

CONTROL CABLES





Index

Introduction	03
Particulars & Guarantees	05
Copper Conductor, PVC Insulated, PVC Sheathed Cables	08
Copper Conductor, XLPE Insulated, PVC Sheathed Cables	11
Copper Conductor, XLPE Insulated, Steel Wire Armoured, PVC Sheathed Cables	14
Drum Handling Instruction	16

Introduction

Mark Cables FZE is a Cable Manufacturer processing both Copper and Aluminium Rods as input raw material to produce wire and cable as finished product. We are located in Jebel Ali Freezone Dubai – UAE.

Mark Cables is privately owned with sister companies in Angola, Rwanda, South Africa where the group has interests in Wire & Cable, Steel Forming, Paints, Household plastic products manufacturing. Our partner companies are:

- Milbridge Holding SA (Secursal em Angola) (Steel Forming, Wire & Cable, Paints)
- Primeplast Lda – Angola – Plastic Products Manufacturing
- Afriprecast – Rwanda (Precast Concrete Solutions)
- Casasteel Pty Ltd – South Africa – Steel Products Trading Company

Our team is committed to providing our customers value by offering high levels of industry experience, superior customer service, and a large selection of quality cables in both copper and aluminium wires, building wires, flexible cables, control cables, low voltage power cables, overhead conductors and underground cables.

Vision, Mission & Core Values

Our Vision: To be a Leading Quality Manufacturer of Cables and Related Products in the Middle East and Africa.

Our Mission: We are committed to developing and improving manufacturing methods to ensure the highest possible level of value, quality and products to meet our clients' needs through being a responsible and dependable manufacturer

Our Core Values: Our corporate values center on four core elements explained below:

Ownership

- We trust our employees to make every effort to do right by the company, and we make every effort to do right by employees in return

Integrity

- We treasure loyalty, uphold honesty, and practice good business ethics.

Reliability

- We uphold service excellence, take pride in our product quality and ensure commitments are duly fulfilled and are consistently upheld.

Teamwork

- We embrace teamwork, harmony and mutual respect with our customers, suppliers, and employees

Company Quality Policy

Mark Cables FZE is committed to supplying products and services to its clients that fully satisfy their requirements and expectations. Quality permeates our entire process all the way from procurement of raw materials, production, quality testing, delivery and after sales backup services to the customer. Our products are manufactured to international standards. Our cables are individually tested in our laboratory to ensure that the products meet the highest standards. Certificates of Conformity are available upon request for each shipment.

The cables manufactured by Mark Cables FZE are clearly marked with the company name, cable size details and voltage ratings.

The management of Mark Cables are committed to implementing the following policy:-

- **Customers:** Provide products and services that comply with the requirements and expectations of our customers.
- **Owners:** Provide products that will deliver a profit to the organization without compromise to quality and the necessary resources for Organizational, Operational support management of the business.
- **Employees:** Provide a safe working environment; develop our team to improve our core competencies and their development and job satisfaction.
- **Suppliers:** Select our suppliers and partners fairly and without prejudice to our stakeholders.
- **Community:** Engage in charitable works for the benefit of our community and society.
- **Statutory/Regulatory Requirements:** Comply with applicable legal and statutory requirements

0.6/1 kV LOW VOLTAGE CONTROL CABLES

PVC OR XLPE INSULATED, PVC SHEATHED AS PER IEC 60502-1

Conductors

Conductors shall be Circular Stranded, Class 2 as per IEC 60228, BS EN 60228. Upon request, Solid Circular Conductor, Class 1 as per IEC 60228, BS EN 60228 can be supplied.

Insulation

XLPE material and thickness shall be as per IEC 60502-1 rated 90°C for continuous operation or

PVC Insulation Type A as per IEC 60502-1 or T11 as per BS 7655 rated 70 °C for continuous operation.

Assembly

The Insulated Conductors are laid-up together with non-hygroscopic fillers wherever necessary, the assembly is bedded with an extruded layer of PVC. In case of non-armoured cables, this layer may be omitted provided the outer shape of the cable remains practically circular.

Standard Colour Code

Single core	: Red or Black
Two cores	: Red, Black
Three cores	: Red, Yellow, Blue
Four cores	: Red, Yellow, Blue, Black
Five cores	: Red, Yellow, Blue, Black, Green
Six cores & above	: White numerals printed on black core insulation.

Armour (Optional)

- Galvanized Steel Wires applied helically over the bedding as per IEC 60502-1 (or BS 5467, BS 6346 as per customer requirements).
- Double Steel Tapes applied helically over the bedding as per IEC 60502-1.

Screening (Optional)

- Copper Tape(s) of nominal thickness 0.05mm applied helically with suitable overlap or as per customer requirement.
- Copper Wire Screen (upon request) as per customer requirement.

Outer Sheath

PVC Type ST2 as per IEC 60502-1 and Type 9 as per BS 7655 coloured Black.

Application

Underground direct or indirect on cable tray.

PVC INSULATION

STANDARD : BS 7655, IEC 60502-1

600/1000 VOLTS

PARTICULARS & GUARANTEES RELATING TO PVC INSULATING COMPOUND (TYPE T11)

SL. NO.	DESCRIPTION	UNIT	GUARANTEED PARTICULARS
1	Tensile Strength and Elongation at break: Min. tensile strength Min. elongation at break	N/mm ² %	12.5 125
2	Low temperature bend test: Temperature at which specimen shall not crack	°C	-15 ± 2
3	Low temperature elongation test: Test temperature Min. Elongation	°C %	-15 ± 2 30
4	Low temperature impact test: Temperature at which specimen Shall not crack	°C	-15 ± 2
5	Accelerated ageing for specified Period at specified temperature Followed by loss of mass test: Max. loss of mass, after ageing for 7 days at 80 ± 2 °C	Mg/cm ²	2.0
6	Accelerated ageing for specified period at specified temperature followed by tensile strength & elongation at break Number of days ageing Ageing temperature Tensile Strength after ageing: Min. value Max. variation Elongation at break after ageing: Min. value Max. variation from unaged value	Days °C N/mm ² % % %	7 80 ± 2 12.5 20 125 20
7	Pressure test at high temperature: Test temperature Max. indentation	°C %	80 ± 2 50
8	Resistance to cracking: Temperature at which specimen Shall not crack	°C	150 ± 2
9	Insulation resistance constant: Min. K. value at 70°C	M.Ω.km	0.037

