



Onshore Cables



FOREWORD

**ONE COMPANY CONNECTING THE WORLD
POWERFUL PRESENCE • PRODUCTS •
PERFORMANCE • PEOPLE**

General Cable has been a wire and cable innovator for over 170 years, always dedicated to connecting and powering people's lives. With more than 11,000 employees and \$6 billion in revenues, we are one of the largest wire and cable manufacturers in the world.

Our company serves customers through a global network of 38 manufacturing facilities in our core operating regions and has worldwide sales representation and distribution. We are dedicated to the production of high-quality aluminium, copper and fibre optic wire and cable and systems solutions for the energy, construction, industrial, specialty and communications sectors. With a vast portfolio of products to meet thousands of diverse application requirements, we continue to invest in research and development in order to maintain and extend our technology leadership by developing new materials, designing new products, and creating new solutions to meet tomorrow's market challenges.

In addition to our strong brand recognition and strengths in technology and manufacturing, General Cable is also competitive in such areas as distribution and logistics, sales and customer service. This combination enables us to better serve our customers and as they expand into new geographic markets.

General Cable offers our customers all the strengths and value of a large company, but our people give us the agility and responsiveness of a small one. We service you globally or locally.

Visit our Website at www.generalcable.com



SYMBOLS



FLAME RETARDANT SINGLE WIRE
IEC 60332-1-2



FLAME RETARDANT BUNCHED
WIRES - IEC 60332-3 (categories A or C)



HALOGEN FREE - IEC 60754-1



LOW ACIDITY AND CORROSIVITY OF EVOLVED
GASES IEC 60754-2



LOW SMOKE EMISSION - IEC 61034-2



FIRE RESISTANT - IEC 60331



INCREASED FLEXIBILITY



SECTORFLEX



ELECTRO-MAGNETIC INTERFERENCE PROTECTION



MINERAL OIL RESISTANCE



HYDROCARBON RESISTANCE



UV RADIATION RESISTANCE



WORK AT VERY LOW TEMPERATURE -40 °C



MECHANICAL RESISTANCE



RODENT PROTECTION



HEAVY DUTY



WATERTIGHT



REDUCED BENDING RADIUS

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INTRODUCTION

ONSHORE CABLES

In this catalogue General Cable presents its series of onshore power, control and instrumentation cables for petrochemical and onshore facilities.

The safety of people and equipment is a priority consideration in the design and construction of Exzhellent®, Genfire® and GenInst cables. They are made from zero-halogen compounds with a low-acidity, low level of corrosive gases and a low opacity of fumes emitted during combustion, in accordance with the corresponding IEC standards. They therefore allow for quick and safe evacuation in the event of fire.

The cables are designed to comply with the strictest non-fire propagation standards and prevent the generation of secondary fires even in circumstances of high cable concentration in unfavourable conditions.

Genfire® cables are fire-resistant designs that feature not only the above properties, but are also able to continue providing service even when directly affected by fire. Their use in safety services enables the systems to continue working even in situations of fire.

Reinforced cables feature copper braiding that provides good mechanical protection and may also be used in specific applications such as shielding.

Exzhellent®, Genfire® and GenInst cables may be used in extreme climates, principally because of their resistance to very low temperatures.

This catalogue also includes specific designs for energy cables used in circuits with variable frequency drives (VFD).

The cables described in this catalogue have been designed in accordance with the following standards and specifications:

TECHNICAL SPECIFICATIONS & STANDARDS

IEC 60228

Conductors of insulated cables.

IEC 60287 (all parts)

Electric Cables – Calculation of the current rating.

IEC 60331-21

Tests for electric cables under fire conditions – Circuit integrity. Part 21: Procedures and requirements – Cables of rated voltage up to and including 0.6/1 kV.

IEC 60332-1-2

Tests on electric and optical fibre cables under fire conditions. Part 1-2: Test for vertical flame propagation for a single insulated wire or cable – Procedure for 1 kW pre-mixed flame.

IEC 60332-3-22

Tests on electric cables under fire conditions. Part 3-22: Test for vertical flame spread of vertically mounted bunched wires or cables – Category A.

IEC 60332-3-24

Tests on electric and optical fibre cables under fire conditions. Part 3-24: Test for vertical flame spread of vertically-mounted bunched wires or cables – Category C.

IEC 60502-1

Power cables with extruded insulation and their accessories for rated voltages from 1 kV ($U_m = 1.2$ kV) up to 30 kV ($U_m = 36$ kV). Part 1: Cables for rated voltages of 1 kV ($U_m = 1.2$ kV) and 3 kV ($U_m = 3.6$ kV).

