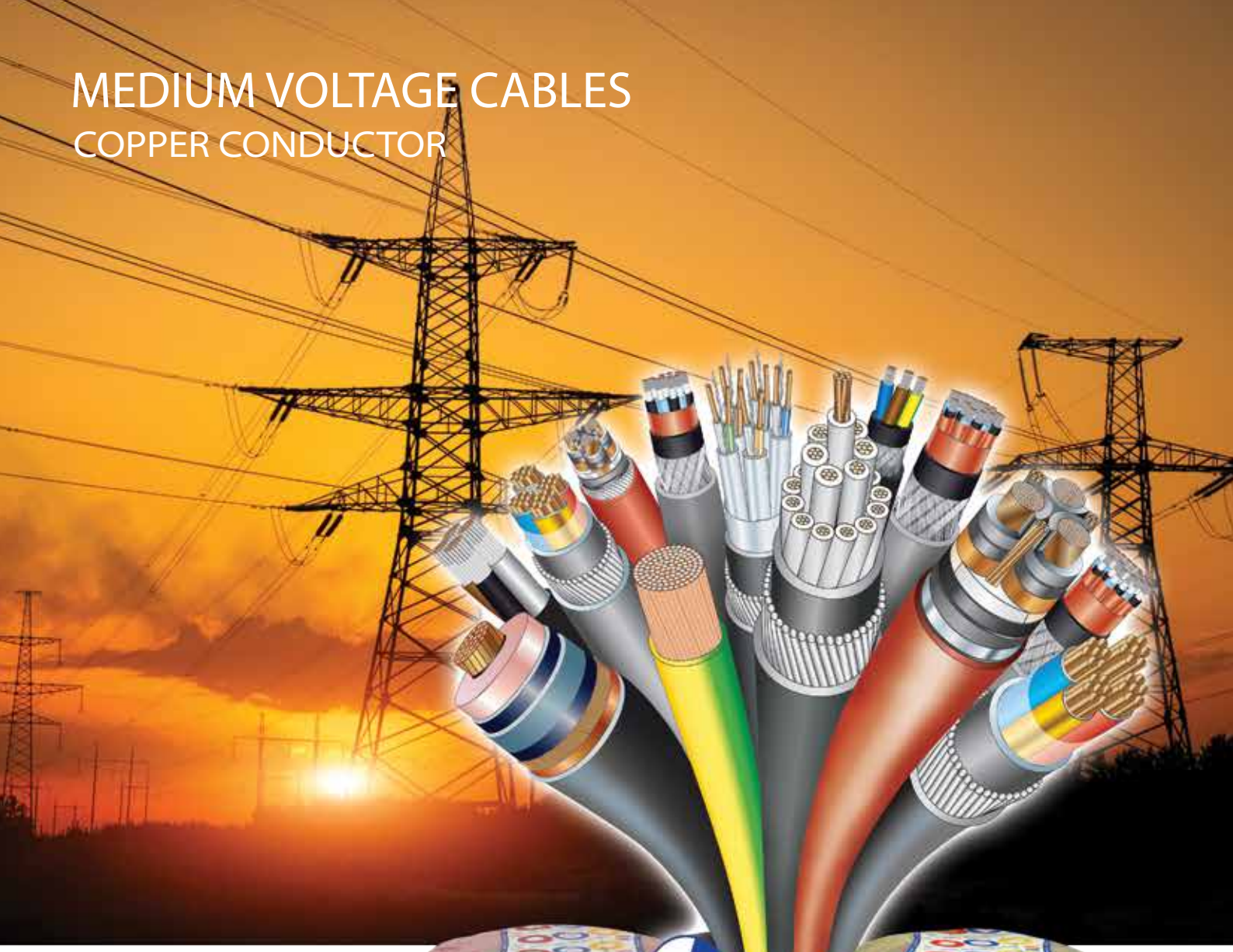
MEDIUM VOLTAGE CABLES
COPPER CONDUCTOR



NUHAS OMAN
CABLES & WIRES

QUALITY & RELIABILITY


NUHAS OMAN • SPECIALITY WIRES & CABLES
شركة نحاس عمان للأسلاك والكابلات المتخصصة

MEDIUM VOLTAGE CABLES

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COMPANY PROFILE

Nuhas Oman LLC, a member of the Al-Bahja Group of Companies, is an ISO 9001:2015 BASEC, UK certified integrated quality producer of LV and MV Cables, Wires & Conductors and Oxygen Free High Conductivity Continuous Cast Copper Rods in the Sultanate of Oman.

Nuhas is also certified to ISO 14001:2015 and ISO 45001:2018 by Bureau Veritas, Oman for HSE management system.

Our current capabilities are:

1. World-class Speciality Insulated Wires and Cables manufactured in state of art facility.
2. Oxygen Free High Conductivity Continuous Copper rod produced by UPCAST® System.
3. Nuhas Oman offers wide range of Cables :
    - Medium Voltage cables (Copper & Aluminium Conductor) up to 33 kV
    - Low Voltage cables
        - ❑ Power & Control Cables (Copper & Aluminium Conductor)
        - ❑ Instrumentation Cables
        - ❑ Flexible cords and Building wires
        - ❑ LPCB approved Fire Resistant Cables
        - ❑ LPCB approved Fire Alarm Cables
        - ❑ Offshore & Shipboard Cables
        - ❑ Multi layer sheathed chemical resistant Cables
        - ❑ Rubber Flexible Cables
        - ❑ Photovoltaic (Solar) Cables

Our product range meet the requirements of a broad spectrum of applications including - Industrial, Power & Control, Petrochemical, Oil & Gas, Ship Building and Offshore Platforms, Building & Construction, Hospitals, Hotels, Entertainment & Security etc. Nuhas Oman Cables are type test approved by BSI,U.K; KEMA,Netherlands; DEKRA,VDE,UL,LPCB & DNV-GL complying with relevant international BS & IEC Specifications. Our Cables are approved by various utilities, large corporates and global consultants such as Distribution Code Review Panel (DCRP),Oman; NAMA Holding (Mazoon,MEDC,Majan,Tanweer,DPC), Ministry of Electricity & Water,JSRS, Petroleum Development Oman (PDO), Oman Oil Refineries Petroleum Industries Company (ORPIC),Duqm Refinery, Daleel Petroleum,Oman Oil Company,Oman LNG, Oman Gas Company, Ministry of Transport, Ministry of Communications, Ministry of Defence, Royal Oman Police (ROP), Royal Court Affairs (RCA), Ministry of Health, Special Economic Zone Authority Duqm (SEZAD), Muscat Municipality, Occidental (Oxy), BP, Shell, Petrofac, Atkins, Parsons, Worley Parsons, SSH, Khatib and Alami, Mott MacDonald, Renardet etc.

Abu Dhabi Water & Electricity Authority (ADWEA), Abu Dhabi National Oil Company (ADNOC), Qatar General Electricity & Water Authority (Kahramaa), Qatar Civil Defense, Kuwait National Petroleum Company (KNPC), Electricity Distribution Directorate, Kingdom of Bahrain, Ministry of Electricity & Water authority,Kuwait; Saudi Electricity Company, KEO International, Arab Engineering Bureau, COWI etc.

New product development is a continuing activity at Nuhas Oman.

Nuhas is the first producer in the Middle East to have been certified by DNV-GL,Norway capable of manufacturing power, control and instrumentation cables for shipboard,high speed/light craft and off-shore applications. Nuhas Oman manufactures FRC 500 Fire Resistant LV cables and FRC 300 Fire Alarm screened cables which are type approved by LPCB, UK. Nuhas Oman also offers Power, Control & Instrumentation Cables with multilayer (AL-HDPE-PA) sheath as an alternative to Lead sheathed cables for better chemical protection mainly used in Petrochemical industry.

Nuhas is committed to deliver quality products that conform to relevant International standards. Our quality cycle commences from the time of sourcing of raw materials and consumables, in-process production controls and certification of finished goods prior to delivery. A well-equipped in-house quality assurance facility ensures that all products delivered meet stringent quality controls and parameters. Our state-of-the-art laboratory is equipped for testing as per required standards as well as individual customer specifications.

Our production and quality management systems are manned by a team of experienced professionals backed with relevant industry experience. Nuhas Oman is committed to excellence in the management of health, safety, environment and labor practices. We are committed to promoting and protecting the welfare of our employees through "Safety First" work practices and providing a healthy workplace. Nuhas Oman also ensures compliance with the laws and regulations of the land. Nuhas Oman endeavors to be a responsible corporate citizen and fulfills its responsibilities through its Corporate Social Responsibility initiatives. Our global client base extending from Far East Asia, Indian sub-continent, the GCC, Africa to Europe is testimony to customer confidence and satisfaction. The company is committed to meet the challenges of the Domestic & Global markets for supply of world class Cables & Wires, while maintaining the sanctity of our pristine environment.

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Table 1														
Technical Data	**IEC 60502-2 3.6/6 (7.2) kV**	**Single Core, Copper Conductor, XLPE Insulated, Aluminium Round Wire Armoured Cable**												
Nominal Cross-sectional Area of Conductor	mm²	50	70	95	120	150	185	240	300	400	500	630	800	1000
Conductor Diameter (approx)	mm	8.1	9.7	11.4	12.9	14.6	16.0	18.4	20.6	23.3	26.3	30.0	34.1	38.2
Weight of Conductor (approx)	kg/km	409	592	822	1038	1280	1583	2080	2610	3337	4277	5540	7154	8936
Nominal Insulation Thickness	mm	2.5	2.5	2.5	2.5	2.5	2.5	2.6	2.8	3.0	3.2	3.2	3.2	3.2
Nominal Armour Wire Diameter	mm	1.6	1.6	1.6	1.6	1.6	2.0	2.0	2.0	2.0	2.5	2.5	2.5	2.5
Nominal Outer Sheath Thickness	mm	1.8	1.8	1.9	1.9	2.0	2.0	2.1	2.2	2.3	2.5	2.6	2.7	2.9
Overall Diameter (approx)	mm	24.0	25.0	28.0	29.0	31.0	33.0	36.0	39.0	42.0	47.0	51.0	55.0	60.0
Weight of Cable (approx)	kg/km	990	1230	1560	1810	2150	2570	3190	3880	4760	6060	7550	9390	11450
Standard Packing Length (± 5%)	m	500	500	500	500	500	500	500	500	500	500	500	400	300
Minimum Bending Radius during installation	m	0.36	0.38	0.42	0.44	0.47	0.50	0.54	0.59	0.63	0.71	0.77	0.83	0.90
DC resistance at 20°C (max)	Ω/km	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601	0.0470	0.0366	0.0283	0.0221	0.0176
AC resistance at 90°C (approx)	Ω/km	0.494	0.342	0.247	0.196	0.159	0.1280	0.0982	0.0791	0.0632	0.0510	0.0417	0.0326	0.0259
Reactance at 50 Hz (approx)	Ω/km	0.121	0.115	0.109	0.105	0.102	0.099	0.096	0.094	0.092	0.089	0.086	0.083	0.080
Impedance at 50 Hz (approx)	Ω/km	0.509	0.361	0.270	0.222	0.189	0.162	0.137	0.123	0.112	0.103	0.096	0.089	0.084
Capacitance at 50 Hz	µF/km	0.34	0.38	0.43	0.47	0.51	0.56	0.61	0.62	0.65	0.69	0.78	0.87	0.97
Charging Current/phase at U_o = 3.6 kV, 50 Hz (approx)	A/km	0.38	0.43	0.49	0.53	0.58	0.63	0.69	0.70	0.74	0.78	0.88	0.99	1.10
Continuous Current Rating at cond temp. 90°C max														
1. Laid in ground	A	193	234	278	315	349	391	446	495	551	593	646	693	731
2. Laid into ducts	A	183	223	265	301	334	376	430	478	534	578	632	682	721
3. Laid in air in trefoil touching	A	234	291	353	406	460	524	611	692	788	873	975	1074	1156
" Short Circuit Current Rating for 1 sec (Cond.temp 90°C initial & 250°C max final)	kA	7.15	10.0	13.6	17.2	21.5	26.5	34.3	42.9	57.2	71.5	90.1	114.5	143.1

Assumptions:	1. Ground temperature: 20°C	2. Air temperature: 30°C	3. Thermal resistivity of soil: 1.5°C m/W
	4. Depth of laying: 0.8 m	5. For any other condition(s) please refer to the appropriate table for recommended installation data.	