PARTICULARS & GUARANTEES RELATING TO PVC INSULATING COMPOUND (TYPE A)

SL. NO.	DESCRIPTION	UNIT	GUARANTEED PARTICULARS
1	Tensile Strength and Elongation at break: Min. tensile strength Min. elongation at break	N/mm ² %	12.5 150
2	Low temperature bend test: Temperature at which specimen shall not track	°C	-15 ± 2
3	Low temperature elongation test: Test temperature Min. Elongation	°C %	-15 ± 2 20
4	Low temperature impact test: Test temperature Min. Elongation	°C	-
5	Accelerated ageing for specified Period at specified temperature Followed by loss of mass test: Max. loss of mass, after ageing for 7 days at 80 ± 2 °C	Mg/cm ²	-
6	Accelerated ageing for specified period at specified temperature followed by tensile strength & elongation at break Number of days ageing Ageing temperature Tensile Strength after ageing: Min. value Max. variation Elongation at break after ageing: Min. value Max. variation from unaged value	Days °C N/mm ² % % %	7 100 ± 2 12.5 25 150 25
7	Pressure test at high temperature: Test temperature Max. indentation	°C %	80 ± 2 50
8	Resistance to cracking: Temperature at which specimen Shall not crack	°C	150 ± 2
9	Insulation resistance constant: Min. K. value at 70°C	M.Ω.km	-

PVC OUTER SHEATH, XLPE INSULATION

STANDARD : IEC 60502-1

600/1000 VOLTS

PARTICULARS & GUARANTEES RELATING TO PVC OUTER SHEATH TYPE ST2 (IEC 60502), TYPE 9 (BS 7655)

PARTICULARS & GUARANTEES RELATING TO XLPE INSULATION

SL. NO.	DESCRIPTION	UNIT	GUARANTEED PARTICULARS
1	Tensile Strength and Elongation at break: Min. tensile strength Min. elongation at break	N/mm ² %	12.5 150
2	Low temperature bend test: Temperature at which specimen shall not crack	°C	-15±2
3	Low temperature elongation test: Test temperature Min. Elongation	°C %	-15±2 20
4	Low temperature impact test: Temperature at which specimen shall not crack	°C	-15±2
5	Loss of mass after ageing for 7 days: At 100±2 °C Max. loss of mass	mg/cm ²	1.5
6	Accelerated ageing for specified period at specified temperature followed by tensile strength and elongation at break Number of days ageing Ageing temperature Tensile Strength after ageing: Min. Value Max. variation Elongation at break after ageing: Min. Value Max. variation from un-aged value	°C N/mm ² % % %	7 100±2 12.5 25 150 25
7	Pressure test at high temperature: Test temperature Max. indentation	°C %	90±2 50
8	Heat Shock Test: Temperature at which specimen shall not crack	°C	150±2
9	Insulation resistance constant: Min. K. value at 20°C	M.Ω.km	0.0035
10	Flame Retardancy test (if required)		60332-1

SL. NO.	DESCRIPTION	UNIT	GUARANTEED PARTICULARS
1	Tensile Strength and Elongation at break: Min. tensile strength Min. elongation at break	N/mm ² %	12.5 200
2	Accelerated ageing for specified period at specified temperature followed by Tensile Strength & Elongation at break No. of days ageing Ageing temperature Max. variation of tensile strength from un-aged specimen Max. variation of elongation from un-aged specimen	Days °C % %	7 135±3 ±25 ±25
3	Hot Set Test: Treatment: - Temperature - Time under load - Mechanical stress Max. elongation under load Max. permanent elongation after cooling	°C Minutes N/cm ² % %	200±3 15 20 175 15
4	Water Absorption: Treatment: - Temperature - Duration Max. variation of mass	°C Days mg/cm ²	85±2 14 1.0
5	Maximum permissible shrinkage: Treatment: - Temperature - Duration Max. variation of shrinkage	°C Hours %	130±3 1 4
6	Insulation Resistance constant(Ki) at maximum rated temperature (90 °C)	M.Ω.km	3.67
7	Volume Resistivity at maximum rated temperature (90 °C)	Ω.cm	10 ¹²

CONTROL CABLES TO IEC 60502-1

COPPER CONDUCTORS, PVC INSULATED, PVC SHEATHED

600/1000 VOLTS

Cross sectional area of conductor : 1.5 mm² (Round Stranded)
 Thickness of insulation : 0.8 mm
 Conductor DC Resistance at 20°C : 12.1 Ohm/Km
 Thickness of copper tape screen : 0.05 mm (Applicable only for CU/PVC/CUT/PVC)