IEC 60502-2

Power cables with extruded insulation and their accessories for rated voltages from 1 kV ($U_m = 1.2$ kV) up to 30 kV ($U_m = 36$ kV). Part 2: Cables for rated voltages of 6 kV ($U_m = 7.2$ kV) up to 30 kV ($U_m = 36$ kV).

IEC 60754-1

Test on gases evolved during combustion of materials from cables – Determination of the amount of halogen acid gas.

IEC 60754-2

Test on gases evolved during combustion of electric cables – Determination of the degree of acidity of gases evolved during combustion of materials taken from electric cables by measuring pH and conductivity.

IEC 61034-2

Measurement of smoke density of cables burning under defined conditions – Test procedure and requirements.

UIC 895 OR

Technical specification for the supply of insulation electrical conductors for rolling stock for railways.

CSA C22.2

Wire and cable test methods.

ISO 4892-2:2013

Plastics – Methods of exposure to laboratory light sources. Part 2: Xenon-arc lamps.

BS 5308 – 1

Instrumentation cables. Specification for polyethylene insulated cables.

CABLE DESIGNATION


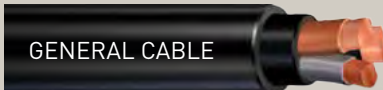

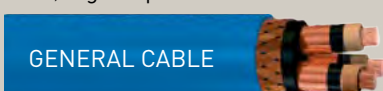
Cable designation is based in the letter code described in the tables below:

Materials	Insulation	Inner covering / Inner sheath	Armour / Shield	Outer Sheath	Additional characteristics
Mica tape	-M				
Cross-linked polyethylene (XLPE)	R				
Polyethylene (E)	E				
Radial field	H				
Lead sheath			L		
Steel wire			M		
Aluminium wire			MA		
Steel tape			F		
Aluminium tape			FA		
Corrugated steel tape			F3		
Corrugated aluminium tape			FA3		
Polyvinyl chloride (PVC)		V		V	
Unit screening			01 (individual) 02 (overall)		
Halogen-free thermoplastic polyolefin		Z1		Z1	
Resistance to hydrocarbons					h

CABLE IDENTIFICATION

All cables have the following legend marked on the sheath:

“General Cable + (cable type) + (voltage) kV + (composition) mm² + PN: (article code) + (basic design standard) + LOT: (lot number) + (meter marking)”

Voltage	Cable sheath colour
Control and Instrumentation 250 V	Grey, legend printed in black 
Low Voltage Power and Control 0.6/1 kV	Black, legend printed in white 
Medium Voltage Power ≥6 kV	Red, legend printed in black 
Intrinsically safe	Blue, legend printed in white 

SELECTION GUIDE

WIRED ARMoured POWER CABLES

LOW VOLTAGE 0.6/1 kV

Group	Brand name	Type	Performance Characteristics						Page
			Low Fire Hazard	Fire retardand	Fire resistant	Hydrocarbon resistant	Low temp.	Lead protection	
BASIC	ARMIGRON®-M	RVMAV RVMV		X					12
	ARMIGRON®-M CONTROL	RVMV		X					18
HYDROCARBON RESISTANT	ARMIGRON®-M	RVMAVh RVMVh		X		X			24
	ARMIGRON®-M	RVMVh		X		X			28
	ARMIGRON®-M	RVhMAVh-K RVhMVh-K		X		X			30
	ARMIGRON®-M	RVLVhMAVh RVLVhMVh		X		X		X	34
LOW FIRE HAZARD	EXZHELLENT®-M	RZ1MAZ1 RZ1MZ1	X	X			X		38
	EXZHELLENT®-M	RZ1MZ1	X	X			X		44
LOW FIRE HAZARD FIRE RESISTANT	SEGURFOC®-M	RZ1MAZ1-M RZ1MZ1-M	X	X	X		X		48

MEDIUM VOLTAGE 6/10 kV 12/20 kV 18/30 kV

HYDROCARBON RESISTANT	HERSATENE® - UNFIRE®	RHVhMAVh RHVhMVh		X		X			52
	HERSATENE® - UNFIRE®	RHVLVhMAVh RHVKVhMVh		X		X		X	56
LOW FIRE HAZARD	EXZHELLENT®-M	RHZ1MAZ1 RHZ1MZ1	X	X			X		60