Table 2

Technical Data	IEC 60502-2 6/10 (12) kV	Single Core, Copper Conductor, XLPE Insulated, Aluminium Round Wire Armoured Cable												
Nominal Cross-sectional Area of Conductor	mm²	50	70	95	120	150	185	240	300	400	500	630	800	1000
Conductor Diameter (approx)	mm	8.1	9.7	11.4	12.9	14.6	16.0	18.4	20.6	23.3	26.3	30.0	34.1	38.2
Weight of Conductor (approx)	kg/km	409	592	822	1038	1280	1583	2080	2610	3337	4277	5540	7154	8936
Nominal Insulation Thickness	mm	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
Nominal Armour Wire Diameter	mm	1.6	1.6	1.6	1.6	2.0	2.0	2.0	2.0	2.0	2.5	2.5	2.5	2.5
Nominal Outer Sheath Thickness	mm	1.8	1.9	1.9	2.0	2.1	2.1	2.2	2.2	2.4	2.5	2.6	2.7	2.9
Overall Diameter (approx)	mm	26.0	27.0	29.0	31.0	34.0	35.0	38.0	40.0	43.0	47.0	51.0	56.0	60.0
Weight of Cable (approx)	kg/km	1080	1340	1630	1920	2350	2700	3320	3960	4840	6100	7600	9440	11510
Standard Packing Length (± 5%)	m	500	500	500	500	500	500	500	500	500	500	500	400	300
Minimum Bending Radius during installation	m	0.39	0.41	0.44	0.47	0.51	0.53	0.57	0.60	0.65	0.71	0.77	0.84	0.90
DC resistance at 20°C (max)	Ω/km	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601	0.0470	0.0366	0.0283	0.0221	0.0176
AC resistance at 90°C (approx)	Ω/km	0.494	0.342	0.247	0.196	0.159	0.1280	0.0981	0.0791	0.0632	0.0510	0.0417	0.0326	0.0259
Reactance at 50 Hz (approx)	Ω/km	0.127	0.120	0.114	0.109	0.106	0.103	0.099	0.096	0.093	0.090	0.087	0.084	0.081
Impedance at 50 Hz (approx)	Ω/km	0.510	0.362	0.272	0.224	0.191	0.164	0.139	0.124	0.112	0.103	0.096	0.090	0.085
Capacitance at 50 Hz	µF/km	0.26	0.30	0.33	0.36	0.39	0.43	0.48	0.52	0.58	0.66	0.74	0.83	0.92
Charging Current/phase at U_o = 6 kV, 50 Hz (approx)	A/km	0.49	0.57	0.62	0.68	0.74	0.81	0.90	0.98	1.09	1.24	1.40	1.56	1.73
Continuous Current Rating at cond temp. 90°C max														
1. Laid in ground	A	193	234	278	315	349	391	446	495	551	593	646	693	731
2. Laid into ducts	A	183	223	265	301	334	376	430	478	534	578	632	682	721
3. Laid in air in trefoil touching	A	234	291	353	406	460	524	611	692	788	873	975	1074	1156
" Short Circuit Current Rating for 1 sec (Cond.temp 90°C initial & 250°C max final)"	kA	7.15	10.0	13.6	17.2	21.5	26.5	34.3	42.9	57.2	71.5	90.1	114.5	143.1

Assumptions:			
	1. Ground temperature: 20°C	2. Air temperature: 30°C	3. Thermal resistivity of soil: 1.5°C m/W
	4. Depth of laying: 0.8 m	5. For any other condition(s) please refer to the appropriate table for recommended installation data.	

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Table 3

Technical Data	IEC 60502-2 8.7/15 (17.5) kV	Single Core, Copper Conductor, XLPE Insulated, Aluminium Round Wire Armoured Cable												
Nominal Cross-sectional Area of Conductor	mm²	50	70	95	120	150	185	240	300	400	500	630	800	1000
Conductor Diameter (approx)	mm	8.1	9.7	11.4	12.9	14.6	16.0	18.4	20.6	23.3	26.3	30.0	34.1	38.2
Weight of Conductor (approx)	kg/km	409	592	822	1038	1280	1583	2080	2610	3337	4277	5540	7154	8936
Nominal Insulation Thickness	mm	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Nominal Armour Wire Diameter	mm	1.6	1.6	2.0	2.0	2.0	2.0	2.0	2.0	2.5	2.5	2.5	2.5	2.5
Nominal Outer Sheath Thickness	mm	1.9	1.9	2.0	2.1	2.1	2.2	2.3	2.3	2.5	2.6	2.7	2.8	3.0
Overall Diameter (approx)	mm	28.0	30.0	32.0	34.0	36.0	37.0	40.0	42.0	47.0	50.0	54.0	58.0	63.0
Weight of Cable (approx)	kg/km	1210	1460	1870	2170	2490	2870	3520	4160	5210	6330	7830	9720	11800
Standard Packing Length (± 5%)	m	500	500	500	500	500	500	500	500	500	500	500	400	300
Minimum Bending Radius during installation	m	0.42	0.45	0.48	0.51	0.54	0.56	0.60	0.63	0.71	0.75	0.81	0.87	0.95
DC resistance at 20°C (max)	Ω/km	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601	0.0470	0.0366	0.0283	0.0221	0.0176
AC resistance at 90°C (approx)	Ω/km	0.494	0.342	0.247	0.196	0.159	0.1280	0.0979	0.0790	0.0630	0.0507	0.0413	0.0323	0.0257
Reactance at 50 Hz (approx)	Ω/km	0.132	0.125	0.119	0.114	0.111	0.107	0.103	0.100	0.097	0.093	0.090	0.087	0.084
Impedance at 50 Hz (approx)	Ω/km	0.511	0.364	0.274	0.227	0.194	0.167	0.142	0.127	0.116	0.106	0.099	0.093	0.088
Capacitance at 50 Hz	µF/km	0.21	0.24	0.27	0.29	0.31	0.34	0.38	0.41	0.46	0.51	0.57	0.64	0.71
Charging Current/phase at U_o = 8.7 kV, 50 Hz (approx)	A/km	0.57	0.66	0.74	0.79	0.85	0.93	1.04	1.12	1.26	1.39	1.56	1.75	1.94
Continuous Current Rating at cond temp. 90°C max														
1. Laid in ground	A	193	234	278	315	349	391	446	495	551	593	646	693	731
2. Laid into ducts	A	183	223	265	301	334	376	430	478	534	578	632	682	721
3. Laid in air in trefoil touching	A	234	291	353	406	460	524	611	692	788	873	975	1074	1156
" Short Circuit Current Rating for 1 sec (Cond.temp 90°C initial & 250°C max final)"	kA	7.15	10.0	13.6	17.2	21.5	26.5	34.3	42.9	57.2	71.5	90.1	114.5	143.1

Assumptions:	1. Ground temperature: 20°C	2. Air temperature: 30°C	3. Thermal resistivity of soil: 1.5°C m/W
	4. Depth of laying: 0.8 m	5. For any other condition(s) please refer to the appropriate table for recommended installation data.	

Table 4

Technical Data	IEC 60502-2 12/20 (24) kV	Single Core, Copper Conductor, XLPE Insulated, Aluminium Round Wire Armoured Cable												
Nominal Cross-sectional Area of Conductor	mm²	50	70	95	120	150	185	240	300	400	500	630	800	1000
Conductor Diameter (approx)	mm	8.1	9.7	11.4	12.9	14.6	16.0	18.4	20.6	23.3	26.3	30.0	34.1	38.2
Weight of Conductor (approx)	kg/km	409	592	822	1038	1280	1583	2080	2610	3337	4277	5540	7154	8936
Nominal Insulation Thickness	mm	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Nominal Armour Wire Diameter	mm	1.6	2.0	2.0	2.0	2.0	2.0	2.0	2.5	2.5	2.5	2.5	2.5	2.5
Nominal Outer Sheath Thickness	mm	2.0	2.0	2.1	2.1	2.2	2.2	2.3	2.4	2.5	2.6	2.8	2.9	3.0
Overall Diameter (approx)	mm	31.0	33.0	35.0	37.0	39.0	40.0	43.0	46.0	49.0	52.0	56.0	61.0	65.0
Weight of Cable (approx)	kg/km	1360	1720	2040	2330	2690	3070	3710	4540	5430	6590	8110	10010	12090
Standard Packing Length (± 5%)	m	500	500	500	500	500	500	500	500	500	500	500	400	300
Minimum Bending Radius during installation	m	0.47	0.50	0.53	0.56	0.59	0.60	0.65	0.69	0.74	0.78	0.84	0.92	0.98
DC resistance at 20°C (max)	Ω/km	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601	0.0470	0.0366	0.0283	0.0221	0.0176
AC resistance at 90°C (approx)	Ω/km	0.494	0.342	0.247	0.196	0.159	0.1280	0.0980	0.0790	0.0630	0.0510	0.0410	0.0320	0.0255
Reactance at 50 Hz (approx)	Ω/km	0.137	0.130	0.123	0.118	0.115	0.111	0.106	0.103	0.100	0.096	0.092	0.088	0.084
Impedance at 50 Hz (approx)	Ω/km	0.513	0.366	0.276	0.229	0.196	0.169	0.144	0.130	0.118	0.109	0.101	0.094	0.088
Capacitance at 50 Hz	µF/km	0.18	0.21	0.23	0.25	0.27	0.29	0.32	0.35	0.39	0.43	0.48	0.54	0.59
Charging Current/phase at U_o = 12 kV, 50 Hz (approx)	A/km	0.68	0.79	0.87	0.94	1.02	1.09	1.21	1.32	1.47	1.62	1.81	2.02	2.23
Continuous Current Rating at cond temp. 90°C max														
1. Laid in ground	A	193	234	278	315	349	391	446	495	551	593	646	693	731
2. Laid into ducts	A	183	223	265	301	334	376	430	478	534	578	632	682	721
3. Laid in air in trefoil touching	A	234	291	353	406	460	524	611	692	788	873	975	1074	1156
" Short Circuit Current Rating for 1 sec (Cond.temp 90°C initial & 250°C max final)"	kA	7.15	10.0	13.6	17.2	21.5	26.5	34.3	42.9	57.2	71.5	90.1	114.5	143.1

Assumptions:	1. Ground temperature: 20°C	2. Air temperature: 30°C	3. Thermal resistivity of soil: 1.5°C m/W
	4. Depth of laying: 0.8 m	5. For any other condition(s) please refer to the appropriate table for recommended installation data.	

Table 5

Technical Data	IEC 60502-2 18/30 (36) kV	Single Core, Copper Conductor, XLPE Insulated, Aluminium Round Wire Armoured Cable												
Nominal Cross-sectional Area of Conductor	mm^2	50	70	95	120	150	185	240	300	400	500	630	800	1000
Conductor Diameter (approx)	mm	8.1	9.7	11.4	12.9	14.6	16.0	18.4	20.6	23.3	26.3	30.0	34.1	38.2
Weight of Conductor (approx)	kg/km	409	592	822	1038	1280	1583	2080	2610	3337	4277	5540	7154	8936
Nominal Insulation Thickness	mm	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Nominal Armour Wire Diameter	mm	2.0	2.0	2.0	2.0	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Nominal Outer Sheath Thickness	mm	2.2	2.2	2.3	2.3	2.4	2.5	2.5	2.6	2.7	2.8	2.9	3.1	3.2
Overall Diameter (approx)	mm	37.0	39.0	41.0	42.0	45.0	47.0	49.0	52.0	55.0	58.0	62.0	66.0	71.0
Weight of Cable (approx)	kg/km	1820	2110	2460	2760	3270	3690	4340	5060	5990	7180	8710	10690	12810
Standard Packing Length (± 5%)	m	500	500	500	500	500	500	500	500	500	500	500	400	300
Minimum Bending Radius during installation	m	0.56	0.59	0.62	0.63	0.68	0.71	0.74	0.78	0.83	0.87	0.93	0.99	1.07
DC resistance at 20°C (max)	Ω/km	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601	0.0470	0.0366	0.0283	0.0221	0.0176
AC resistance at 90°C (approx)	Ω/km	0.494	0.342	0.247	0.196	0.160	0.1270	0.0976	0.0785	0.0624	0.0500	0.0405	0.0316	0.0252
Reactance at 50 Hz (approx)	Ω/km	0.137	0.143	0.136	0.130	0.127	0.122	0.117	0.113	0.109	0.104	0.100	0.096	0.092
Impedance at 50 Hz (approx)	Ω/km	0.513	0.371	0.282	0.235	0.204	0.176	0.152	0.138	0.126	0.115	0.108	0.101	0.095
Capacitance at 50 Hz	µF/km	0.18	0.16	0.18	0.19	0.20	0.22	0.24	0.26	0.29	0.32	0.35	0.39	0.43
Charging Current/phase at U_o = 18 kV, 50 Hz (approx)	A/km	1.02	0.90	1.02	1.07	1.13	1.24	1.36	1.47	1.64	1.81	1.98	2.21	2.42
Continuous Current Rating at cond temp. 90°C max														
1. Laid in ground	A	193	234	278	315	349	391	446	495	551	593	646	693	731
2. Laid into ducts	A	183	223	265	301	334	376	430	478	534	578	632	682	721
3. Laid in air in trefoil touching	A	234	291	353	406	460	524	611	692	788	873	975	1074	1156
" Short Circuit Current Rating for 1 sec (Cond.temp 90°C initial & 250°C max final)"	kA	7.15	10.0	13.6	17.2	21.5	26.5	34.3	42.9	57.2	71.5	90.1	114.5	143.1

Assumptions:			
	1. Ground temperature: 20°C	2. Air temperature: 30°C	3. Thermal resistivity of soil: 1.5°C m/W
	4. Depth of laying: 0.8 m	5. For any other condition(s) please refer to the appropriate table for recommended installation data.	