No. of Cores	CU/PVC/PVC				CU/PVC/SWA/PVC					CU/PVC/STA/PVC					CU/PVC/CUT/PVC			
	UNARMoured				STEEL WIRE ARMoured					STEEL TAPE ARMoured					COPPER TAPE SCREEN			
	Nom. Sheath Thickness	Approx. Overall Dia.	Approx. Weight	Packing	Nom. Steel Wire Dia.	Nom. Sheath Thickness	Approx. Overall Dia.	Approx. Weight	Packing	Steel Tape Thickness	Nom. Sheath Thickness	Approx. Overall Dia.	Approx. Weight	Packing	Nom. Sheath Thickness	Approx. Overall Dia.	Approx. Weight	Packing
No.	mm	mm	Kg/Km	meters	mm	mm	mm	Kg/Km	meters	mm	mm	mm	Kg/km	meters	mm	mm	Kg/Km	meters
2	1.8	12	200	1000	0.8	1.8	14	350	1000	0.2	1.8	13	260	1000	1.8	12	210	1000
3	1.8	12	220	1000	0.8	1.8	15	380	1000	0.2	1.8	13	290	1000	1.8	13	240	1000
4	1.8	13	250	1000	0.8	1.8	15	430	1000	0.2	1.8	14	330	1000	1.8	13	275	1000
5	1.8	14	300	1000	0.8	1.8	16	490	1000	0.2	1.8	15	375	1000	1.8	14	320	1000
7	1.8	15	350	1000	0.8	1.8	17	550	1000	0.2	1.8	16	430	1000	1.8	15	370	1000
10	1.8	18	450	1000	1.25	1.8	21	850	1000	0.2	1.8	19	550	1000	1.8	18	475	1000
12	1.8	19	500	1000	1.25	1.8	21	900	1000	0.2	1.8	20	620	1000	1.8	19	535	1000
14	1.8	20	560	1000	1.25	1.8	22	990	1000	0.2	1.8	20	675	1000	1.8	20	600	1000
16	1.8	20	625	1000	1.25	1.8	23	1070	1000	0.2	1.8	21	750	1000	1.8	21	660	1000
19	1.8	21	700	1000	1.6	1.8	25	1300	1000	0.2	1.8	22	825	1000	1.8	22	735	1000
24	1.8	25	875	1000	1.6	1.8	28	1575	1000	0.2	1.8	25	1020	1000	1.8	25	915	1000
27	1.8	25	950	1000	1.6	1.8	28	1675	1000	0.2	1.8	26	1100	1000	1.8	25	990	1000
30	1.8	26	1020	1000	1.6	1.8	29	1755	1000	0.2	1.8	27	1175	1000	1.8	26	1060	1000
37	1.8	28	1200	1000	1.6	1.9	31	2010	500	0.2	1.8	29	1370	1000	1.8	28	1250	1000
44	1.9	31	1390	500	1.6	2.0	34	2300	500	0.2	1.9	32	1570	500	1.9	31	1440	500
48	1.9	32	1490	500	2.0	2.0	36	2650	500	0.2	1.9	32	1675	500	1.9	32	1535	500
52	1.9	33	1620	500	2.0	2.1	37	2850	500	0.2	1.9	34	1820	500	1.9	33	1675	500
61	2.0	35	1900	500	2.0	2.1	39	3175	500	0.2	2.0	36	2120	500	2.0	35	1960	500

Core Identification:

- 2 Cores : Red, Black
- 3 Cores : Red, Yellow, Blue
- 4 Cores : Red, Yellow, Blue, Black
- 5 Cores : Red, Yellow, Blue, Black, Green
- 6 Cores and above : Black core insulation with White printed numerals.

Tolerance:

- Overall diameter: ± 5%
- Packing: ± 5%

Also available upon request:

- a) Solid (re) Conductors
- b) Control Cables with Copper Wire Screen
- c) Control Cables with one core Green/Yellow

Note:

- 1) Based on special request for 6 cores and above, white cores with black printed numerals can also be provided.
- 2) Cable with one core Green/Yellow can also be provided based on special request.

CONTROL CABLES TO IEC 60502-1

COPPER CONDUCTORS, PVC INSULATED, PVC SHEATHED

600/1000 VOLTS

Cross sectional area of conductor : 2.5 mm² (Round Stranded)
 Thickness of insulation : 0.8 mm
 Conductor DC Resistance at 20°C : 7.41 Ohm/Km
 Thickness of copper tape screen : 0.05 mm (Applicable only for CU/PVC/CUT/PVC)

No. of Cores	CU/PVC/PVC				CU/PVC/SWA/PVC					CU/PVC/STA/PVC					CU/PVC/CUT/PVC			
	UNARMoured				STEEL WIRE ARMoured					STEEL TAPE ARMoured					COPPER TAPE SCREEN			
	Nom. Sheath Thickness	Approx. Overall Dia.	Approx. Weight	Packing	Nom. Steel Wire Dia.	Nom. Sheath Thickness	Approx. Overall Dia.	Approx. Weight	Packing	Steel Tape Thickness	Nom. Sheath Thickness	Approx. Overall Dia.	Approx. Weight	Packing	Nom. Sheath Thickness	Approx. Overall Dia.	Approx. Weight	Packing
No.	mm	mm	Kg/Km	meters	mm	mm	mm	Kg/Km	meters	mm	mm	mm	Kg/km	meters	mm	mm	Kg/Km	meters
2	1.8	13	240	1000	0.8	1.8	15	400	1000	0.2	1.8	14	300	1000	1.8	13	255	1000
3	1.8	13	275	1000	0.8	1.8	16	450	1000	0.2	1.8	14	350	1000	1.8	14	300	1000
4	1.8	14	325	1000	0.8	1.8	16	515	1000	0.2	1.8	15	400	1000	1.8	15	350	1000
5	1.8	15	380	1000	0.8	1.8	17	590	1000	0.2	1.8	16	470	1000	1.8	16	400	1000
7	1.8	16	450	1000	1.25	1.8	19	800	1000	0.2	1.8	17	550	1000	1.8	17	475	1000
10	1.8	20	590	1000	1.25	1.8	23	1025	1000	0.2	1.8	21	700	1000	1.8	20	625	1000
12	1.8	21	665	1000	1.25	1.8	23	1110	1000	0.2	1.8	21	790	1000	1.8	21	700	1000
14	1.8	22	750	1000	1.6	1.8	25	1350	1000	0.2	1.8	22	875	1000	1.8	22	785	1000
16	1.8	23	840	1000	1.6	1.8	26	1475	1000	0.2	1.8	23	975	1000	1.8	23	875	1000
19	1.8	24	950	1000	1.6	1.8	27	1620	1000	0.2	1.8	24	1090	1000	1.8	24	990	1000
24	1.8	27	1200	1000	1.6	1.9	31	1990	1000	0.2	1.8	28	1350	1000	1.8	28	1235	1000
27	1.8	28	1300	1000	1.6	1.9	31	2120	500	0.2	1.8	29	1470	1000	1.8	28	1350	1000
30	1.8	29	1400	1000	1.6	1.9	32	2235	500	0.2	1.8	30	1575	1000	1.8	29	1450	1000
37	1.9	31	1675	500	1.6	2.0	34	2590	500	0.2	1.9	32	1870	500	1.9	31	1730	500
44	2.0	35	1975	500	2.0	2.1	39	3275	500	0.2	2.0	36	2190	500	2.0	35	2040	500
48	2.0	36	2120	500	2.0	2.1	40	3450	500	0.2	2.0	37	2340	500	2.0	36	2180	500
52	2.0	37	2210	500	2.0	2.2	41	3650	500	0.2	2.1	38	2515	500	2.0	37	2355	500
61	2.1	39	2675	500	2.0	2.2	43	4110	500	0.5	2.2	41	3300	500	2.1	39	2740	500

