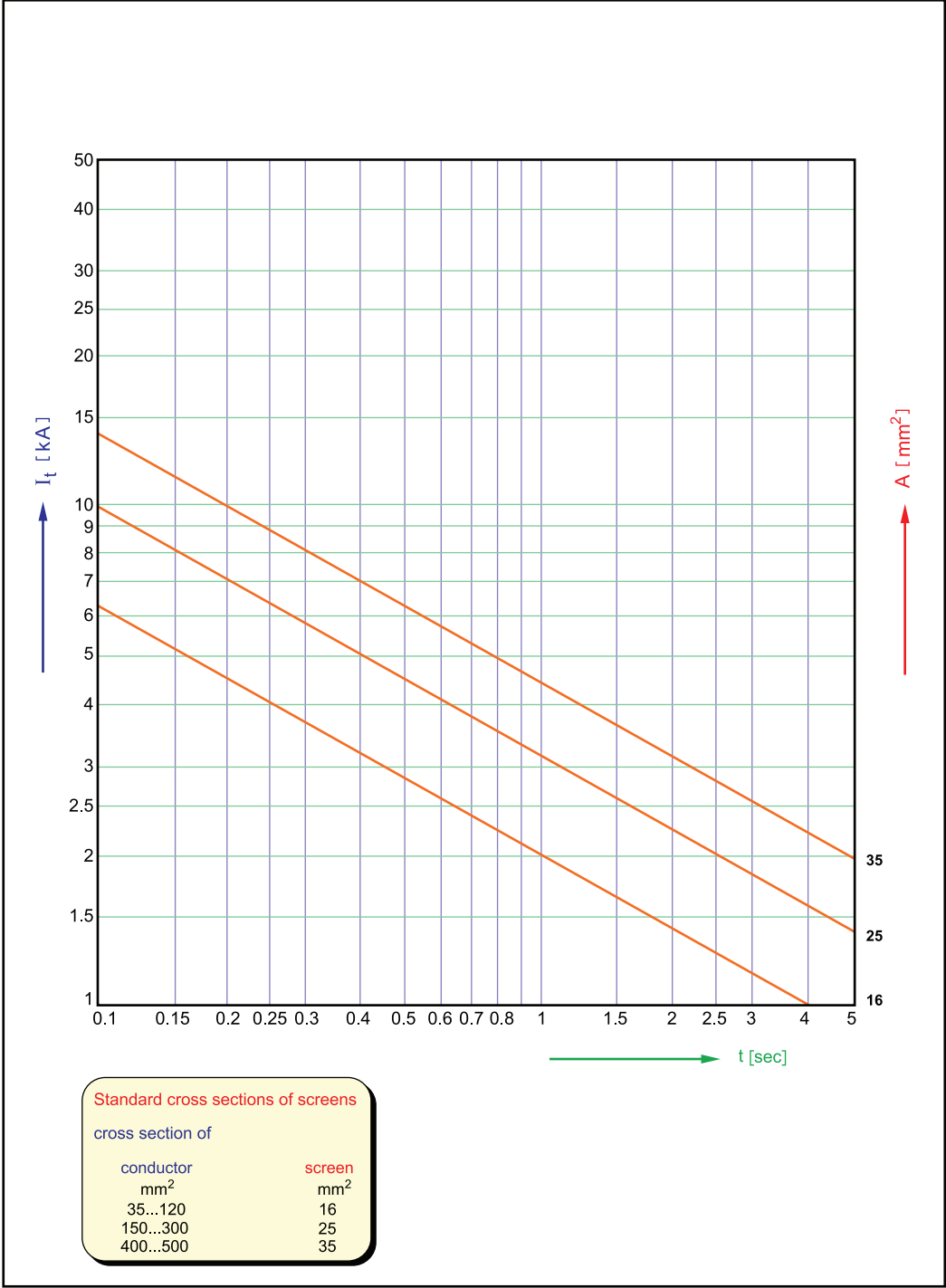
**Permissible short circuit current  
of XLPE insulated power cables for 1-30 kV**

**(ALUMINIUM CONDUCTOR)**





**Permissible short circuit current  
for various cross section of round wire screens**







## CABLE PULLING, LAYING AND HANDLING INSTRUCTIONS

### **(a) DRUM HANDLING**

- 1) Unloading the drum should be by forklift or crane, rolling should be avoided.
- 2) If the above equipment are not available, rolling as per direction on special constructed ramps is allowed with a slope of  $1/4$  ( $0 = 14$  degrees)
- 3) Drum should not be dropped on the ground under any circumstances even on soft material.
- 4) Drums should be kept in the up-right position.
- 5) Be sure that the end seal cap is still in place.
- 6) Drums should be covered all the time.