Table 6

Technical Data	IEC 60502-2 3.6/6 (7.2) kV	Single Core, Copper Conductor, XLPE Insulated, Un-Armoured Cable												
Nominal Cross-sectional Area of Conductor	mm²	50	70	95	120	150	185	240	300	400	500	630	800	1000
Conductor Diameter (approx)	mm	8.1	9.7	11.4	12.9	14.6	16.0	18.4	20.6	23.3	26.3	30.0	34.1	38.2
Weight of Conductor (approx)	kg/km	409	592	822	1038	1280	1583	2080	2610	3337	4277	5540	7154	8936
Nominal Insulation Thickness	mm	2.5	2.5	2.5	2.5	2.5	2.5	2.6	2.8	3.0	3.2	3.2	3.2	3.2
Nominal Outer Sheath Thickness	mm	1.8	1.8	1.8	1.8	1.8	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.6
Overall Diameter (approx)	mm	19.0	21.0	23.0	24.0	26.0	27.0	30.0	33.0	36.0	40.0	43.0	48.0	52.0
Weight of Cable (approx)	kg/km	720	930	1200	1450	1730	2060	2630	3250	4080	5140	6520	8260	10200
Standard Packing Length (± 5%)	m	500	500	500	500	500	500	500	500	500	500	500	400	300
Minimum Bending Radius during installation	m	0.38	0.42	0.46	0.48	0.52	0.54	0.60	0.66	0.72	0.80	0.86	0.96	1.04
DC resistance at 20°C (max)	Ω/km	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601	0.0470	0.0366	0.0283	0.0221	0.0176
AC resistance at 90°C (approx)	Ω/km	0.494	0.342	0.247	0.196	0.159	0.1280	0.0982	0.0791	0.0632	0.0510	0.0417	0.0326	0.0259
Reactance at 50 Hz (approx)	Ω/km	0.121	0.115	0.109	0.105	0.102	0.099	0.096	0.094	0.092	0.089	0.086	0.083	0.080
Impedance at 50 Hz (approx)	Ω/km	0.509	0.361	0.270	0.222	0.189	0.162	0.137	0.123	0.112	0.103	0.096	0.089	0.084
Capacitance at 50 Hz	µF/km	0.34	0.38	0.43	0.47	0.51	0.56	0.61	0.62	0.65	0.69	0.78	0.87	0.97
Charging Current/phase at U_o = 3.6 kV, 50 Hz (approx)	A/km	0.38	0.43	0.49	0.53	0.58	0.63	0.69	0.70	0.74	0.78	0.88	0.99	1.10
Continuous Current Rating at cond temp. 90°C max														
1. Laid direct in ground	A	196	239	285	323	361	406	469	526	590	655	731	806	873
2. Laid into ducts	A	186	227	271	308	343	387	447	504	564	635	712	789	859
3. Laid in air in trefoil touching	A	238	296	361	417	473	543	641	735	845	956	1095	1241	1373
" Short Circuit Current Rating for 1 sec (Cond.temp 90°C initial & 250°C max final)"	kA	7.15	10.0	13.6	17.2	21.5	26.5	34.3	42.9	57.2	71.5	90.1	114.5	143.1

Assumptions:			
	1. Ground temperature: 20°C	2. Air temperature: 30°C	3. Thermal resistivity of soil: 1.5°C m/W
	4. Depth of laying: 0.8 m	5. For any other condition(s) please refer to the appropriate table for recommended installation data.	

Table 7

Technical Data	IEC 60502-2 6/10 (12) kV	Single Core, Copper Conductor, XLPE Insulated, Un-Armoured Cable												
Nominal Cross-sectional Area of Conductor	mm²	50	70	95	120	150	185	240	300	400	500	630	800	1000
Conductor Diameter (approx)	mm	8.1	9.7	11.4	12.9	14.6	16.0	18.4	20.6	23.3	26.3	30.0	34.1	38.2
Weight of Conductor (approx)	kg/km	409	592	822	1038	1280	1583	2080	2610	3337	4277	5540	7154	8936
Nominal Insulation Thickness	mm	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
Nominal Outer Sheath Thickness	mm	1.8	1.8	1.8	1.8	1.8	1.9	2.0	2.0	2.1	2.2	2.3	2.5	2.6
Overall Diameter (approx)	mm	21.0	23.0	24.0	26.0	28.0	29.0	32.0	34.0	37.0	40.0	44.0	48.0	53.0
Weight of Cable (approx)	kg/km	780	1000	1270	1530	1810	2160	2730	3320	4130	5170	6550	8320	10240
Standard Packing Length (± 5%)	m	500	500	500	500	500	500	500	500	500	500	500	400	300
Minimum Bending Radius during installation	m	0.42	0.46	0.48	0.52	0.56	0.58	0.64	0.68	0.74	0.80	0.88	0.96	1.06
DC resistance at 20°C (max)	Ω/km	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601	0.0470	0.0366	0.0283	0.0221	0.0176
AC resistance at 90°C (approx)	Ω/km	0.494	0.342	0.247	0.196	0.159	0.1280	0.0981	0.0791	0.0632	0.0510	0.0417	0.0326	0.0259
Reactance at 50 Hz (approx)	Ω/km	0.127	0.120	0.114	0.109	0.106	0.103	0.099	0.096	0.093	0.090	0.087	0.084	0.081
Impedance at 50 Hz (approx)	Ω/km	0.510	0.362	0.272	0.224	0.191	0.164	0.139	0.124	0.112	0.103	0.096	0.090	0.085
Capacitance at 50 Hz	µF/km	0.26	0.30	0.33	0.36	0.39	0.43	0.48	0.52	0.58	0.66	0.74	0.83	0.92
Charging Current/phase at U_o = 6 kV, 50 Hz (approx)	A/km	0.49	0.57	0.62	0.68	0.74	0.81	0.90	0.98	1.09	1.24	1.40	1.56	1.73
Continuous Current Rating at cond temp. 90°C max														
1. Laid direct in ground	A	196	239	285	323	361	406	469	526	590	655	731	806	873
2. Laid into ducts	A	186	227	271	308	343	387	447	504	564	635	712	789	859
3. Laid in air in trefoil touching	A	238	296	361	417	473	543	641	735	845	956	1095	1241	1373
" Short Circuit Current Rating for 1 sec (Cond.temp 90°C initial & 250°C max final)"	kA	7.15	10.0	13.6	17.2	21.5	26.5	34.3	42.9	57.2	71.5	90.1	114.5	143.1

Assumptions:			
	1. Ground temperature: 20°C	2. Air temperature: 30°C	3. Thermal resistivity of soil: 1.5°C m/W
	4. Depth of laying: 0.8 m	5. For any other condition(s) please refer to the appropriate table for recommended installation data.	

Table 8

Technical Data	IEC 60502-2 8.7/15 (17.5) kV	Single Core, Copper Conductor, XLPE Insulated, Un-Armoured Cable												
Nominal Cross-sectional Area of Conductor	mm²	50	70	95	120	150	185	240	300	400	500	630	800	1000
Conductor Diameter (approx)	mm	8.1	9.7	11.4	12.9	14.6	16.0	18.4	20.6	23.3	26.3	30.0	34.1	38.2
Weight of Conductor (approx)	kg/km	409	592	822	1038	1280	1583	2080	2610	3337	4277	5540	7154	8936
Nominal Insulation Thickness	mm	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Nominal Outer Sheath Thickness	mm	1.8	1.8	1.8	1.9	1.9	2.0	2.0	2.1	2.2	2.3	2.4	2.5	2.7
Overall Diameter (approx)	mm	23.0	25.0	27.0	28.0	30.0	31.0	34.0	36.0	39.0	42.0	46.0	51.0	55.0
Weight of Cable (approx)	kg/km	870	1090	1370	1640	1930	2290	2860	3470	4290	5340	6740	8500	10460
Standard Packing Length (± 5%)	m	500	500	500	500	500	500	500	500	500	500	500	400	300
Minimum Bending Radius during installation	m	0.46	0.50	0.54	0.56	0.60	0.62	0.68	0.72	0.78	0.84	0.92	1.02	1.10
DC resistance at 20°C (max)	Ω/km	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601	0.0470	0.0366	0.0283	0.0221	0.0176
AC resistance at 90°C (approx)	Ω/km	0.494	0.342	0.247	0.196	0.159	0.1280	0.0979	0.0790	0.0630	0.0507	0.0413	0.0323	0.0257
Reactance at 50 Hz (approx)	Ω/km	0.132	0.125	0.119	0.114	0.111	0.107	0.103	0.100	0.097	0.093	0.090	0.087	0.084
Impedance at 50 Hz (approx)	Ω/km	0.511	0.364	0.274	0.227	0.194	0.167	0.142	0.127	0.116	0.106	0.099	0.093	0.088
Capacitance at 50 Hz	µF/km	0.21	0.24	0.27	0.29	0.31	0.34	0.38	0.41	0.46	0.51	0.57	0.64	0.71
Charging Current/phase at U_o = 8.7 kV, 50 Hz (approx)	A/km	0.57	0.66	0.74	0.79	0.85	0.93	1.04	1.12	1.26	1.39	1.56	1.75	1.94
Continuous Current Rating at cond temp. 90°C max														
1. Laid direct in ground	A	196	239	285	323	361	406	469	526	590	655	731	806	873
2. Laid into ducts	A	186	227	271	308	343	387	447	504	564	635	712	789	859
3. Laid in air in trefoil touching	A	238	296	361	417	473	543	641	735	845	956	1095	1241	1373
" Short Circuit Current Rating for 1 sec (Cond.temp 90°C initial & 250°C max final)"	kA	7.15	10.0	13.6	17.2	21.5	26.5	34.3	42.9	57.2	71.5	90.1	114.5	143.1

Assumptions:			
	1. Ground temperature: 20°C	2. Air temperature: 30°C	3. Thermal resistivity of soil: 1.5°C m/W
	4. Depth of laying: 0.8 m	5. For any other condition(s) please refer to the appropriate table for recommended installation data.	

Table 9

Technical Data	IEC 60502-2 12/20 (24) kV	Single Core, Copper Conductor, XLPE Insulated, Un-Armoured Cable												
Nominal Cross-sectional Area of Conductor	mm²	50	70	95	120	150	185	240	300	400	500	630	800	1000
Conductor Diameter (approx)	mm	8.1	9.7	11.4	12.9	14.6	16.0	18.4	20.6	23.3	26.3	30.0	34.1	38.2
Weight of Conductor (approx)	kg/km	409	592	822	1038	1280	1583	2080	2610	3337	4277	5540	7154	8936
Nominal Insulation Thickness	mm	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Nominal Outer Sheath Thickness	mm	1.8	1.8	1.9	1.9	2.0	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7
Overall Diameter (approx)	mm	26.0	27.0	29.0	31.0	32.0	34.0	36.0	39.0	42.0	45.0	49.0	53.0	57.0
Weight of Cable (approx)	kg/km	970	1200	1500	1770	2080	2430	3020	3640	4480	5540	6960	8740	10690
Standard Packing Length (± 5%)	m	500	500	500	500	500	500	500	500	500	500	500	400	300
Minimum Bending Radius during installation	m	0.52	0.54	0.58	0.62	0.64	0.68	0.72	0.78	0.84	0.90	0.98	1.06	1.14
DC resistance at 20°C (max)	Ω/km	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601	0.0470	0.0366	0.0283	0.0221	0.0176
AC resistance at 90°C (approx)	Ω/km	0.494	0.342	0.247	0.196	0.159	0.1280	0.0980	0.0790	0.0630	0.0510	0.0410	0.0320	0.0255
Reactance at 50 Hz (approx)	Ω/km	0.137	0.130	0.123	0.118	0.115	0.111	0.106	0.103	0.100	0.096	0.092	0.088	0.084
Impedance at 50 Hz (approx)	Ω/km	0.513	0.366	0.276	0.229	0.196	0.169	0.144	0.130	0.118	0.109	0.101	0.094	0.088
Capacitance at 50 Hz	µF/km	0.18	0.21	0.23	0.25	0.27	0.29	0.32	0.35	0.39	0.43	0.48	0.54	0.59
Charging Current/phase at U_o = 12 kV, 50 Hz (approx)	A/km	0.68	0.79	0.87	0.94	1.02	1.09	1.21	1.32	1.47	1.62	1.81	2.02	2.23
Continuous Current Rating at cond temp. 90°C max														
1. Laid direct in ground	A	196	239	285	323	361	406	469	526	590	655	731	806	873
2. Laid into ducts	A	186	227	271	308	343	387	447	504	564	635	712	789	859
3. Laid in air in trefoil touching	A	238	296	361	417	473	543	641	735	845	956	1095	1241	1373
" Short Circuit Current Rating for 1 sec (Cond.temp 90°C initial & 250°C max final)"	kA	7.15	10.0	13.6	17.2	21.5	26.5	34.3	42.9	57.2	71.5	90.1	114.5	143.1

Assumptions:			
	1. Ground temperature: 20°C	2. Air temperature: 30°C	3. Thermal resistivity of soil: 1.5°C m/W
	4. Depth of laying: 0.8 m	5. For any other condition(s) please refer to the appropriate table for recommended installation data.	