Core Identification:

- 2 Cores : Red, Black
- 3 Cores : Red, Yellow, Blue
- 4 Cores : Red, Yellow, Blue, Black
- 5 Cores : Red, Yellow, Blue, Black, Green
- 6 Cores and above : Black core insulation with White printed numerals.

Tolerance:

- Overall diameter: ± 5%
- Packing: ± 5%

Also available upon request:

- a) Solid (re) Conductors
- b) Control Cables with Copper Wire Screen
- c) Control Cables with one core Green/Yellow

Note:

- 1) Based on special request for 6 cores and above, white cores with black printed numerals can also be provided.
- 2) Cable with one core Green/Yellow can also be provided based on special request.

CONTROL CABLES TO IEC 60502-1

COPPER CONDUCTORS, PVC INSULATED, PVC SHEATHED

600/1000 VOLTS

Cross sectional area of conductor : 4 mm² (Round Stranded)
 Thickness of insulation : 1.0 mm
 Conductor DC Resistance at 20°C : 4.61 Ohm/Km
 Thickness of copper tape screen : 0.05 mm (Applicable only for CU/PVC/CUT/PVC)

No.	CU/PVC/PVC				CU/PVC/SWA/PVC					CU/PVC/STA/PVC					CU/PVC/CUT/PVC			
	UNARMoured				STEEL WIRE ARMoured					STEEL TAPE ARMoured					COPPER TAPE SCREEN			
	No. of Cores	Nom. Sheath Thickness	Approx. Overall Dia.	Approx. Weight	Packing	Nom. Steel Wire Dia.	Nom. Sheath Thickness	Approx. Overall Dia.	Approx. Weight	Packing	Steel Tape Thickness	Nom. Sheath Thickness	Approx. Overall Dia.	Approx. Weight	Packing	Nom. Sheath Thickness	Approx. Overall Dia.	Approx. Weight
mm	mm	Kg/Km	meters	mm	mm	mm	Kg/Km	meters	mm	mm	mm	Kg/km	meters	mm	mm	Kg/Km	meters	
2	1.8	15	320	1000	0.8	1.8	17	515	1000	0.2	1.8	16	400	1000	1.8	15	350	1000
3	1.8	15	375	1000	1.25	1.8	18	700	1000	0.2	1.8	16	465	1000	1.8	16	400	1000
4	1.8	17	450	1000	1.25	1.8	19	800	1000	0.2	1.8	17	550	1000	1.8	17	475	1000
5	1.8	18	540	1000	1.25	1.8	20	925	1000	0.2	1.8	19	640	1000	1.8	18	570	1000
7	1.8	19	640	1000	1.25	1.8	22	1050	1000	0.2	1.8	20	750	1000	1.8	19	675	1000
10	1.8	24	850	1000	1.6	1.8	27	1535	1000	0.2	1.8	25	990	1000	1.8	24	890	1000
12	1.8	25	970	1000	1.6	1.8	28	1675	1000	0.2	1.8	25	1120	1000	1.8	25	1010	1000
14	1.8	26	1100	1000	1.6	1.8	29	1835	1000	0.2	1.8	26	1250	1000	1.8	26	1140	1000
16	1.8	27	1235	1000	1.6	1.8	30	2000	1000	0.2	1.8	28	1400	1000	1.8	27	1275	1000
19	1.8	28	1400	1000	1.6	1.9	32	2240	500	0.2	1.8	29	1575	1000	1.8	29	1450	1000
24	1.9	34	1820	500	2.0	2.1	38	3075	500	0.2	2.0	35	2035	500	1.9	34	1875	500
27	2.0	34	2000	500	2.0	2.1	39	3275	500	0.2	2.0	35	2220	500	2.0	35	2065	500
30	2.0	36	2160	500	2.0	2.1	40	3460	500	0.2	2.0	36	2375	500	2.0	36	2225	500
37	2.1	38	2600	500	2.0	2.2	43	4010	500	0.5	2.2	41	3215	500	2.1	39	2665	500
44	2.2	43	3000	500	2.5	2.4	49	5050	500	0.5	2.3	45	3700	500	2.2	43	3075	500
48	2.3	44	3290	500	2.5	2.4	50	5350	500	0.5	2.3	46	3990	500	2.3	45	3370	500
52	2.3	46	3525	500	2.5	2.5	51	5650	250	0.5	2.4	48	4265	500	2.3	46	3600	500
61	2.4	49	4160	500	2.5	2.6	54	6415	250	0.5	2.5	51	4940	250	2.4	49	4250	500

Core Identification:

- 2 Cores : Red, Black
- 3 Cores : Red, Yellow, Blue
- 4 Cores : Red, Yellow, Blue, Black
- 5 Cores : Red, Yellow, Blue, Black, Green
- 6 Cores and above : Black core insulation with White printed numerals.

Tolerance:

- Overall diameter: ± 5%
- Packing: ± 5%

Also available upon request:

- a) Solid (re) Conductors
- b) Control Cables with Copper Wire Screen
- c) Control Cables with one core Green/Yellow

Note:

- 1) Based on special request for 6 cores and above, white cores with black printed numerals can also be provided.
- 2) Cable with one core Green/Yellow can also be provided based on special request.