### **B) PREPARATION, CABLE PULLING AND LAYING:**

- 1) It is recommended to dig a trial hole in the cable route which shall indicate the position of other services and a smooth bend can be provided to reduce the pulling load on the cable.
- 2) Drum flange bolts should be inspected and tightened as they may get loosened during drum transportation and frequent handling.
- 3) Cable should be inspected before laying to ensure that it is damage free.
- 4) Location of drum prior to pulling can be decided based on minimum pulling tension which can be achieved.
- 5) Drums should be normally mounted so that the cable is pulled from the top of the drum and for very heavy cables it may be necessary to use a ramp to support the cable during passage into the trench. When cables have significant stiffness, e.g. those with HDPE outer sheaths, it may be preferable to pull from the bottom to reduce the tendency for the cable to come off with a wavy or spiral profile.
- 6) The cable should preferably be drawn to its final position in a continuous manner. During stops, it will settle between rollers and may cause high strain on machines during re-starting.
- 7) When pulling cables beside existing cables, special care should be taken to avoid damage to the existing cables.





## CABLE PULLING, LAYING AND HANDLING INSTRUCTIONS

- 8) Precautions should be taken such as clearing all excavated material from the trench edges, using vertical timbers etc., so that no stones or sharp objects shall fall onto the cable.
- 9) Minimum permissible bending radius shall be as per Table -1 and Table -2.
- 10) Maximum pulling tension should be as per Table -3.
- 11) Side wall pressure at the bend should not be exceeded.
- 12) Remember always that cables is a high commodity value and it is very sensitive to damage and must be handled with necessary care.
- 13) Possibility of braking the drum anytime should be prepared as in sudden stoppage of cable pulling. Continuation of drum rotation can cause sharp bending of the cable.
- 14) During pulling the inner end of the cable might be projected more and more, then it is necessary to interrupt the cable pulling from time to time in such cases for re-securing the said end.
- 15) Depth of laying shall be minimum 0.6 meters under footpath and 0.8 meters under roads for Low Voltage and Medium Voltage cables while it shall be around 1.5 meters for High Voltage cables.
- 16) Layer of sand 10 cm approx. under and over the cable shall be finished. Then a layer of brick or tile shall be placed for warning, mechanical protection, load distribution.
- 17) When pulling the cable inside conduit/pipe the inner diameter of the pipe shall be min. 1.5 times the cable diameter.
- 18) It is preferable to use pipe with funnel shape, cable should not rest at the sharp edges of the pipe, special care should be taken such that stones and other objects are not dragged with the cable inside the pipe.
- 19) Pipe should be cleaned before pulling operation.
- 20) Special lubricant can be used to minimise the cable friction with the pipe wall.
- 21) When cables of different voltages are laid together it is preferable that the higher voltage to be laid down, then the lower voltage and then lower voltage. High voltage cables should be separated by a covering slab from the other cables.