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Table 10

Technical Data	IEC 60502-2 18/30 (36) kV	Single Core, Copper Conductor, XLPE Insulated, Un-Armoured Cable												
Nominal Cross-sectional Area of Conductor	mm²	50	70	95	120	150	185	240	300	400	500	630	800	1000
Conductor Diameter (approx)	mm	8.1	9.7	11.4	12.9	14.6	16.0	18.4	20.6	23.3	26.3	30.0	34.1	38.2
Weight of Conductor (approx)	kg/km	409	592	822	1038	1280	1583	2080	2610	3337	4277	5540	7154	8936
Nominal Insulation Thickness	mm	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Nominal Outer Sheath Thickness	mm	1.9	2.0	2.1	2.1	2.1	2.2	2.3	2.3	2.5	2.5	2.7	2.8	2.9
Overall Diameter (approx)	mm	31.0	33.0	34.0	36.0	38.0	39.0	42.0	44.0	47.0	50.0	54.0	59.0	63.0
Weight of Cable (approx)	kg/km	1230	1490	1800	2080	2400	2770	3390	4010	4900	5970	7440	9260	11250
Standard Packing Length (± 5%)	m	500	500	500	500	500	500	500	500	500	500	500	400	300
Minimum Bending Radius during installation	m	0.62	0.66	0.68	0.72	0.76	0.78	0.84	0.88	0.94	1.00	1.08	1.18	1.26
DC resistance at 20°C (max)	Ω/km	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601	0.0470	0.0366	0.0283	0.0221	0.0176
AC resistance at 90°C (approx)	Ω/km	0.494	0.342	0.247	0.196	0.160	0.1270	0.0976	0.0785	0.0624	0.0500	0.0405	0.0316	0.0252
Reactance at 50 Hz (approx)	Ω/km	0.137	0.143	0.136	0.130	0.127	0.122	0.117	0.113	0.109	0.104	0.100	0.096	0.092
Impedance at 50 Hz (approx)	Ω/km	0.513	0.371	0.282	0.235	0.204	0.176	0.152	0.138	0.126	0.115	0.108	0.101	0.095
Capacitance at 50 Hz	µF/km	0.18	0.16	0.18	0.19	0.20	0.22	0.24	0.26	0.29	0.32	0.35	0.39	0.43
Charging Current/phase at U_o = 18 kV, 50 Hz (approx)	A/km	1.02	0.90	1.02	1.07	1.13	1.24	1.36	1.47	1.64	1.81	1.98	2.21	2.42
Continuous Current Rating at cond temp. 90°C max														
1. Laid direct in ground	A	196	239	285	323	361	406	469	526	590	655	731	806	873
2. Laid into ducts	A	186	227	271	308	343	387	447	504	564	635	712	789	859
3. Laid in air in trefoil touching	A	238	296	361	417	473	543	641	735	845	956	1095	1241	1373
" Short Circuit Current Rating for 1 sec (Cond.temp 90°C initial & 250°C max final)"	kA	7.15	10.0	13.6	17.2	21.5	26.5	34.3	42.9	57.2	71.5	90.1	114.5	143.1

Assumptions:			
	1. Ground temperature: 20°C	2. Air temperature: 30°C	3. Thermal resistivity of soil: 1.5°C m/W
	4. Depth of laying: 0.8 m	5. For any other condition(s) please refer to the appropriate table for recommended installation data.	

Table 11

Technical Data	IEC 60502-2 3.6/6 (7.2) kV	Three Core, Copper Conductor, XLPE Insulated, Steel Round Wire Armoured Cable											
Nominal Cross-sectional Area of Conductor	mm²	16	25	35	50	70	95	120	150	185	240	300	400
Conductor Diameter (approx)	mm	4.8	5.9	6.9	8.1	9.7	11.4	12.9	14.6	16.0	18.4	20.6	23.3
Weight of Conductor (approx)	kg/km	410	651	906	1226	1776	2466	3114	3840	4749	6240	7830	10011
Nominal Insulation Thickness	mm	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.6	2.8	3.0
Nominal Armour Wire Diameter	mm	2.0	2.0	2.0	2.5	2.5	2.5	2.5	2.5	2.5	2.5	3.15	3.15
Nominal Outer Sheath Thickness	mm	2.2	2.3	2.3	2.5	2.6	2.7	2.8	2.9	3.0	3.2	3.5	3.8
Overall Diameter (approx)	mm	36.0	39.0	41.0	45.0	49.0	53.0	56.0	60.0	64.0	70.0	77.0	85.0
Weight of Cable (approx)	kg/km	2460	2910	3330	4270	5220	6270	7260	8350	9620	11800	14980	18220
Standard Packing Length (± 5%)	m	500	500	500	500	500	500	500	500	250	250	250	250
Minimum Bending Radius during installation	m	0.44	0.47	0.50	0.54	0.59	0.64	0.68	0.72	0.77	0.84	0.93	1.02
DC resistance at 20°C (max)	Ω/km	1.15	0.727	0.524	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601	0.0470
AC resistance at 90°C (approx)	Ω/km	1.47	0.927	0.668	0.493	0.343	0.247	0.196	0.159	0.1280	0.0986	0.0798	0.0641
Reactance at 50 Hz (approx)	Ω/km	0.126	0.117	0.109	0.105	0.100	0.095	0.092	0.090	0.087	0.085	0.084	0.082
Impedance at 50 Hz (approx)	Ω/km	1.475	0.934	0.677	0.504	0.357	0.265	0.217	0.183	0.155	0.130	0.116	0.104
Capacitance at 50 Hz	µF/km	0.26	0.30	0.33	0.36	0.41	0.46	0.50	0.55	0.60	0.65	0.67	0.70
Charging Current/phase at U_o = 3.6 kV, 50 Hz (approx)	A/km	0.29	0.34	0.37	0.41	0.46	0.52	0.57	0.62	0.68	0.74	0.76	0.79
Continuous Current Rating at cond temp. 90°C max													
1. Laid direct in ground	A	101	129	154	181	220	263	298	332	374	431	482	541
2. Laid into ducts	A	87	112	134	158	194	232	264	296	335	387	435	492
3. Laid in air in trefoil touching	A	112	143	172	205	253	307	352	397	453	529	599	683
" Short Circuit Current Rating for 1 sec (Cond.temp 90°C initial & 250°C max final)"	kA	2.29	3.58	5.01	7.15	10.0	13.6	17.2	21.5	26.5	34.3	42.9	57.2

Assumptions:			
	1. Ground temperature: 20°C	2. Air temperature: 30°C	3. Thermal resistivity of soil: 1.5°C m/W
	4. Depth of laying: 0.8 m	5. For any other condition(s) please refer to the appropriate table for recommended installation data.	

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Table 12

Technical Data	IEC 60502-2 6/10 (12) kV	Three Core, Copper Conductor, XLPE Insulated, Steel Round Wire Armoured Cable											
Nominal Cross-sectional Area of Conductor	mm²	16	25	35	50	70	95	120	150	185	240	300	400
Conductor Diameter (approx)	mm	4.8	5.9	6.9	8.1	9.7	11.4	12.9	14.6	16.0	18.4	20.6	23.3
Weight of Conductor (approx)	kg/km	410	651	906	1226	1776	2466	3114	3840	4749	6240	7830	10011
Nominal Insulation Thickness	mm	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
Nominal Armour Wire Diameter	mm	2.0	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	3.15	3.15	3.15
Nominal Outer Sheath Thickness	mm	2.3	2.4	2.5	2.6	2.7	2.9	3.0	3.1	3.2	3.4	3.6	3.8
Overall Diameter (approx)	mm	40.0	44.0	46.0	49.0	53.0	57.0	61.0	65.0	68.0	75.0	80.0	87.0
Weight of Cable (approx)	kg/km	2840	3660	4160	4760	5670	6820	7860	8970	10260	13210	15510	18560
Standard Packing Length (± 5%)	m	500	500	500	500	500	500	500	250	250	250	250	250
Minimum Bending Radius during installation	m	0.48	0.53	0.56	0.59	0.64	0.69	0.74	0.78	0.82	0.90	0.96	1.05
DC resistance at 20°C (max)	Ω/km	1.15	0.727	0.524	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601	0.0470
AC resistance at 90°C (approx)	Ω/km	1.47	0.927	0.668	0.493	0.342	0.247	0.196	0.159	0.1280	0.0984	0.0797	0.0639
Reactance at 50 Hz (approx)	Ω/km	0.134	0.124	0.116	0.111	0.106	0.100	0.097	0.094	0.092	0.089	0.086	0.083
Impedance at 50 Hz (approx)	Ω/km	1.476	0.935	0.678	0.505	0.358	0.266	0.219	0.185	0.158	0.133	0.117	0.105
Capacitance at 50 Hz	µF/km	0.21	0.24	0.26	0.28	0.32	0.36	0.39	0.42	0.46	0.51	0.56	0.62
Charging Current/phase at U_o = 6 kV, 50 Hz (approx)	A/km	0.40	0.45	0.49	0.53	0.60	0.68	0.74	0.79	0.87	0.96	1.06	1.17
Continuous Current Rating at cond temp. 90°C max													
1. Laid direct in ground	A	101	129	154	181	220	263	298	332	374	431	482	541
2. Laid into ducts	A	87	112	134	158	194	232	264	296	335	387	435	492
3. Laid in air in trefoil touching	A	112	143	172	205	253	307	352	397	453	529	599	683
" Short Circuit Current Rating for 1 sec (Cond.temp 90°C initial & 250°C max final)"	kA	2.29	3.58	5.01	7.15	10.0	13.6	17.2	21.5	26.5	34.3	42.9	57.2

Assumptions:	1. Ground temperature: 20°C	2. Air temperature: 30°C	3. Thermal resistivity of soil: 1.5°C m/W
	4. Depth of laying: 0.8 m	5. For any other condition(s) please refer to the appropriate table for recommended installation data.	

Table 13

Technical Data	IEC 60502-2 8.7/15 (17.5) kV	Three Core, Copper Conductor, XLPE Insulated, Steel Round Wire Armoured Cable										
Nominal Cross-sectional Area of Conductor	mm²	25	35	50	70	95	120	150	185	240	300	400
Conductor Diameter (approx)	mm	5.9	6.9	8.1	9.7	11.4	12.9	14.6	16.0	18.4	20.6	23.3
Weight of Conductor (approx)	kg/km	651	906	1226	1776	2466	3114	3840	4749	6240	7830	10011
Nominal Insulation Thickness	mm	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Nominal Armour Wire Diameter	mm	2.5	2.5	2.5	2.5	2.5	2.5	2.5	3.15	3.15	3.15	3.15
Nominal Outer Sheath Thickness	mm	2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.4	3.6	3.7	4.0
Overall Diameter (approx)	mm	49.0	52.0	55.0	58.0	62.0	66.0	70.0	75.0	80.0	86.0	92.0
Weight of Cable (approx)	kg/km	4260	4770	5420	6330	7500	8560	9700	11870	14130	16370	19500
Standard Packing Length (± 5%)	m	500	500	500	500	500	500	250	250	250	250	250
Minimum Bending Radius during installation	m	0.59	0.63	0.66	0.70	0.75	0.80	0.84	0.90	0.96	1.04	1.11
DC resistance at 20°C (max)	Ω/km	0.727	0.524	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601	0.0470
AC resistance at 90°C (approx)	Ω/km	0.927	0.668	0.493	0.342	0.247	0.196	0.159	0.1280	0.0982	0.0794	0.0636
Reactance at 50 Hz (approx)	Ω/km	0.132	0.124	0.118	0.112	0.106	0.102	0.100	0.097	0.093	0.090	0.087
Impedance at 50 Hz (approx)	Ω/km	0.936	0.679	0.507	0.360	0.269	0.221	0.188	0.161	0.135	0.120	0.108
Capacitance at 50 Hz	µF/km	0.19	0.21	0.23	0.26	0.29	0.31	0.34	0.37	0.41	0.45	0.50
Charging Current/phase at U_o = 8.7 kV, 50 Hz (approx)	A/km	0.52	0.57	0.63	0.71	0.79	0.85	0.93	1.01	1.12	1.23	1.37
Continuous Current Rating at cond temp. 90°C max												
1. Laid direct in ground	A	129	154	181	220	263	298	332	374	431	482	541
2. Laid into ducts	A	112	134	158	194	232	264	296	335	387	435	492
3. Laid in air in trefoil touching	A	143	172	205	253	307	352	397	453	529	599	683
" Short Circuit Current Rating for 1 sec	kA	3.58	5.01	7.15	10.0	13.6	17.2	21.5	26.5	34.3	42.9	57.2
(Cond.temp 90°C initial & 250°C max final)"												

Assumptions:			
	1. Ground temperature: 20°C	2. Air temperature: 30°C	3. Thermal resistivity of soil: 1.5°C m/W
	4. Depth of laying: 0.8 m	5. For any other condition(s) please refer to the appropriate table for recommended installation data.	

Table 14

Technical Data	IEC 60502-2 12/20 (24) kV	Three Core, Copper Conductor, XLPE Insulated, Steel Round Wire Armoured Cable									
Nominal Cross-sectional Area of Conductor	mm²	35	50	70	95	120	150	185	240	300	400
Conductor Diameter (approx)	mm	6.9	8.1	9.7	11.4	12.9	14.6	16.0	18.4	20.6	23.3
Weight of Conductor (approx)	kg/km	906	1226	1776	2466	3114	3840	4749	6240	7830	10011
Nominal Insulation Thickness	mm	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Nominal Armour Wire Diameter	mm	2.5	2.5	2.5	2.5	3.15	3.15	3.15	3.15	3.15	3.15
Nominal Outer Sheath Thickness	mm	2.8	2.9	3.1	3.2	3.3	3.4	3.6	3.7	3.9	4.1
Overall Diameter (approx)	mm	57.0	60.0	64.0	68.0	73.0	77.0	80.0	86.0	91.0	98.0
Weight of Cable (approx)	kg/km	5450	6090	7120	8290	10120	11430	12830	15100	17380	20570
Standard Packing Length (± 5%)	m	500	500	500	250	250	250	250	250	250	250
Minimum Bending Radius during installation	m	0.69	0.72	0.77	0.82	0.88	0.93	0.96	1.04	1.10	1.18
DC resistance at 20°C (max)	Ω/km	0.524	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601	0.0470
AC resistance at 90°C (approx)	Ω/km	0.668	0.493	0.342	0.247	0.196	0.159	0.1270	0.0980	0.0790	0.0630
Reactance at 50 Hz (approx)	Ω/km	0.130	0.124	0.118	0.111	0.107	0.104	0.101	0.097	0.094	0.090
Impedance at 50 Hz (approx)	Ω/km	0.681	0.508	0.362	0.271	0.223	0.190	0.162	0.138	0.123	0.110
Capacitance at 50 Hz	µF/km	0.18	0.20	0.22	0.24	0.26	0.28	0.31	0.34	0.37	0.41
Charging Current/phase at U_o = 12 kV, 50 Hz (approx)	A/km	0.68	0.75	0.83	0.90	0.98	1.06	1.17	1.28	1.40	1.55
Continuous Current Rating at cond temp. 90°C max											
1. Laid direct in ground	A	154	181	220	263	298	332	374	431	482	541
2. Laid into ducts	A	134	158	194	232	264	296	335	387	435	492
3. Laid in air in trefoil touching	A	172	205	253	307	352	397	453	529	599	683
" Short Circuit Current Rating for 1 sec (Cond.temp 90°C initial & 250°C max final)"	kA	5.01	7.15	10.0	13.6	17.2	21.5	26.5	34.3	42.9	57.2

Assumptions:	1. Ground temperature: 20°C	2. Air temperature: 30°C	3. Thermal resistivity of soil: 1.5°C m/W
	4. Depth of laying: 0.8 m	5. For any other condition(s) please refer to the appropriate table for recommended installation data.	