CONTROL CABLES TO IEC 60502-1

COPPER CONDUCTORS, XLPE INSULATED, PVC SHEATHED 600/1000 VOLTS

Cross sectional area of conductor : 1.5 mm² (Round Stranded)
 Thickness of insulation : 0.7 mm
 Conductor DC Resistance at 20°C : 12.1 Ohm/Km
 Thickness of copper tape screen : 0.05 mm (Applicable only for CU/XLPE/CUT/PVC)

No.	CU/XLPE/PVC				CU/XLPE/SWA/PVC					CU/XLPE/STA/PVC					CU/XLPE/CUT/PVC			
	UNARMoured				STEEL WIRE ARMoured					STEEL TAPE ARMoured					COPPER TAPE SCREEN			
	Nom. Sheath Thickness	Approx. Overall Dia.	Approx. Weight	Packing	Nom. Steel Wire Dia.	Nom. Sheath Thickness	Approx. Overall Dia.	Approx. Weight	Packing	Steel Tape Thickness	Nom. Sheath Thickness	Approx. Overall Dia.	Approx. Weight	Packing	Nom. Sheath Thickness	Approx. Overall Dia.	Approx. Weight	Packing
mm	mm	Kg/Km	meters	mm	mm	mm	Kg/Km	meters	mm	mm	mm	Kg/km	meters	mm	mm	Kg/Km	meters	
2	1.8	12	175	1000	0.8	1.8	14	325	1000	0.2	1.8	12	240	1000	1.8	12	200	1000
3	1.8	12	200	1000	0.8	1.8	14	350	1000	0.2	1.8	13	260	1000	1.8	12	220	1000
4	1.8	13	230	1000	0.8	1.8	15	400	1000	0.2	1.8	14	300	1000	1.8	13	250	1000
5	1.8	14	265	1000	0.8	1.8	16	450	1000	0.2	1.8	14	340	1000	1.8	14	290	1000
7	1.8	14	300	1000	0.8	1.8	17	500	1000	0.2	1.8	15	390	1000	1.8	15	325	1000
10	1.8	17	400	1000	1.25	1.8	20	765	1000	0.2	1.8	18	500	1000	1.8	18	425	1000
12	1.8	18	440	1000	1.25	1.8	20	820	1000	0.2	1.8	19	540	1000	1.8	18	465	1000
14	1.8	19	485	1000	1.25	1.8	21	890	1000	0.2	1.8	19	600	1000	1.8	19	515	1000
16	1.8	20	540	1000	1.25	1.8	22	965	1000	0.2	1.8	20	650	1000	1.8	20	575	1000
19	1.8	20	600	1000	1.25	1.8	23	1050	1000	0.2	1.8	21	725	1000	1.8	21	635	1000
24	1.8	23	750	1000	1.6	1.8	27	1420	1000	0.2	1.8	24	885	1000	1.8	24	785	1000
27	1.8	24	810	1000	1.6	1.8	27	1500	1000	0.2	1.8	25	950	1000	1.8	24	850	1000
30	1.8	25	865	1000	1.6	1.8	28	1570	1000	0.2	1.8	25	1010	1000	1.8	25	900	1000
37	1.8	26	1015	1000	1.6	1.8	30	1770	500	0.2	1.8	27	1175	1000	1.8	27	1060	1000
44	1.8	29	1150	1000	1.6	1.9	33	2010	500	0.2	1.8	30	1335	500	1.8	29	1200	500
48	1.8	30	1235	500	1.6	1.9	33	2100	500	0.2	1.9	31	1430	500	1.8	30	1285	500
52	1.9	31	1330	500	1.6	2.0	34	2225	500	0.2	1.9	31	1520	500	1.9	31	1385	500
61	1.9	33	1585	500	2.0	2.0	37	2800	500	0.2	1.9	34	1785	500	1.9	33	1640	500

Core Identification:

- 2 Cores : Red, Black
- 3 Cores : Red, Yellow, Blue
- 4 Cores : Red, Yellow, Blue, Black
- 5 Cores : Red, Yellow, Blue, Black, Green
- 6 Cores and above : Black core insulation with White printed numerals.

Tolerance:

- Overall diameter: ± 5%
- Packing: ± 5%

Also available upon request:

- a) Solid (re) Conductors
- b) Control Cables with Copper Wire Screen
- c) Control Cables with one core Green/Yellow

Note:

- 1) Based on special request for 6 cores and above, white cores with black printed numerals can also be provided.
- 2) Cable with one core Green/Yellow can also be provided based on special request.

CONTROL CABLES TO IEC 60502-1

COPPER CONDUCTORS, XLPE INSULATED, PVC SHEATHED 600/1000 VOLTS

Cross sectional area of conductor : 2.5 mm² (Round Stranded)
 Thickness of insulation : 0.7 mm
 Conductor DC Resistance at 20°C : 7.41 Ohm/Km
 Thickness of copper tape screen : 0.05 mm (Applicable only for CU/XLPE/CUT/PVC)