## CABLE PULLING, LAYING AND HANDLING INSTRUCTIONS

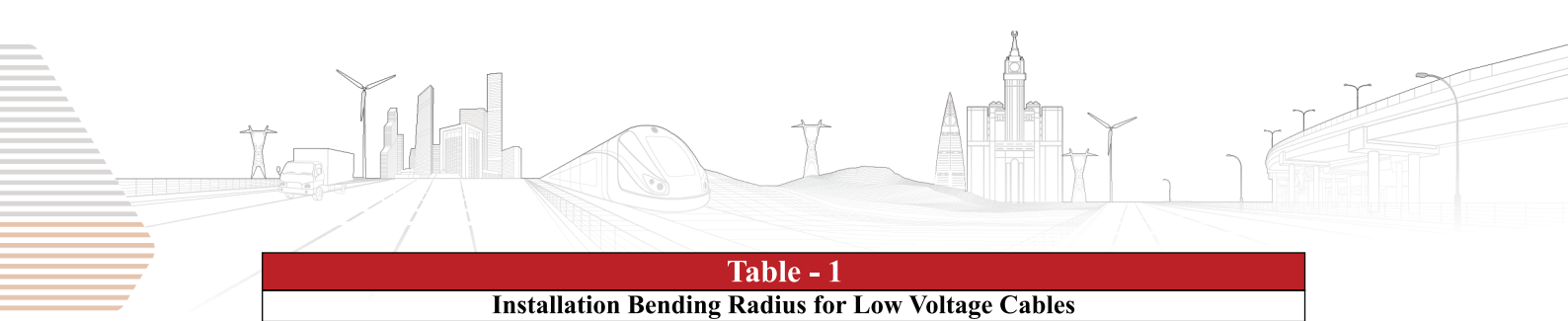
- 22) For direct buried installations, rollers at a distance of around 1-2 meters are to be used based on cable weight, in any case cable should not touch the ground, It is recommended to use motorised rollers at the distance of 20 M to 30 M with proper monitoring. These are beside the normal cable rollers specially near bending points so that the cable pulling force shall be distributed evenly over the complete length of the cable. This kind of pulling is recommended when there are many bends in the cable route.
- 23) For cable pulling, cable stocking can be used for Steel Wire armoured cables while for non-armoured cables and Steel Tape armoured cables pulling head is preferred. Special care shall be taken to seal the cable head avoiding water penetration during pulling.
- 24) It is not advisable to use cable pulling stocking when the ambient temperature is around 45 °C or more and under direct sunlight as the outer jacket might soften and get damaged.
- 25) It is recommended to use pulling head when the cable is pulled inside pipes or conduits as slipping of stocking might occur inside the pipe or conduit.
- 26) While pulling, continuous monitoring of the tensile force should be maintained.
- 27) At the bend, cable shall be guided by rollers. Direct touch with trench wall shall be completely avoided.
- 28) Immediately after cutting, the cable ends must be suitably sealed so that there is no ingress of moisture.
- 29) It is recommended to inspect the cable after laying to ensure that the cable has not been damaged.
- 30) Cable after laying should not be straightened but left with slight meandering to allow longitudinal expansion and contraction during thermal cycling.
- 31) When the ground water table is high it is advisable to use special cable construction with longitudinal and radial watertight characteristics.



**(c) CONSIDERATION FOR CABLE CURRENT RATING :**

When laying cables special attention should be given to:

- 1) Cable spacing.
- 2) Any other cable passing by, in parallel or crossing as this might affect considerably the cable rating.
- 3) Any other heat source which might be near the cable as this shall have the same effect as point no. 2.
- 4) Drying effect of soil on the value of soil thermal resistivity and side effects on current rating.
- 5) Avoid connecting the armour and sheath at both ends for single core cables as this shall reduce the current rating of the cables considerably but special attention should be given to induced voltage in both normal operation and short circuit.
- 6) The deeper the cables are laid lower is the ampacity of cables.
- 7) If cables are passing through pipes for more than 6 meters then the pipe derating factor should be considered.
- 8) Avoid pulling single core cable inside steel pipe or any other magnetic material as this shall cause high losses and cable overheating.
- 9) Soil thermal resistivity of the actual ground at different places of the trench shall be measured to ensure that the value is matching the one used for current rating computation.



**Table - 1**  
**Installation Bending Radius for Low Voltage Cables**

Type of cable	Multiplying factor	
	Installation bending radius	
	During Installation	Fixed Installation
Single core (Un-armoured, Armoured) Multi-core (Un-Armoured and Steel wire Armoured)	12	8
Multi-core (Steel Tape Armoured)	15	8

**Table - 2**  
**Installation Bending Radius for Medium Voltage Cables**

Cable outermost sheath or covering	Factor to be multiplied by Overall diameter of cable	
	During Installation	Fixed Installation
PVC	15	10
HDPE	20	15
Lead Sheathed (Un-Armoured)	18	12
Lead Sheathed (Armoured)	15	10

**Table - 3**  
**Installation Bending Radius for High Voltage Cables**

Factor to be multiplied by Overall diameter of cable	
During Installation	Fixed Installation
20	20