Table 15											
Technical Data	**IEC 60502-2 18/30 (36) kV**	**Three Core, Copper Conductor, XLPE Insulated, Steel Round Wire Armoured Cable**									
Nominal Cross-sectional Area of Conductor	mm2	50	70	95	120	150	185	240	300	400
Conductor Diameter (approx)	mm	8.1	9.7	11.4	12.9	14.6	16.0	18.4	20.6	23.3
Weight of Conductor (approx)	kg/km	1226	1776	2466	3114	3840	4749	6240	7830	10011
Nominal Insulation Thickness	mm	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Nominal Armour Wire Diameter	mm	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15
Nominal Outer Sheath Thickness	mm	3.4	3.5	3.6	3.7	3.8	4.0	4.1	4.3	4.5
Overall Diameter (approx)	mm	74.0	77.0	81.0	85.0	89.0	92.0	98.0	103.0	110.0
Weight of Cable (approx)	kg/km	8630	9700	11020	12190	13460	14940	17310	19800	23050
Standard Packing Length (± 5%)	m	500	250	250	250	250	250	250	250	250
Minimum Bending Radius during installation	m	1.11	1.16	1.22	1.28	1.34	1.38	1.47	1.55	1.65
DC resistance at 20°C (max)	Ω/km	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601	0.0470
AC resistance at 90°C (approx)	Ω/km	0.493	0.342	0.247	0.196	0.159	0.1270	0.0978	0.0789	0.0629
Reactance at 50 Hz (approx)	Ω/km	0.124	0.129	0.122	0.117	0.114	0.110	0.106	0.102	0.098
Impedance at 50 Hz (approx)	Ω/km	0.508	0.366	0.275	0.228	0.196	0.168	0.144	0.129	0.116
Capacitance at 50 Hz	µF/km	0.20	0.15	0.17	0.18	0.20	0.21	0.25	0.27	0.30
Charging Current/phase at U_o = 18 kV, 50 Hz (approx)	A/km	1.13	0.85	0.96	1.02	1.13	1.19	1.41	1.53	1.70
Continuous Current Rating at cond temp. 90°C max										
1. Laid direct in ground	A	181	220	263	298	332	374	431	482	541
2. Laid into ducts	A	158	194	232	264	296	335	387	435	492
3. Laid in air in trefoil touching	A	205	253	307	352	397	453	529	599	683
" Short Circuit Current Rating for 1 sec	kA	7.15	10.0	13.6	17.2	21.5	26.5	34.3	42.9	57.2
(Cond.temp 90°C initial & 250°C max final)"										

Assumptions:	1. Ground temperature: 20°C	2. Air temperature: 30°C	3. Thermal resistivity of soil: 1.5°C m/W
	4. Depth of laying: 0.8 m	5. For any other condition(s) please refer to the appropriate table for recommended installation data.	

Table 16

Technical Data	IEC 60502-2 3.6/6 (7.2) kV	Three Core, Copper Conductor, XLPE Insulated, Un-Armoured Cable											
Nominal Cross-sectional Area of Conductor	mm²	16	25	35	50	70	95	120	150	185	240	300	400
Conductor Diameter (approx)	mm	4.8	5.9	6.9	8.1	9.7	11.4	12.9	14.6	16.0	18.4	20.6	23.3
Weight of Conductor (approx)	kg/km	410	651	906	1226	1776	2466	3114	3840	4749	6240	7830	10011
Nominal Insulation Thickness	mm	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.6	2.8	3.0
Nominal Outer Sheath Thickness	mm	2.0	2.1	2.1	2.2	2.3	2.5	2.6	2.7	2.8	3.0	3.2	3.4
Overall Diameter (approx)	mm	30.0	33.0	35.0	38.0	41.0	45.0	49.0	53.0	56.0	62.0	68.0	75.0
Weight of Cable (approx)	kg/km	1180	1520	1840	2270	2990	3870	4660	5570	6640	8470	10440	13080
Standard Packing Length (± 5%)	m	500	500	500	500	500	500	500	500	250	250	250	250
Minimum Bending Radius during installation	m	0.45	0.50	0.53	0.57	0.62	0.68	0.74	0.80	0.84	0.93	1.02	1.13
DC resistance at 20°C (max)	Ω/km	1.15	0.727	0.524	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601	0.0470
AC resistance at 90°C (approx)	Ω/km	1.47	0.927	0.668	0.493	0.343	0.247	0.196	0.159	0.1280	0.0986	0.0798	0.0641
Reactance at 50 Hz (approx)	Ω/km	0.126	0.117	0.109	0.105	0.100	0.095	0.092	0.090	0.087	0.085	0.084	0.082
Impedance at 50 Hz (approx)	Ω/km	1.475	0.934	0.677	0.504	0.357	0.265	0.217	0.183	0.155	0.130	0.116	0.104
Capacitance at 50 Hz	µF/km	0.26	0.30	0.33	0.36	0.41	0.46	0.50	0.55	0.60	0.65	0.67	0.70
Charging Current/phase at U_o = 3.6 kV, 50 Hz (approx)	A/km	0.29	0.34	0.37	0.41	0.46	0.52	0.57	0.62	0.68	0.74	0.76	0.79
Continuous Current Rating at cond temp. 90°C max													
1. Laid direct in ground	A	101	129	153	181	221	262	298	334	377	434	489	553
2. Laid into ducts	A	86	112	133	158	193	231	264	297	336	390	441	501
3. Laid in air in trefoil touching	A	111	142	170	204	253	304	351	398	455	531	606	696
" Short Circuit Current Rating for 1 sec (Cond.temp 90°C initial & 250°C max final)"	kA	2.29	3.58	5.01	7.15	10.0	13.6	17.2	21.5	26.5	34.3	42.9	57.2

Assumptions:	1. Ground temperature: 20°C	2. Air temperature: 30°C	3. Thermal resistivity of soil: 1.5°C m/W
	4. Depth of laying: 0.8 m	5. For any other condition(s) please refer to the appropriate table for recommended installation data.	

Table 17

Technical Data	IEC 60502-2 6/10 (12) kV	Three Core, Copper Conductor, XLPE Insulated, Un-Armoured Cable											
Nominal Cross-sectional Area of Conductor	mm²	16	25	35	50	70	95	120	150	185	240	300	400
Conductor Diameter (approx)	mm	4.8	5.9	6.9	8.1	9.7	11.4	12.9	14.6	16.0	18.4	20.6	23.3
Weight of Conductor (approx)	kg/km	410	651	906	1226	1776	2466	3114	3840	4749	6240	7830	10011
Nominal Insulation Thickness	mm	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
Nominal Outer Sheath Thickness	mm	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.1	3.3	3.5
Overall Diameter (approx)	mm	34.0	37.0	39.0	42.0	46.0	49.0	53.0	57.0	60.0	66.0	71.0	77.0
Weight of Cable (approx)	kg/km	1370	1730	2100	2540	3280	4160	4990	5910	7000	8810	10730	13310
Standard Packing Length (± 5%)	m	500	500	500	500	500	500	500	250	250	250	250	250
Minimum Bending Radius during installation	m	0.51	0.56	0.59	0.63	0.69	0.74	0.80	0.86	0.90	0.99	1.07	1.16
DC resistance at 20°C (max)	Ω/km	1.15	0.727	0.524	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601	0.0470
AC resistance at 90°C (approx)	Ω/km	1.47	0.927	0.668	0.493	0.342	0.247	0.196	0.159	0.1280	0.0984	0.0797	0.0639
Reactance at 50 Hz (approx)	Ω/km	0.134	0.124	0.116	0.111	0.106	0.100	0.097	0.094	0.092	0.089	0.086	0.083
Impedance at 50 Hz (approx)	Ω/km	1.476	0.935	0.678	0.505	0.358	0.266	0.219	0.185	0.158	0.133	0.117	0.105
Capacitance at 50 Hz	µF/km	0.21	0.24	0.26	0.28	0.32	0.36	0.39	0.42	0.46	0.51	0.56	0.62
Charging Current/phase at U_o = 6 kV, 50 Hz (approx)	A/km	0.40	0.45	0.49	0.53	0.60	0.68	0.74	0.79	0.87	0.96	1.06	1.17
Continuous Current Rating at cond temp. 90°C max													
1. Laid direct in ground	A	101	129	153	181	221	262	298	334	377	434	489	553
2. Laid into ducts	A	86	112	133	158	193	231	264	297	336	390	441	501
3. Laid in air in trefoil touching	A	111	142	170	204	253	304	351	398	455	531	606	696
" Short Circuit Current Rating for 1 sec (Cond.temp 90°C initial & 250°C max final)"	kA	2.29	3.58	5.01	7.15	10.0	13.6	17.2	21.5	26.5	34.3	42.9	57.2

Assumptions:			
	1. Ground temperature: 20°C	2. Air temperature: 30°C	3. Thermal resistivity of soil: 1.5°C m/W
	4. Depth of laying: 0.8 m	5. For any other condition(s) please refer to the appropriate table for recommended installation data.	

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Table 18

Technical Data	IEC 60502-2 8.7/15 (17.5) kV	Three Core, Copper Conductor, XLPE Insulated, Un-Armoured Cable										
Nominal Cross-sectional Area of Conductor	mm²	25	35	50	70	95	120	150	185	240	300	400
Conductor Diameter (approx)	mm	5.9	6.9	8.1	9.7	11.4	12.9	14.6	16.0	18.4	20.6	23.3
Weight of Conductor (approx)	kg/km	651	906	1226	1776	2466	3114	3840	4749	6240	7830	10011
Nominal Insulation Thickness	mm	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Nominal Outer Sheath Thickness	mm	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.3	3.4	3.7
Overall Diameter (approx)	mm	42.0	44.0	47.0	51.0	55.0	58.0	62.0	65.0	71.0	76.0	82.0
Weight of Cable (approx)	kg/km	2040	2420	2910	3640	4570	5420	6370	7470	9340	11260	13910
Standard Packing Length (± 5%)	m	500	500	500	500	500	500	250	250	250	250	250
Minimum Bending Radius during installation	m	0.63	0.66	0.71	0.77	0.83	0.87	0.93	0.98	1.07	1.14	1.23
DC resistance at 20°C (max)	Ω/km	0.727	0.524	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601	0.0470
AC resistance at 90°C (approx)	Ω/km	0.927	0.668	0.493	0.342	0.247	0.196	0.159	0.1280	0.0982	0.0794	0.0636
Reactance at 50 Hz (approx)	Ω/km	0.132	0.124	0.118	0.112	0.106	0.102	0.100	0.097	0.093	0.090	0.087
Impedance at 50 Hz (approx)	Ω/km	0.936	0.679	0.507	0.360	0.269	0.221	0.188	0.161	0.135	0.120	0.108
Capacitance at 50 Hz	µF/km	0.19	0.21	0.23	0.26	0.29	0.31	0.34	0.37	0.41	0.45	0.50
Charging Current/phase at U_o = 8.7 kV, 50 Hz (approx)	A/km	0.52	0.57	0.63	0.71	0.79	0.85	0.93	1.01	1.12	1.23	1.37
Continuous Current Rating at cond temp. 90°C max												
1. Laid direct in ground	A	129	153	181	221	262	298	334	377	434	489	553
2. Laid into ducts	A	112	133	158	193	231	264	297	336	390	441	501
3. Laid in air in trefoil touching	A	142	170	204	253	304	351	398	455	531	606	696
" Short Circuit Current Rating for 1 sec (Cond.temp 90°C initial & 250°C max final)"	kA	3.58	5.01	7.15	10.0	13.6	17.2	21.5	26.5	34.3	42.9	57.2

Assumptions:	1. Ground temperature: 20°C	2. Air temperature: 30°C	3. Thermal resistivity of soil: 1.5°C m/W
	4. Depth of laying: 0.8 m	5. For any other condition(s) please refer to the appropriate table for recommended installation data.	