No.	CU/XLPE/PVC				CU/ XLPE /SWA/PVC					CU/ XLPE /STA/PVC					CU/ XLPE /CUT/PVC			
	UNARMOURED				STEEL WIRE ARMoured					STEEL TAPE ARMoured					COPPER TAPE SCREEN			
	Nom. Sheath Thickness	Approx.Overall Dia.	Approx. Weight	Packing	Nom. Steel Wire Dia.	Nom. Sheath Thickness	Approx.Overall Dia.	Approx Weight	Packing	Steel Tape Thickness	Nom. Sheath Thick ness	Approx. Overall Dia.	Approx. Weight	Packing	Nom. Sheath Thickness	Approx.Overall Dia.	Approx. Weight	Packing
mm	mm	Kg/Km	meters	mm	mm	mm	Kg/Km	meters	mm	mm	mm	Kg/km	meters	mm	mm	Kg/Km	meters	
2	1.8	12	220	1000	0.8	1.8	15	375	1000	0.2	1.8	13	285	1000	1.8	13	235	1000
3	1.8	13	250	1000	0.8	1.8	15	420	1000	0.2	1.8	14	320	1000	1.8	13	270	1000
4	1.8	14	290	1000	0.8	1.8	16	475	1000	0.2	1.8	15	370	1000	1.8	14	315	1000
5	1.8	15	350	1000	0.8	1.8	17	535	1000	0.2	1.8	16	425	1000	1.8	15	365	1000
7	1.8	16	400	1000	1.25	1.8	18	730	1000	0.2	1.8	17	490	1000	1.8	16	425	1000
10	1.8	19	525	1000	1.25	1.8	22	940	1000	0.2	1.8	20	635	1000	1.8	19	550	1000
12	1.8	20	590	1000	1.25	1.8	22	1015	1000	0.2	1.8	21	700	1000	1.8	20	625	1000
14	1.8	21	660	1000	1.25	1.8	23	1100	1000	0.2	1.8	21	780	1000	1.8	21	700	1000
16	1.8	22	740	1000	1.6	1.8	25	1350	1000	0.2	1.8	22	865	1000	1.8	22	775	1000
19	1.8	23	830	1000	1.6	1.8	26	1470	1000	0.2	1.8	23	965	1000	1.8	23	875	1000
24	1.8	26	1040	1000	1.6	1.8	29	1885	1000	0.2	1.8	27	1200	1000	1.8	26	1080	1000
27	1.8	27	1130	1000	1.6	1.8	30	1875	500	0.2	1.8	27	1300	1000	1.8	27	1175	1000
30	1.8	27	1220	1000	1.6	1.9	31	2020	500	0.2	1.8	28	1380	1000	1.8	28	1265	1000
37	1.8	30	1450	1000	1.6	1.9	33	2315	500	0.2	1.8	30	1625	500	1.8	30	1500	500
44	1.9	33	1700	500	2.0	2.1	38	2965	500	0.2	2.0	34	1925	500	1.9	34	1760	500
48	1.9	34	1825	500	2.0	2.1	38	3110	500	0.2	2.0	35	2050	500	1.9	34	1875	500
52	2.0	35	1965	500	2.0	2.1	39	3265	500	0.2	2.0	36	2180	500	2.0	35	2025	500
61	2.0	37	2300	500	2.0	2.2	41	3700	500	0.2	2.1	38	2540	500	2.0	37	2360	500

Core Identification:

2 Cores : Red, Black
 3 Cores : Red, Yellow, Blue
 4 Cores : Red, Yellow, Blue, Black
 5 Cores : Red, Yellow, Blue, Black, Green
 6 Cores and above : Black core insulation with White printed numerals.

Tolerance:

Overall diameter: ± 5%
 Packing: ± 5%

Also available upon request:

- Solid (re) Conductors
- Control Cables with Copper Wire Screen
- Control Cables with one core Green/Yellow

Note:

- Based on special request for 6 cores and above, white cores with black printed numerals can also be provided.
- Cable with one core Green/Yellow can also be provided based on special request.

CONTROL CABLES TO IEC 60502-1

COPPER CONDUCTORS, XLPE INSULATED, PVC SHEATHED

600/1000 VOLTS

Cross sectional area of conductor : 4 mm² (Round Stranded)
 Thickness of insulation : 0.7 mm
 Conductor DC Resistance at 20°C : 4.61 Ohm/Km
 Thickness of copper tape screen : 0.05 mm (Applicable only for CU/XLPE/CUT/PVC)

No. of Cores	CU/XLPE/PVC				CU/XLPE/SWA/PVC					CU/XLPE/STA/PVC					CU/XLPE/CUT/PVC			
	UNARMoured				STEEL WIRE ARMoured					STEEL TAPE ARMoured					COPPER TAPE SCREEN			
	Nom. Sheath Thickness	Approx. Overall Dia.	Approx. Weight	Packing	Nom. Steel Wire Dia.	Nom. Sheath Thickness	Approx. Overall Dia.	Approx. Weight	Packing	Steel Tape Thickness	Nom. Sheath Thickness	Approx. Overall Dia.	Approx. Weight	Packing	Nom. Sheath Thickness	Approx. Overall Dia.	Approx. Weight	Packing
No.	mm	mm	Kg/Km	meters	mm	mm	mm	Kg/Km	meters	mm	mm	mm	Kg/km	meters	mm	mm	Kg/Km	meters
2	1.8	14	270	1000	0.8	1.8	16	450	1000	0.2	1.8	14	345	1000	1.8	14	290	1000
3	1.8	14	315	1000	0.8	1.8	16	500	1000	0.2	1.8	15	400	1000	1.8	14	335	1000
4	1.8	15	375	1000	0.8	1.8	17	580	1000	0.2	1.8	16	460	1000	1.8	15	400	1000
5	1.8	16	450	1000	1.25	1.8	19	790	1000	0.2	1.8	17	540	1000	1.8	16	475	1000
7	1.8	17	530	1000	1.25	1.8	20	900	1000	0.2	1.8	18	635	1000	1.8	18	560	1000
10	1.8	21	700	1000	1.6	1.8	25	1300	1000	0.2	1.8	22	825	1000	1.8	22	735	1000
12	1.8	22	800	1000	1.6	1.8	25	1420	1000	0.2	1.8	23	930	1000	1.8	22	835	1000
14	1.8	23	900	1000	1.6	1.8	26	1560	1000	0.2	1.8	24	1040	1000	1.8	23	940	1000
16	1.8	24	1015	1000	1.6	1.8	27	1700	1000	0.2	1.8	25	1150	1000	1.8	24	1050	1000
19	1.8	25	1150	1000	1.6	1.8	29	1875	1000	0.2	1.8	26	1300	1000	1.8	26	1200	1000
24	1.8	29	1450	1000	1.6	1.9	33	2300	500	0.2	1.8	30	1625	500	1.8	30	1500	1000
27	1.8	30	1585	1000	1.6	1.9	33	2450	500	0.2	1.9	31	1780	500	1.8	30	1635	500
30	1.9	31	1725	500	1.6	2.0	35	2635	500	0.2	1.9	32	1915	500	1.9	31	1775	500
37	1.9	34	2100	500	2.0	2.1	38	3350	500	0.2	2.0	35	2315	500	1.9	34	2150	500
44	2.1	38	2440	500	2.0	2.2	42	3850	500	0.5	2.1	40	3035	500	2.1	38	2500	500
48	2.1	39	2625	500	2.0	2.2	43	4050	500	0.5	2.2	41	3250	500	2.1	39	2690	500
52	2.1	40	2810	500	2.0	2.3	44	4300	500	0.5	2.2	42	3450	500	2.1	40	2880	500
61	2.2	42	3310	500	2.0	2.3	47	4850	500	0.5	2.3	45	4000	500	2.2	43	3385	500