TAPE ARMoured POWER CABLES

LOW VOLTAGE 0.6/1 kV

Group	Brand name	Type	Performance Characteristics			Page
			Flame retardand	Fire retardand	Hydrocarbon resistant	
BASIC	ARMIGRON®-F	RVFAV RVFV	X			68
	ARMIGRON®-F	RVFV	X			72
	ARMIGRON®-F3	RVFA3V-K RVF3V-K	X			74
HYDROCARBON RESISTANT	ARMIGRON®-F	RVFAVh RVFVh	X	X	X	78

INSTRUMENTATION CABLES

LOW VOLTAGE 300/500 V

Group	Standard	Cable description	Performance Characteristics						Page
			Low Fire Hazard	Fire retardand	Fire resistant	Hydrocarbon resistant	Low temp.	Lead protection	
BASIC	GENINST	E02V-K E02V							86
	GENINST	E0102V-K E0102V							90
	GENINST	E02VMV-K E02VMV		X					94
	GENINST	E0102VMV-K E0102VMV		X					98
HYDROCARBON RESISTANT	GENINST	E02VLVhMVh-K E02VLVhMVh		X		X		X	102
	GENINST	E0102VLVhMVh-K E0102VLVhMVh		X		X		X	106
LOW FIRE HAZARD OUTERSHEATH	EXZHELLENT®	E02Z1-K E02Z1	X	X			X		110
	EXZHELLENT®	E0102Z1-K E0102Z1	X	X			X		114
	EXZHELLENT®-M	E02Z1MZ1-K E02Z1MZ1	X	X			X		118
	EXZHELLENT®-M	E0102Z1MZ1-K E0102Z1MZ1	X	X			X		122
LOW FIRE HAZARD OUTERSHEATH FIRE RESISTANT	GENFIRE®	E02Z1-M	X	X	X		X		126
	GENFIRE®	E0102Z1-M	X	X	X		X		130
	GENFIRE®-M	E02Z1MZ1-M	X	X	X		X		134
	GENFIRE®-M	E0102Z1MZ1-M	X	X	X		X		138

WIRE ARMoured POWER CABLES

BASIC

- 12 ARMIGRON®-M RVMAV / RVMV
- 18 ARMIGRON®-M CONTROL RVMV

HYDROCARBON RESISTANT

- 24 ARMIGRON®-M RVMAVh / RVMVh
- 28 ARMIGRON®-M RVMVh
- 30 ARMIGRON®-M RVhMAVh-K / RVhMVh-K
- 34 ARMIGRON®-M RVLVhMAVh / RVLVhMVh

LOW FIRE HAZARD

- 38 EXZHELLENT®-M RZ1MAZ1 / RZ1MZ1
- 44 EXZHELLENT®-M RZ1MZ1

FIRE RESISTANT

- 48 SEGURFOC®-M RZ1MAZ1-M / RZ1MZ1-M

MEDIUM VOLTAGE

- 52 HERSATENE® RHVhMAVh / RHVhMVh
- 56 HERSATENE® RHVLVhMAVh / RHVLVhMVh
- 60 EXZHELLENT®-M RHZ1MAZ1 / RHZ1MZ1

STANDARDS:**CONSTRUCTION:** IEC 60502-1 / ISO 4892.**FIRE PERFORMANCE:** IEC 60332-3 (categories A or C) / IEC 60332-1-2.**CONSTRUCTION:****1. CONDUCTOR:**Copper class 1 (up to 4 mm²) or class 2 (all the range) to IEC 60228.**2. INSULATION:**

XLPE Identification by colour.

3. INNER COVERING:

PVC.

4. ARMOUR:

Galvanised steel wires for multicore or aluminium for single core.

5. SHEATH:

PVC.

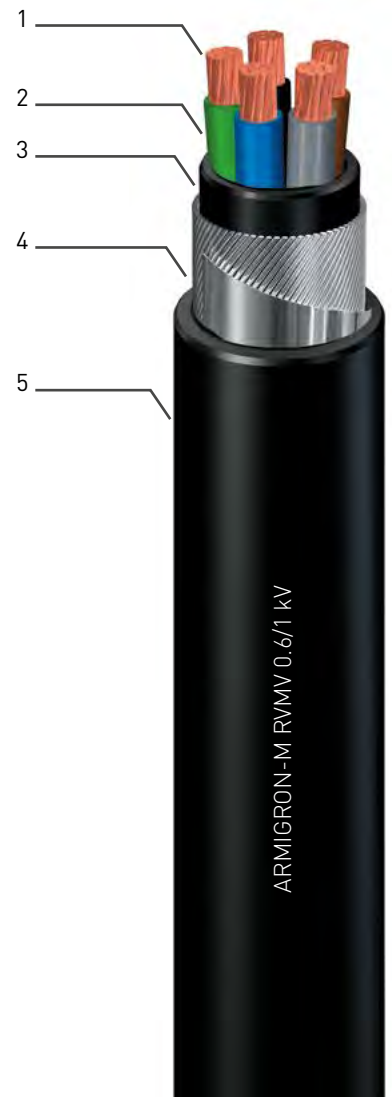
APPLICATIONS:Fire Retardant (Unfire[®]) characteristic according to standard IEC 60332-3, categories A or C.