Table 19											
Technical Data	**IEC 60502-2 12/20 (24) kV**	**Three Core, Copper Conductor, XLPE Insulated, Un-Armoured Cable**									
Nominal Cross-sectional Area of Conductor	mm²	35	50	70	95	120	150	185	240	300	400
Conductor Diameter (approx)	mm	6.9	8.1	9.7	11.4	12.9	14.6	16.0	18.4	20.6	23.3
Weight of Conductor (approx)	kg/km	906	1226	1776	2466	3114	3840	4749	6240	7830	10011
Nominal Insulation Thickness	mm	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Nominal Outer Sheath Thickness	mm	2.6	2.7	2.8	2.9	3.0	3.1	3.3	3.4	3.6	3.8
Overall Diameter (approx)	mm	50.0	52.0	56.0	60.0	63.0	67.0	71.0	76.0	81.0	87.0
Weight of Cable (approx)	kg/km	2810	3290	4070	5020	5890	6890	8050	9920	11900	14580
Standard Packing Length (± 5%)	m	500	500	500	250	250	250	250	250	250	250
Minimum Bending Radius during installation	m	0.75	0.78	0.84	0.90	0.95	1.01	1.07	1.14	1.22	1.31
DC resistance at 20°C (max)	Ω/km	0.524	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601	0.0470
AC resistance at 90°C (approx)	Ω/km	0.668	0.493	0.342	0.247	0.196	0.159	0.1270	0.0980	0.0790	0.0630
Reactance at 50 Hz (approx)	Ω/km	0.130	0.124	0.118	0.111	0.107	0.104	0.101	0.097	0.094	0.090
Impedance at 50 Hz (approx)	Ω/km	0.681	0.508	0.362	0.271	0.223	0.190	0.162	0.138	0.123	0.110
Capacitance at 50 Hz	µF/km	0.18	0.20	0.22	0.24	0.26	0.28	0.31	0.34	0.37	0.41
Charging Current/phase at U_o = 12 kV, 50 Hz (approx)	A/km	0.68	0.75	0.83	0.90	0.98	1.06	1.17	1.28	1.40	1.55
Continuous Current Rating at cond temp. 90°C max											
1. Laid direct in ground	A	153	181	221	262	298	334	377	434	489	553
2. Laid into ducts	A	133	158	193	231	264	297	336	390	441	501
3. Laid in air in trefoil touching	A	170	204	253	304	351	398	455	531	606	696
" Short Circuit Current Rating for 1 sec (Cond.temp 90°C initial & 250°C max final)"	kA	5.01	7.15	10.0	13.6	17.2	21.5	26.5	34.3	42.9	57.2

Assumptions:	1. Ground temperature: 20°C	2. Air temperature: 30°C	3. Thermal resistivity of soil: 1.5°C m/W
	4. Depth of laying: 0.8 m	5. For any other condition(s) please refer to the appropriate table for recommended installation data.	

Disclaimer: The content of this document are purely for information and guidence only. User should not take these data as specification.
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Table 20

Technical Data	IEC 60502-2 18/30 (36) kV	Three Core, Copper Conductor, XLPE Insulated, Un-Armoured Cable								
Nominal Cross-sectional Area of Conductor	mm^2	50	70	95	120	150	185	240	300	400
Conductor Diameter (approx)	mm	8.1	9.7	11.4	12.9	14.6	16.0	18.4	20.6	23.3
Weight of Conductor (approx)	kg/km	1226	1776	2466	3114	3840	4749	6240	7830	10011
Nominal Insulation Thickness	mm	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Nominal Outer Sheath Thickness	mm	3.1	3.2	3.3	3.4	3.5	3.6	3.8	4.0	4.2
Overall Diameter (approx)	mm	64.0	68.0	72.0	75.0	79.0	82.0	88.0	93.0	99.0
Weight of Cable (approx)	kg/km	4310	5160	6160	7080	8130	9320	11320	13400	16170
Standard Packing Length (± 5%)	m	500	250	250	250	250	250	250	250	250
Minimum Bending Radius during installation	m	1.28	1.36	1.44	1.50	1.58	1.64	1.76	1.86	1.98
DC resistance at 20°C (max)	Ω/km	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601	0.0470
AC resistance at 90°C (approx)	Ω/km	0.493	0.342	0.247	0.196	0.159	0.1270	0.0978	0.0789	0.0629
Reactance at 50 Hz (approx)	Ω/km	0.124	0.129	0.122	0.117	0.114	0.110	0.106	0.102	0.098
Impedance at 50 Hz (approx)	Ω/km	0.508	0.366	0.275	0.228	0.196	0.168	0.144	0.129	0.116
Capacitance at 50 Hz	µF/km	0.20	0.15	0.17	0.18	0.20	0.21	0.25	0.27	0.30
Charging Current/phase at U_o = 18 kV, 50 Hz (approx)	A/km	1.13	0.85	0.96	1.02	1.13	1.19	1.41	1.53	1.70
Continuous Current Rating at cond temp. 90°C max										
1. Laid direct in ground	A	181	221	262	298	334	377	434	489	553
2. Laid into ducts	A	158	193	231	264	297	336	390	441	501
3. Laid in air in trefoil touching	A	204	253	304	351	398	455	531	606	696
" Short Circuit Current Rating for 1 sec (Cond.temp 90°C initial & 250°C max final)"	kA	7.15	10.0	13.6	17.2	21.5	26.5	34.3	42.9	57.2

Assumptions:	1. Ground temperature: 20°C	2. Air temperature: 30°C	3. Thermal resistivity of soil: 1.5°C m/W
	4. Depth of laying: 0.8 m	5. For any other condition(s) please refer to the appropriate table for recommended installation data.	

Table 21

Technical Data	IEC 60502-2 3.6/6 (7.2) kV	Three Core, Copper Conductor, XLPE Insulated, Steel Tape Armoured Cable								
Nominal Cross-sectional Area of Conductor	mm^2	50	70	95	120	150	185	240	300	400
Conductor Diameter (approx)	mm	8.1	9.7	11.4	12.9	14.6	16.0	18.4	20.6	23.3
Weight of Conductor (approx)	kg/km	1226	1776	2466	3114	3840	4749	6240	7830	10011
Nominal Insulation Thickness	mm	2.5	2.5	2.5	2.5	2.5	2.5	2.6	2.8	3.0
Nominal Steel Tape Thickness	mm	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.8
Nominal Outer Sheath Thickness	mm	2.4	2.5	2.6	2.7	2.8	2.9	3.1	3.3	3.6
Overall Diameter (approx)	mm	42.0	46.0	50.0	53.0	57.0	60.0	67.0	73.0	82.0
Weight of Cable (approx)	kg/km	3170	3990	4950	5840	6840	8020	10030	12180	15920
Standard Packing Length (± 5%)	m	500	500	500	500	500	250	250	250	250
Minimum Bending Radius during installation	m	0.53	0.58	0.63	0.67	0.72	0.75	0.84	0.92	1.03
DC resistance at 20°C (max)	Ω/km	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601	0.0470
AC resistance at 90°C (approx)	Ω/km	0.493	0.343	0.247	0.196	0.159	0.1280	0.0986	0.0798	0.0641
Reactance at 50 Hz (approx)	Ω/km	0.105	0.100	0.095	0.092	0.090	0.087	0.085	0.084	0.082
Impedance at 50 Hz (approx)	Ω/km	0.504	0.357	0.265	0.217	0.183	0.155	0.130	0.116	0.104
Capacitance at 50 Hz	µF/km	0.36	0.41	0.46	0.50	0.55	0.60	0.65	0.67	0.70
Charging Current/phase at U_o = 3.6 kV, 50 Hz (approx)	A/km	0.41	0.46	0.52	0.57	0.62	0.68	0.74	0.76	0.79
Continuous Current Rating at cond temp. 90°C max										
1. Laid direct in ground	A	181	220	263	298	332	374	431	482	541
2. Laid into ducts	A	158	194	232	264	296	335	387	435	492
3. Laid in air in trefoil touching	A	205	253	307	352	397	453	529	599	683
" Short Circuit Current Rating for 1 sec (Cond.temp 90°C initial & 250°C max final)"	kA	7.15	10.0	13.6	17.2	21.5	26.5	34.3	42.9	57.2

Assumptions:			
	1. Ground temperature: 20°C	2. Air temperature: 30°C	3. Thermal resistivity of soil: 1.5°C m/W
	4. Depth of laying: 0.8 m	5. For any other condition(s) please refer to the appropriate table for recommended installation data.	

Table 22

Technical Data	IEC 60502-2 6/10 (12) kV	Three Core, Copper Conductor, XLPE Insulated, Steel Tape Armoured Cable								
Nominal Cross-sectional Area of Conductor	mm²	50	70	95	120	150	185	240	300	400
Conductor Diameter (approx)	mm	8.1	9.7	11.4	12.9	14.6	16.0	18.4	20.6	23.3
Weight of Conductor (approx)	kg/km	1226	1776	2466	3114	3840	4749	6240	7830	10011
Nominal Insulation Thickness	mm	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
Nominal Steel Tape Thickness	mm	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.8
Nominal Outer Sheath Thickness	mm	2.5	2.6	2.7	2.9	3.0	3.1	3.3	3.4	3.7
Overall Diameter (approx)	mm	46.0	50.0	54.0	58.0	62.0	65.0	71.0	76.0	84.0
Weight of Cable (approx)	kg/km	3540	4360	5360	6320	7340	8540	10520	12570	16220
Standard Packing Length (± 5%)	m	500	500	500	500	250	250	250	250	250
Minimum Bending Radius during installation	m	0.58	0.63	0.68	0.73	0.78	0.82	0.89	0.95	1.05
DC resistance at 20°C (max)	Ω/km	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601	0.0470
AC resistance at 90°C (approx)	Ω/km	0.493	0.342	0.247	0.196	0.159	0.1280	0.0984	0.0797	0.0639
Reactance at 50 Hz (approx)	Ω/km	0.111	0.106	0.100	0.097	0.094	0.092	0.089	0.086	0.083
Impedance at 50 Hz (approx)	Ω/km	0.505	0.358	0.266	0.219	0.185	0.158	0.133	0.117	0.105
Capacitance at 50 Hz	µF/km	0.28	0.32	0.36	0.39	0.42	0.46	0.51	0.56	0.62
Charging Current/phase at U_o = 6 kV, 50 Hz (approx)	A/km	0.53	0.60	0.68	0.74	0.79	0.87	0.96	1.06	1.17
Continuous Current Rating at cond temp. 90°C max										
1. Laid direct in ground	A	181	220	263	298	332	374	431	482	541
2. Laid into ducts	A	158	194	232	264	296	335	387	435	492
3. Laid in air in trefoil touching	A	205	253	307	352	397	453	529	599	683
" Short Circuit Current Rating for 1 sec (Cond.temp 90°C initial & 250°C max final)"	kA	7.15	10.0	13.6	17.2	21.5	26.5	34.3	42.9	57.2

Assumptions:	1. Ground temperature: 20°C	2. Air temperature: 30°C	3. Thermal resistivity of soil: 1.5°C m/W
	4. Depth of laying: 0.8 m	5. For any other condition(s) please refer to the appropriate table for recommended installation data.	

Table 23

Technical Data	IEC 60502-2 8.7/15 (17.5) kV	Three Core, Copper Conductor, XLPE Insulated, Steel Tape Armoured Cable								
Nominal Cross-sectional Area of Conductor	mm2	50	70	95	120	150	185	240	300	400
Conductor Diameter (approx)	mm	8.1	9.7	11.4	12.9	14.6	16.0	18.4	20.6	23.3
Weight of Conductor (approx)	kg/km	1226	1776	2466	3114	3840	4749	6240	7830	10011
Nominal Insulation Thickness	mm	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Nominal Steel Tape Thickness	mm	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.8	0.8
Nominal Outer Sheath Thickness	mm	2.7	2.8	2.9	3.0	3.1	3.3	3.4	3.6	3.9
Overall Diameter (approx)	mm	52.0	55.0	59.0	63.0	67.0	70.0	76.0	82.0	89.0
Weight of Cable (approx)	kg/km	4050	4870	5920	6880	7930	9170	11180	14130	17060
Standard Packing Length (± 5%)	m	500	500	500	500	250	250	250	250	250
Minimum Bending Radius during installation	m	0.65	0.69	0.74	0.79	0.84	0.88	0.95	1.03	1.12
DC resistance at 20°C (max)	Ω/km	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601	0.0470
AC resistance at 90°C (approx)	Ω/km	0.493	0.342	0.247	0.196	0.159	0.1280	0.0982	0.0794	0.0636
Reactance at 50 Hz (approx)	Ω/km	0.118	0.112	0.106	0.102	0.100	0.097	0.093	0.090	0.087
Impedance at 50 Hz (approx)	Ω/km	0.507	0.360	0.269	0.221	0.188	0.161	0.135	0.120	0.108
Capacitance at 50 Hz	µF/km	0.23	0.26	0.29	0.31	0.34	0.37	0.41	0.45	0.50
Charging Current/phase at U_o = 8.7 kV, 50 Hz (approx)	A/km	0.63	0.71	0.79	0.85	0.93	1.01	1.12	1.23	1.37
Continuous Current Rating at cond temp. 90°C max										
1. Laid direct in ground	A	181	220	263	298	332	374	431	482	541
2. Laid into ducts	A	158	194	232	264	296	335	387	435	492
3. Laid in air in trefoil touching	A	205	253	307	352	397	453	529	599	683
" Short Circuit Current Rating for 1 sec (Cond.temp 90°C initial & 250°C max final)"	kA	7.15	10.0	13.6	17.2	21.5	26.5	34.3	42.9	57.2

Assumptions:	1. Ground temperature: 20°C	2. Air temperature: 30°C	3. Thermal resistivity of soil: 1.5°C m/W
	4. Depth of laying: 0.8 m	5. For any other condition(s) please refer to the appropriate table for recommended installation data.	