**Table - 4 (Permissible pulling force in the laying of LV, MV and HV cables)**

Means of pulling	Type of cable	Formula	Factor
With pulling head attached to the conductors	All types of cables	$P = \sigma \cdot A$	$\sigma = 50 \text{ N/mm}^2$ (Copper conductor) $\sigma = 30 \text{ N/mm}^2$ (Alum. conductor)
With pulling stocking	Un-armoured cables*	$P = \sigma \cdot A$	$\sigma = 50 \text{ N/mm}^2$ (Copper conductor) $\sigma = 30 \text{ N/mm}^2$ (Alum. conductor)
	Armoured cables**	$P = k \cdot d^2$	$k = 9 \text{ N/mm}^2$
	Lead sheath cables	$P = k \cdot d^2$	$k = 3 \text{ N/mm}^2$

\* When pulling 3 single core cables simultaneously with a common pulling stocking, the same maximum pulling force applies, whereas the pulling force 3 laid-up single core cables is 3 times that of a single core and for 3 non-laid-up single core cables is 2 times that of a single core.

\*\* Not applicable for high voltage cables

P = Pull in N

A = Total cross sectional area in mm<sup>2</sup> of all conductors (but not screen or concentric conductor)

d = Outside diameter of the cable in mm

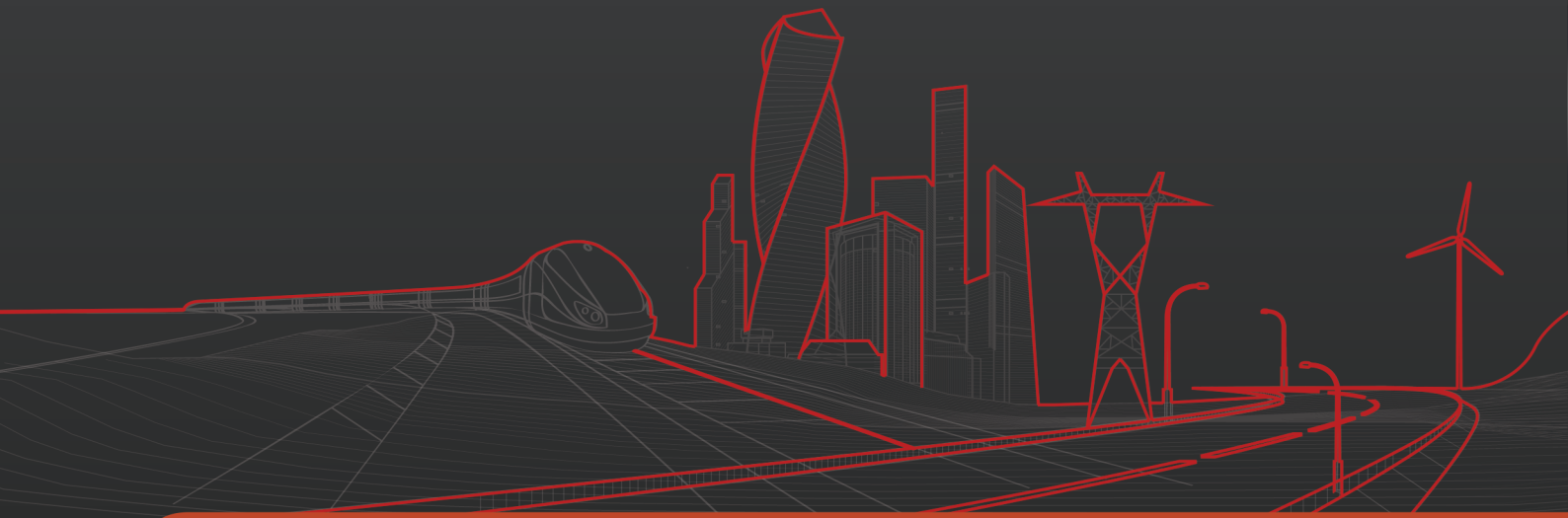
$\sigma$  = Permissible tensile stress of conductor in N/mm<sup>2</sup>

k = Empirically derived factor in N/mm<sup>2</sup>

**Table - 5 (Permissible Radial Load Values)**

Permissible radial loads for pulling through plastic pipes	
Non-Armoured Cables	10000 N/m
Cables with Single Armour	15000 N/m
Maximum permissible loads on rollers fitted on bends	
Non-Armoured Cables	1500 N/m
Cables with Single Armour	2500 N/m
When using roller chain (5 rollers / m)	
Non-Armoured Cables	7500 N/m
Cables with Single Armour	12500 N/m
When only 3 rollers / m are fitted	
Non-Armoured Cables	4500 N/m
Cables with Single Armour	7500 N/m





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