Core Identification:

2 Cores : Red, Black
 3 Cores : Red, Yellow, Blue
 4 Cores : Red, Yellow, Blue, Black
 5 Cores : Red, Yellow, Blue, Black, Green
 6 Cores and above : Black core insulation with White printed numerals.

Tolerance:

Overall diameter: ± 5%
 Packing: ± 5%

Also available upon request:

- Solid (re) Conductors
- Control Cables with Copper Wire Screen
- Control Cables with one core Green/Yellow

Note:

- Based on special request for 6 cores and above, white cores with black printed numerals can also be provided.
- Cable with one core Green/Yellow can also be provided based on special request.

CONTROL CABLES TO BS-5467

COPPER CONDUCTORS, XLPE INSULATED, STEEL WIRE ARMoured, PVC SHEATHED

Size	Nominal Thickness of XLPE insulation	Nominal Thickness of PVCbedding	Nominal steel wire diameter.	Nominal Thickness of outer sheath	Approx. overall diameter.	Approx. weight	Standard packing
mm ²	mm	mm	mm	mm	mm	Kg/Km	meters
2x1.5	0.6	0.8	0.9	1.3	12.1	300	1000
3x1.5	0.6	0.8	0.9	1.3	12.6	310	1000
4x1.5	0.6	0.8	0.9	1.3	13.3	340	1000
5x1.5	0.6	0.8	0.9	1.4	14.3	390	1000
7x1.5	0.6	0.8	0.9	1.4	15.2	450	1000
12x1.5	0.6	0.8	1.25	1.5	19.4	755	1000
19x1.5	0.6	0.8	1.25	1.6	22.4	965	1000
27x1.5	0.6	1.0	1.6	1.7	26.7	1430	1000
37x1.5	0.6	1.0	1.6	1.7	29.0	1690	500
48x1.5	0.6	1.0	1.6	1.8	32.7	2060	500

Size	Nominal Thickness of XLPE insulation	Nominal Thickness of PVCbedding	Nominal steel wire diameter.	Nominal Thickness of outer sheath	Approx. overall diameter.	Approx. weight	Standard packing
mm ²	mm	mm	mm	mm	mm	Kg/Km	meters
2x2.5	0.7	0.8	0.9	1.4	13.6	370	1000
3x2.5	0.7	0.8	0.9	1.4	14.1	380	1000
4x2.5	0.7	0.8	0.9	1.4	15.0	435	1000
5x2.5	0.7	0.8	0.9	1.4	16.1	490	1000
7x2.5	0.7	0.8	0.9	1.4	17.1	570	1000
12x2.5	0.7	0.8	1.25	1.6	22.4	975	1000
19x2.5	0.7	1.0	1.6	1.7	26.6	1465	1000
27x2.5	0.7	1.0	1.6	1.8	30.7	1900	1000
37x2.5	0.7	1.0	1.6	1.8	33.8	2290	500
48x2.5	0.7	1.2	2.0	2.0	39.3	3140	500

Size	Nominal Thickness of XLPE insulation	Nominal Thickness of PVCbedding	Nominal steel wire diameter.	Nominal Thickness of outer sheath	Approx. overall diameter.	Approx. weight	Standard packing
mm ²	mm	mm	mm	mm	mm	Kg/Km	meters
2x4	0.7	0.8	0.9	1.4	14.7	435	1000
3x4	0.7	0.8	0.9	1.4	15.3	460	1000
4x4	0.7	0.8	0.9	1.4	16.4	535	1000
5x4	0.7	0.8	0.9	1.5	17.8	620	1000
7x4	0.7	0.8	1.25	1.5	19.7	840	1000
12x4	0.7	1.0	1.6	1.6	25.7	1415	1000
19x4	0.7	1.0	1.6	1.7	29.3	1870	1000
27x4	0.7	1.0	1.6	1.9	34.4	2485	1000
37x4	0.7	1.2	2.0	2.0	39.2	3365	500
48x4	0.7	1.2	2.0	2.1	44.1	4115	500

Core identification:

2cores : Red, Black
 3cores : Red, yellow, blue
 4cores : Red, yellow, blue, black
 5cores : Red, yellow, blue, black, green
 6cores & above : black core insulation with white numerals

Note: 1) Based on special request solid (re)conductors can also be provided

2) Based on special request for 6cores and above, white cores with black printed numerals can also be provided

3) Cable with one core Green/Yellow can also be provided based on special request:

Tolerance:

Overall diameter: ± 5%
 Packing : ± 5%

CONTROL CABLES TO BS-6346

COPPER CONDUCTORS, PVC INSULATED, STEEL WIRE ARMoured, PVC SHEATHED

Size	Nominal Thickness of PVC insulation	Nominal Thickness of PVC bedding	Nominal steel wire diameter.	Nominal Thickness of outer sheath	Approx. overall diameter.	Approx. weight	Standard packing
mm ²	mm	mm	mm	mm	mm	Kg/Km	meters
2x1.5	0.6	0.8	0.9	1.4	12.3	300	1000
3x1.5	0.6	0.8	0.9	1.4	12.8	320	1000
4x1.5	0.6	0.8	0.9	1.4	13.5	360	1000
5x1.5	0.6	0.8	0.9	1.4	14.3	400	1000
7x1.5	0.6	0.8	0.9	1.4	15.2	460	1000
12x1.5	0.6	0.8	1.25	1.5	19.4	785	1000
19x1.5	0.6	0.8	1.25	1.6	22.2	1010	1000
27x1.5	0.6	1.0	1.6	1.7	26.7	1495	1000
37x1.5	0.6	1.0	1.6	1.8	29.2	1800	500
48x1.5	0.6	1.0	1.6	1.9	32.9	2195	500