Table 24

Technical Data	IEC 60502-2 12/20 (24) kV	Three Core, Copper Conductor, XLPE Insulated, Steel Tape Armoured Cable								
Nominal Cross-sectional Area of Conductor	mm²	50	70	95	120	150	185	240	300	400
Conductor Diameter (approx)	mm	8.1	9.7	11.4	12.9	14.6	16.0	18.4	20.6	23.3
Weight of Conductor (approx)	kg/km	1226	1776	2466	3114	3840	4749	6240	7830	10011
Nominal Insulation Thickness	mm	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Nominal Steel Tape Thickness	mm	0.5	0.5	0.5	0.5	0.5	0.5	0.8	0.8	0.8
Nominal Outer Sheath Thickness	mm	2.8	2.9	3.1	3.2	3.3	3.4	3.6	3.8	4.0
Overall Diameter (approx)	mm	57.0	61.0	65.0	68.0	72.0	76.0	83.0	88.0	94.0
Weight of Cable (approx)	kg/km	4590	5460	6560	7520	8650	9890	12800	14980	17980
Standard Packing Length (± 5%)	m	500	500	250	250	250	250	250	250	250
Minimum Bending Radius during installation	m	0.72	0.77	0.82	0.85	0.90	0.95	1.04	1.10	1.18
DC resistance at 20°C (max)	Ω/km	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601	0.0470
AC resistance at 90°C (approx)	Ω/km	0.493	0.342	0.247	0.196	0.159	0.1270	0.0980	0.0790	0.0630
Reactance at 50 Hz (approx)	Ω/km	0.124	0.118	0.111	0.107	0.104	0.101	0.097	0.094	0.090
Impedance at 50 Hz (approx)	Ω/km	0.508	0.362	0.271	0.223	0.190	0.162	0.138	0.123	0.110
Capacitance at 50 Hz	µF/km	0.20	0.22	0.24	0.26	0.28	0.31	0.34	0.37	0.41
Charging Current/phase at U_o = 12 kV, 50 Hz (approx)	A/km	0.75	0.83	0.90	0.98	1.06	1.17	1.28	1.40	1.55
Continuous Current Rating at cond temp. 90°C max										
1. Laid direct in ground	A	181	220	263	298	332	374	431	482	541
2. Laid into ducts	A	158	194	232	264	296	335	387	435	492
3. Laid in air in trefoil touching	A	205	253	307	352	397	453	529	599	683
" Short Circuit Current Rating for 1 sec (Cond.temp 90°C initial & 250°C max final)"	kA	7.15	10.0	13.6	17.2	21.5	26.5	34.3	42.9	57.2

Assumptions:	1. Ground temperature: 20°C	2. Air temperature: 30°C	3. Thermal resistivity of soil: 1.5°C m/W
	4. Depth of laying: 0.8 m	5. For any other condition(s) please refer to the appropriate table for recommended installation data.	

Table 25

Technical Data	IEC 60502-2 18/30 (36) kV	Three Core, Copper Conductor, XLPE Insulated, Steel Tape Armoured Cable								
Nominal Cross-sectional Area of Conductor	mm²	50	70	95	120	150	185	240	300	400
Conductor Diameter (approx)	mm	8.1	9.7	11.4	12.9	14.6	16.0	18.4	20.6	23.3
Weight of Conductor (approx)	kg/km	1226	1776	2466	3114	3840	4749	6240	7830	10011
Nominal Insulation Thickness	mm	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Nominal Steel Tape Thickness	mm	0.5	0.5	0.5	0.8	0.8	0.8	0.8	0.8	0.8
Nominal Outer Sheath Thickness	mm	3.2	3.3	3.5	3.6	3.7	3.9	4.0	4.2	4.4
Overall Diameter (approx)	mm	69.0	73.0	77.0	82.0	85.0	89.0	95.0	100.0	106.0
Weight of Cable (approx)	kg/km	5950	6890	8060	9930	11120	12510	14730	17040	20100
Standard Packing Length (± 5%)	m	500	250	250	250	250	250	250	250	250
Minimum Bending Radius during installation	m	1.07	1.14	1.20	1.28	1.32	1.38	1.48	1.55	1.65
DC resistance at 20°C (max)	Ω/km	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601	0.0470
AC resistance at 90°C (approx)	Ω/km	0.493	0.342	0.247	0.196	0.159	0.1270	0.0978	0.0789	0.0629
Reactance at 50 Hz (approx)	Ω/km	0.124	0.129	0.122	0.117	0.114	0.110	0.106	0.102	0.098
Impedance at 50 Hz (approx)	Ω/km	0.508	0.366	0.275	0.228	0.196	0.168	0.144	0.129	0.116
Capacitance at 50 Hz	µF/km	0.20	0.15	0.17	0.18	0.20	0.21	0.25	0.27	0.30
Charging Current/phase at U_o = 18 kV, 50 Hz (approx)	A/km	1.13	0.85	0.96	1.02	1.13	1.19	1.41	1.53	1.70
Continuous Current Rating at cond temp. 90°C max										
1. Laid direct in ground	A	181	220	263	298	332	374	431	482	541
2. Laid into ducts	A	158	194	232	264	296	335	387	435	492
3. Laid in air in trefoil touching	A	205	253	307	352	397	453	529	599	683
" Short Circuit Current Rating for 1 sec (Cond.temp 90°C initial & 250°C max final)"	kA	7.15	10.0	13.6	17.2	21.5	26.5	34.3	42.9	57.2

Assumptions:			
	1. Ground temperature: 20°C	2. Air temperature: 30°C	3. Thermal resistivity of soil: 1.5°C m/W
	4. Depth of laying: 0.8 m	5. For any other condition(s) please refer to the appropriate table for recommended installation data.	

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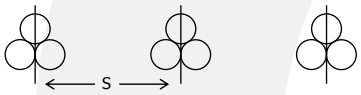
Table 26

Technical Data	OES-2 Second edition		Single Core, Copper Conductor, Aluminium Round Wire Armoured Cable				Three Core, Copper Conductor, XLPE Insulated, Steel Round Wire Armoured Cable								
			6.35/11 (12) kV		19/33 (36) kV		6.35/11 (12) kV								19/33 (36) kV
Nominal cross sectional are of conductor		mm2	500	630	500	630	50	70	95	120	150	185	240	300	300
Conductor Diameter (approx)		mm	26.3	30	26.3	30	8.1	9.7	11.4	12.9	14.6	16	18.4	20.6	20.6
Nominal Insulation thickness		mm	3.4	3.4	9.0	9.0	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	9.0
Nominal Seperation Sheath thickness		mm	2.0	2.0	2.4	2.4	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2	2.4
Minimum Bedding fabric Tape thickness		mm	0.5	0.5	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6
Nominal Armour Wire diameter		mm	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	3.15	3.15	3.15
Minimum outer sheath thickness		mm	2.8	2.8	3.0	3.0	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	3.0
Overall Diameter (approx)		mm	52.0	56.0	65.0	69.0	54.0	57.0	61.0	65.0	68.0	71.0	78.0	82.0	109.0
Weight of Cable (approx)		kg/km	6610	8080	8050	9650	5260	6170	7230	8260	9380	10600	13480	15700	20730
Standard Packing Length (± 5%)		m	500	500	500	500	500	500	500	500	250	250	250	250	250
Minimum Bending Radius during installation		m	0.78	0.84	0.98	1.04	0.65	0.68	0.73	0.78	0.82	0.85	0.94	0.98	1.64
DC resistance at 20°C (max)		Ω/km	0.037	0.028	0.037	0.028	0.387	0.268	0.193	0.153	0.124	0.099	0.075	0.060	0.060
AC resistance at 90° C (approx)		Ω/km	0.051	0.042	0.05	0.041	0.493	0.342	0.247	0.196	0.159	0.128	0.098	0.080	0.079
Reactance at 50 Hz (approx)		Ω/km	0.09	0.087	0.104	0.1	0.111	0.106	0.1	0.096	0.094	0.091	0.089	0.086	0.104
Impedance at 50 Hz (approx)		Ω/km	0.103	0.096	0.115	0.108	0.505	0.358	0.266	0.218	0.185	0.157	0.133	0.117	0.13
Capacitance at 50 Hz		µF/km	0.64	0.71	0.28	0.31	0.25	0.28	0.32	0.35	0.38	0.42	0.46	0.51	0.21
Charging current/phase at U0, 50 Hz (approx)		A/km	1.26	1.41	1.67	1.84	0.5	0.56	0.63	0.7	0.77	0.82	0.92	1.01	1.27
Continuous Current rating at cond temp. 90°C max															
1. Laid direct in ground		A	593	646	593	646	181	220	263	298	332	374	431	482	482
2. Laid into ducts		A	578	632	578	632	158	194	232	264	296	335	387	435	435
3. Laid in air in trefoil touching		A	873	975	873	975	205	253	307	352	397	453	529	599	599
" Short Circuit Current Rating for 1 sec (Cond. Temp 90°C initial & 250°C max final)"		kA	71.5	90.1	71.5	90.1	7.15	10.01	13.6	17.2	21.5	26.5	34.3	42.9	42.9
Assumptions :	1. Ground temperature : 20°C	2. Air Temperature: 30°C				3. Thermal resistivity of soil: 1.5°C m/W									
	4. Depth of laying: 0.8 m	5. For any other condition(s) please refer to the appropriate table for recommended installation data.													

GENERAL CABLE TECHNICAL DATA & RATING FACTORS

Table 27
Group Rating Factors for Circuits of three single core cables in Trefoil Laid direct in Ground

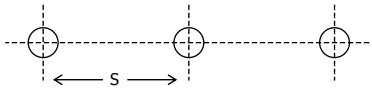
Number of trefoils in group	Touching	Spacing between group centres (S) mm			
		200	400	600	800
2	0.73	0.83	0.88	0.90	0.92
3	0.60	0.73	0.79	0.83	0.86
4	0.54	0.68	0.75	0.80	0.84
5	0.49	0.63	0.72	0.78	0.82
6	0.46	0.61	0.70	0.76	0.81
7	0.43	0.58	0.68	0.75	0.80
8	0.41	0.57	0.67	0.74	-
9	0.39	0.55	0.66	0.73	-
10	0.37	0.54	0.65	-	-
11	0.36	0.53	0.64	-	-
12	0.35	0.52	0.64	-	-



S = Spacing between the group's centre

Table 28
Group Rating Factors for Circuits of Three core cables Laid direct in Ground

Number of trefoils in group	Touching	Spacing between group centres (S) mm			
		200	400	600	800
2	0.80	0.86	0.90	0.92	0.94
3	0.69	0.77	0.82	0.86	0.89
4	0.62	0.72	0.79	0.83	0.87
5	0.57	0.68	0.76	0.81	0.85
6	0.54	0.65	0.74	0.80	0.84
7	0.51	0.63	0.72	0.78	0.83
8	0.49	0.61	0.71	0.78	-
9	0.47	0.60	0.70	0.77	-
10	0.46	0.59	0.69	-	-
11	0.45	0.57	0.69	-	-
12	0.43	0.56	0.68	-	-



S = Spacing between the cable's centre

Table 29
Rating Factors for Variation in Thermal resistivity of soil for three singe core cables, Laid direct in Ground

Nominal area of conductor mm2	Values of soil thermal resistivity °C - m/W							
	0.7	0.8	0.9	1	1.5	2	2.5	3
25	1.30	1.25	1.20	1.16	1.00	0.89	0.81	0.75
35	1.30	1.25	1.21	1.16	1.00	0.89	0.81	0.75
50	1.32	1.26	1.21	1.16	1.00	0.89	0.81	0.74
70	1.33	1.27	1.22	1.17	1.00	0.89	0.81	0.74
95	1.34	1.28	1.22	1.18	1.00	0.89	0.80	0.74
120	1.34	1.28	1.22	1.18	1.00	0.88	0.80	0.74
150	1.35	1.28	1.23	1.18	1.00	0.88	0.80	0.74
185	1.35	1.29	1.23	1.18	1.00	0.88	0.80	0.74
240	1.36	1.29	1.23	1.18	1.00	0.88	0.80	0.73
300	1.36	1.30	1.24	1.19	1.00	0.88	0.80	0.73
400 & above	1.37	1.30	1.24	1.19	1.00	0.88	0.79	0.73

Table 30
Rating Factors for Variation in Thermal resistivity of soil for three core cables, Laid direct in Ground

Nominal area of conductor mm2	Values of soil thermal resistivity °C - m/W							
	0.7	0.8	0.9	1	1.5	2	2.5	3
25	1.24	1.20	1.16	1.13	1.00	0.91	0.84	0.78
35	1.25	1.21	1.17	1.13	1.00	0.91	0.83	0.78
50	1.25	1.21	1.17	1.14	1.00	0.91	0.83	0.77
70	1.26	1.21	1.18	1.14	1.00	0.90	0.83	0.77
95	1.26	1.22	1.18	1.14	1.00	0.90	0.83	0.77
120	1.26	1.22	1.18	1.14	1.00	0.90	0.83	0.77
150	1.27	1.22	1.18	1.15	1.00	0.90	0.83	0.77
185	1.27	1.23	1.18	1.15	1.00	0.90	0.83	0.77
240	1.28	1.23	1.19	1.15	1.00	0.90	0.83	0.77
300	1.28	1.23	1.19	1.15	1.00	0.90	0.82	0.77
400	1.28	1.23	1.19	1.15	1.00	0.90	0.82	0.76

Table 31
Rating Factors for Depth of laying for cable, Laid direct in Ground

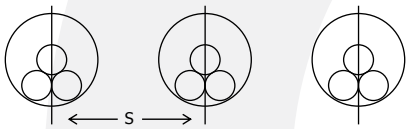
Depth of laying m	Single-core cables		Three-core cables
	Nominal conductor size mm2		
	≤185 mm2	>185 mm2	
0.5	1.04	1.06	1.04
0.6	1.02	1.04	1.03
0.8	1.00	1.00	1.00
1.0	0.98	0.97	0.98
1.25	0.96	0.95	0.96
1.5	0.95	0.93	0.95
1.75	0.94	0.91	0.94
2.0	0.93	0.90	0.93
2.5	0.91	0.88	0.91
3.0	0.90	0.86	0.90

Table 32
Rating Factors for Variation in Ground temperature for cable Laid direct in Ground

Ground Temperature °c	10	15	20	25	30	35	40	45	50
Rating Factor	1.07	1.04	1.00	0.96	0.93	0.89	0.85	0.80	0.76

Table 33
Group Rating Factors for Circuits of three single core cables in Ducts in Trefoil

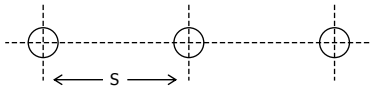
Number of trefoils in group	Touching	Spacing between group centres (S) mm			
		200	400	600	800
2	0.78	0.85	0.89	0.91	0.93
3	0.66	0.75	0.81	0.85	0.88
4	0.59	0.70	0.77	0.82	0.86
5	0.55	0.66	0.74	0.80	0.84
6	0.51	0.64	0.72	0.78	0.83
7	0.48	0.61	0.71	0.77	0.82
8	0.46	0.60	0.70	0.76	-
9	0.44	0.58	0.69	0.76	-
10	0.43	0.57	0.68	-	-
11	0.42	0.56	0.67	-	-
12	0.40	0.55	0.67	-	-



S = Spacing between the group's centre

Table 34
Group Rating Factors for Circuits of Three core cables, In Duct in Horizontal formation

Number of trefoils in group	Touching	Spacing between group centres (S) mm			
		200	400	600	800
2	0.85	0.88	0.92	0.94	0.95
3	0.75	0.80	0.85	0.88	0.91
4	0.69	0.75	0.82	0.86	0.89
5	0.65	0.72	0.79	0.84	0.87
6	0.62	0.69	0.77	0.83	0.87
7	0.59	0.67	0.76	0.82	0.86
8	0.57	0.65	0.75	0.81	-
9	0.55	0.64	0.74	0.80	-
10	0.54	0.63	0.73	-	-
11	0.52	0.62	0.73	-	-
12	0.51	0.61	0.72	-	-



S = Spacing between the cable's centre

Table 35
Rating Factors for Variation in Thermal resistivity of soil for three singe core cables, Laid direct in Duct

Nominal area of conductor mm2	Values of soil thermal resistivity °C - m/W							
	0.7	0.8	0.9	1	1.5	2	2.5	3
25	1.21	1.17	1.14	1.12	1.00	0.91	0.85	0.79
35	1.21	1.18	1.15	1.12	1.00	0.91	0.84	0.79
50	1.21	1.18	1.15	1.12	1.00	0.91	0.84	0.78
70	1.22	1.19	1.15	1.12	1.00	0.91	0.84	0.78
95	1.23	1.19	1.16	1.13	1.00	0.91	0.84	0.78
120	1.23	1.2	1.16	1.13	1.00	0.91	0.84	0.78
150	1.24	1.2	1.16	1.13	1.00	0.91	0.83	0.78
185	1.24	1.2	1.17	1.13	1.00	0.91	0.83	0.78
240	1.25	1.21	1.17	1.14	1.00	0.90	0.83	0.77
300	1.25	1.21	1.17	1.14	1.00	0.90	0.83	0.77
400 & above	1.25	1.21	1.17	1.14	1.00	0.90	0.83	0.77

Table 36
Rating Factors for Variation in Thermal resistivity of soil for three core cables, Laid in Single Way Duct

Nominal area of conductor mm2	Values of soil thermal resistivity °C - m/W							
	0.7	0.8	0.9	1	1.5	2	2.5	3
25	1.14	1.12	1.10	1.08	1.00	0.94	0.89	0.84
35	1.14	1.12	1.10	1.08	1.00	0.94	0.88	0.84
50	1.14	1.12	1.10	1.08	1.00	0.94	0.88	0.84
70	1.15	1.13	1.11	1.09	1.00	0.94	0.88	0.83
95	1.15	1.13	1.11	1.09	1.00	0.94	0.88	0.83
120	1.15	1.13	1.11	1.09	1.00	0.93	0.88	0.83
150	1.16	1.13	1.11	1.09	1.00	0.93	0.88	0.83
185	1.16	1.14	1.11	1.09	1.00	0.93	0.87	0.83
240	1.16	1.14	1.12	1.10	1.00	0.93	0.87	0.82
300	1.17	1.14	1.12	1.10	1.00	0.93	0.87	0.82
400	1.17	1.14	1.12	1.10	1.00	0.92	0.86	0.81

Table 37
Rating Factors for Depth of laying for cable, Laid direct in Duct

Depth of laying m	Single-core cables		Three-core cables
	Nominal conductor size mm2		
	≤185 mm2	>185 mm2	
0.5	1.04	1.05	1.03
0.6	1.02	1.03	1.02
0.8	1.00	1.00	1.00
1.0	0.98	0.97	0.99
1.25	0.96	0.95	0.97
1.5	0.95	0.93	0.96
1.75	0.94	0.92	0.95
2.0	0.93	0.91	0.94
2.5	0.91	0.89	0.93
3.0	0.90	0.88	0.92

Table 38
Rating Factors for Variation in Ground temperature for cable Laid direct in Ducts

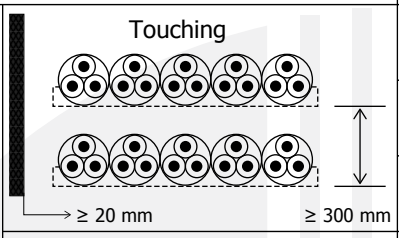
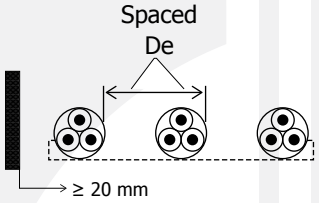
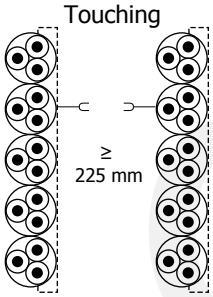
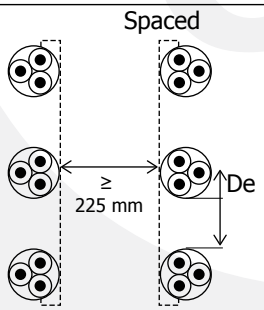
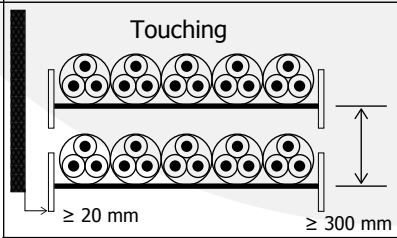
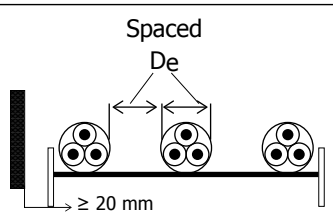
Ground Temperature °c	10	15	20	25	30	35	40	45	50
Rating Factor	1.07	1.04	1.00	0.96	0.93	0.89	0.85	0.80	0.76

Table 39
Rating Factors for Variation in Ambient Air temperature

Ambient Temperature °c	20	25	30	35	40	45	50	55	60
Rating Factor	1.08	1.04	1.00	0.96	0.91	0.87	0.82	0.76	0.71

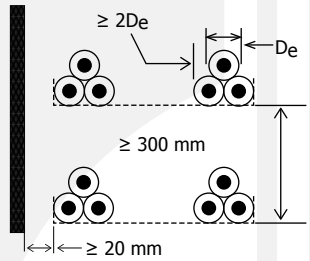
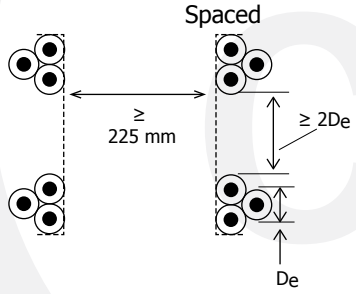
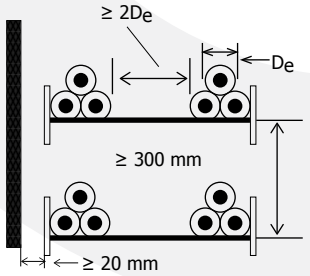
Table 40

Group Rating Factors for Groups of more than one Multi-Core Cable in Air-to be Applied to the current carrying capacity for one Multi-core Cable in Free Air

Method of Installation		Number of Trays	Number of cables					
			1	2	3	4	6	9
Cables on perforated trays		1	1.00	0.88	0.82	0.79	0.76	0.73
		2	1.00	0.87	0.80	0.77	0.73	0.68
		3	1.00	0.86	0.79	0.76	0.71	0.66
		1	1.00	1.00	0.98	0.95	0.91	-
		2	1.00	0.99	0.96	0.92	0.87	-
		3	1.00	0.98	0.95	0.91	0.85	-
Cables on vertical perforated trays		1	1.00	0.88	0.82	0.78	0.73	0.72
		2	1.00	0.88	0.81	0.76	0.71	0.70
		1	1.00	0.91	0.89	0.88	0.87	-
		2	1.00	0.91	0.88	0.87	0.85	-
Cables on ladder supports, cleats, etc		1	1.00	0.87	0.82	0.80	0.79	0.78
		2	1.00	0.86	0.80	0.78	0.76	0.73
		3	1.00	0.85	0.79	0.76	0.73	0.70
		1	1.00	1.00	1.00	1.00	1.00	-
		2	1.00	0.99	0.98	0.97	0.96	-
		3	1.00	0.98	0.97	0.96	0.93	-

Note 1: Values are given for vertical spacings between trays of 300 mm and at least 20 mm between trays and wall. For closer spacing, the factors should be reduced.
Note 2: Values are given for horizontal spacing between trays of 225 mm with trays mounted back to back. For closer spacing, the factors should be reduced.

Table 41
Group Rating Factors for Groups of More than one Circuit of Single-Core Cables - to be Applied to the Current - Carrying Capacity for one Circuit of Single - Core Cables in free air

Method of Installation		Number of Trays	Number of three-phase circuits (Note 3)			Use as a multiplier to rating for
			1	2	3	
Perforated trays (Note 1)		1	1.00	0.98	0.96	Three cables in trefoil formation
		2	0.97	0.93	0.89	
		3	0.96	0.92	0.86	
Vertical perforated trays (Note 2)		1	1.00	0.91	0.89	
		2	1.00	0.90	0.86	
Ladder supports, cleats, etc (Note 1)		1	1.00	1.00	1.00	
		2	0.97	0.95	0.93	
		3	0.96	0.94	0.90	

Note 1: Values are given for vertical spacings between trays of 300 mm. For closer spacing, the factors should be reduced.
Note 2: Values are given for horizontal spacing between trays of 225 mm with trays mounted back to back. For closer spacing, the factors should be reduced.
Note 3: For circuits having more than one cable in parallel per phase, each three phase set of conductors should be considered as a circuit for the purpose of this table.

Table 42
Recommended Minimum Bending Radius

	Type of cables	Minimum Bending Radius	
	Single core	**During Laying**	**Adjacent to Joints/ termination**
Up to 22 kV	1. Unarmoured	20D	15D
	2. Armoured	15D	12D
	3 Core		
	1. Unarmoured	15D	12D
	2. Armoured	12D	10D
		Laid in Ducts/Air	**Cable Placed in Position or Adjacent to Joints/ Termination**
33 kV	1. Unarmoured	20D	15D
	2. Armoured	15D	12D

Table 43
Recommended Duct Sizes

Cable Diameter (mm)	Nominal Duct Diameter (mm)
Up to 65	100
Over 65 up to 90	125
Over 90 up to 115	150

Table 44
Maximum Recommended Pulling Tensions Using Pulling Eye on Conductor

Cable Diameter (mm)	Nominal Duct Diameter (mm)
Copper	0.070 kN/mm2
Aluminium (Stranded)	0.050 kN/mm2
Using Pulling on Steel wire armour	0.005 kN/mm2
Using Stocking Grip	0.0035D2 kN

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DISTRIBUTION CODE REVIEW PANEL

Product Approval Certificate

Certificate No: DCRP/PA/CER/2018/50 **Issue Date: 07th Nov 2018** **First Registration: 08th April 2009**

Distribution Code Review Panel

Certifies That:

Electrical Product:	**11 KV UG Power Cables (OES 2, 2nd Edition)**
Cable Type:	**3C: CU/XLPE/CTS/PVC/SWA/PVC &** **1C: CU/XLPE/CTS/PVC/AWA/PVC**
Manufacturer:	**Nuhas Oman LLC.**
Country of Origin:	**Sultanate of Oman/ Rusayl Industrial Estate**
Local Representative:	**Nuhas Oman LLC.**
Address:	**P.O. Box 186, P.C. 124 – Rusayl** **Sultanate of Oman** **Tel: (+ 968) 24449007**

Is registered with the panel as an Approved Product with the effect from the date of issuing this certificate

DCRP CHAIRMAN

مجلس مراجعة قواعد التوزيع
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DISTRIBUTION CODE REVIEW PANEL

Product Approval Certificate

Certificate No: DCRP/PA/CER/2018/51 **Issue Date:** 07th Nov 2018 **First Registration:** 08th April 2009

Distribution Code Review Panel

Certifies That:

Electrical Product:	33 KV UG Power Cables (OES 2, 2nd Edition)
Cable Type:	3C: CU/XLPE/CTS/PVC/SWA/PVC & 1C: CU/XLPE/CTS/PVC/AWA/PVC
Manufacturer:	Nuhas Oman LLC.
Country of Origin:	Sultanate of Oman/ Rusayl Industrial Estate
Local Representative:	Nuhas Oman LLC.
Address:	P.O. Box 186, P.C. 124 – Rusayl Sultanate of Oman Tel: (+ 968) 24449007

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(A Member of the Al Bahja Group)
AN ISO 9001: 2015 COMPANY

NO/MKT/CAT/002/Rev.4
Date 21.02.2023

Omani