Size	Nominal Thickness of PVC insulation	Nominal Thickness of PVC bedding	Nominal steel wire diameter.	Nominal Thickness of outer sheath	Approx. overall diameter.	Approx. weight	Standard packing
mm ²	mm	mm	mm	mm	mm	Kg/Km	meters
2x2.5	0.7	0.8	0.9	1.4	13.6	370	1000
3x2.5	0.7	0.8	0.9	1.4	14.1	390	1000
4x2.5	0.7	0.8	0.9	1.4	15.0	450	1000
5x2.5	0.7	0.8	0.9	1.5	16.3	575	1000
7x2.5	0.7	0.8	1.25	1.5	18	710	1000
12x2.5	0.7	0.8	1.25	1.6	22.4	1020	1000
19x2.5	0.7	1.0	1.6	1.7	26.6	1535	1000
27x2.5	0.7	1.0	1.6	1.8	30.7	2000	1000
37x2.5	0.7	1.0	1.6	1.9	34.0	2445	500
48x2.5	0.7	1.2	2.0	2.1	39.5	3330	500

Size	Nominal Thickness of PVC insulation	Nominal Thickness of PVC bedding	Nominal steel wire diameter.	Nominal Thickness of outer sheath	Approx. overall diameter.	Approx. weight	Standard packing
mm ²	mm	mm	mm	mm	mm	Kg/Km	meters
2x4	0.8	0.8	0.9	1.4	15.1	460	1000
3x4	0.8	0.8	0.9	1.4	15.8	490	1000
4x4	0.8	0.8	1.25	1.5	17.8	680	1000
5x4	0.8	0.8	1.25	1.5	19.0	775	1000
7x4	0.8	0.8	1.25	1.6	20.5	925	1000
12x4	0.8	1.0	1.6	1.7	26.8	1555	1000
19x4	0.8	1.0	1.6	1.8	30.5	2060	1000
27x4	0.8	1.2	2.0	2.0	37.1	3030	1000
37x4	0.8	1.2	2.0	2.1	40.8	3700	500
48x4	0.8	1.2	2.0	2.2	46.0	4535	500

Core identification:

2cores : Red, Black
 3cores : Red, yellow, blue
 4cores : Red, yellow, blue, black
 5cores : Red, yellow, blue, black, green
 6cores & above : black core insulation with white numerals

Tolerance:

Overall diameter : ± 5%
 Packing : ± 5%

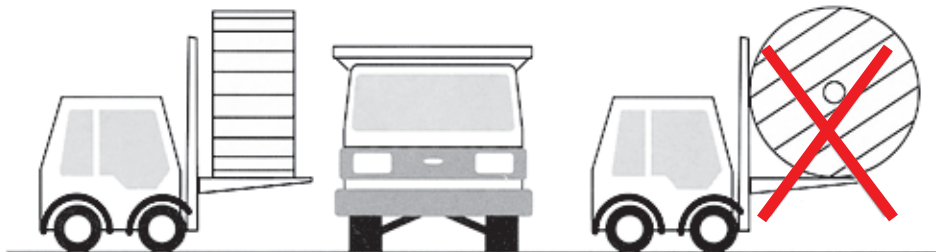
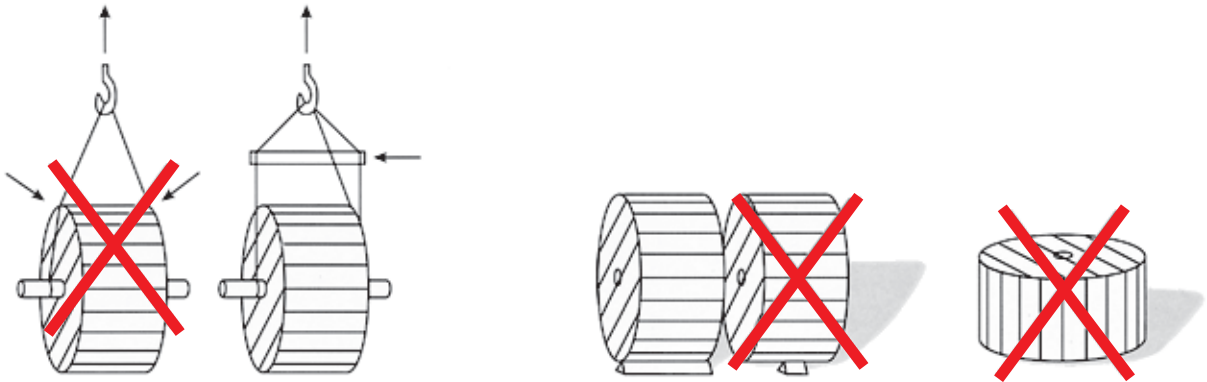
Note: 1) Based on special request solid (re)conductors can also be provided

2) Based on special request for 6cores and above, white cores with black printed numerals can also be provided

3) Cable with one core Green/Yellow can also be provided based on special request

DRUM HANDLING INSTRUCTIONS

Cables and Conductors should be installed by trained personnel in accordance with good engineering practices, recognized codes of practice, statutory local requirements, IEE wiring regulations and where relevant, in accordance with any specific instructions issued by the company. Cables are often supplied in heavy cable reels and handling these reels can constitute a safety hazard. In particular, dangers may arise during the removal of steel binding straps and during the removal of retaining battens and timbers which may expose projecting nails.





Mark Cables FZE

S40202A- Street S900

Jebel Ali Free Zone South

P.O.Box 17371, Dubai, UAE

Tel: +971 4 881 9616, Fax: +971 4 881 9636

Email: sales@markcables.com

www.markcables.com