Excellent mechanical protection during laying, installation and service.

Highly recommended in areas with high risk of explosion or fire.

Extra pulling force. Armour can be used to pull the cable.

Maximum conductor temperature at continuous rating 90 °C.



PHYSICAL & ELECTRICAL CHARACTERISTICS:

CATEGORY C - CONDUCTOR CLASS 1

General Cable Code	Cross section (mm ²)	Diameters		Weight (kg/km)	Bending radius (mm)	Maximum current rating		Voltage drop	
		Under armour (mm)	Overall (mm)			Air 40 °C (A)	Buried 25 °C (A)	Cos μ = 0.8 (V/A·km)	Cos μ = 1 (V/A·km)
1079206	2x1.5	7.1	11.9	290	120	25	36	21.50	26.72
1079207	2x2.5	7.9	12.7	335	130	33	52	13.21	16.37
1079208	2x4	8.8	13.6	400	140	44	67	8.252	10.18
1079306	3x1.5	7.6	12.4	315	125	17	28	21.50	26.72
1079307	3x2.5	8.4	13.2	370	135	25	40	13.21	16.37
1079308	3x4	9.4	14.2	450	145	34	52	8.252	10.18
1079406	4x1.5	8.3	13.2	360	135	17	28	21.50	26.72
1079407	4x2.5	9.2	14.1	425	145	25	40	13.21	16.37
1079408	4x4	10.3	16.0	600	160	34	52	8.252	10.18
1079506	5x1.5	9.1	14.1	400	140	17	28	21.50	26.72
1079507	5x2.5	10.1	15.1	490	155	25	40	13.21	16.37
1079508	5x4	11.4	16.4	605	165	34	52	8.252	10.18

CATEGORY C - CONDUCTOR CLASS 2

1076114	1x50	11.7	17.9	745	180	180	230	0.803	0.855
1076115	1x70	13.3	19.5	965	195	230	280	0.585	0.592
1076206	2x1.5	7.3	12.1	295	125	25	36	21.49	26.72
1076207	2x2.5	8.1	12.9	345	130	33	52	13.20	16.37
1076208	2x4	9.0	13.8	410	140	44	67	8.244	10.18
1076209	2x6	10.2	15.7	560	160	58	86	5.536	6.802
1076210	2x10	11.9	17.4	730	175	79	115	3.322	4.042
1076211	2x16	13.7	19.2	925	195	103	150	2.117	2.540
1076212	2x25	16.7	23.0	1,380	230	138	190	1.370	1.606
1076213	2x35	18.8	25.1	1,700	255	170	230	1.009	1.157
1076214	2x50	21.4	28.0	2,135	280	200	270	0.766	0.855
1076215	2x70	24.9	32.4	2,970	325	255	325	0.553	0.592
1076216	2x95	28.2	36.0	3,750	360	310	385	0.418	0.426
1076217	2x120	31.9	40.0	4,605	400	360	440	0.346	0.338
1076218	2x150	36.2	45.8	5,940	460	415	495	0.296	0.274
1076219	2x185	39.4	49.1	7,010	495	485	555	0.251	0.219
1076220	2x240	45.0	55.2	8,830	555	565	635	0.209	0.167
1076221	2x300	49.7	60.4	10,690	605	660	720	0.180	0.133
1076222	2x400	56.4	67.5	13,265	675	770	815	0.157	0.104
1076306	3x1.5	7.8	12.6	325	130	17	28	21.49	26.72
1076307	3x2.5	8.6	13.4	380	135	25	40	13.20	16.37
1076308	3x4	9.6	14.4	460	145	34	52	8.244	10.18

PHYSICAL & ELECTRICAL CHARACTERISTICS:

CATEGORY C - CONDUCTOR CLASS 2

General Cable Code	Cross section (mm ²)	Diameters		Weight (kg/km)	Bending radius (mm)	Maximum current rating		Voltage drop	
		Under armour (mm)	Overall (mm)			Air 40 °C (A)	Buried 25 °C (A)	Cos μ = 0.8 (V/A·km)	Cos μ = 1 (V/A·km)
1076309	3x6	10.8	16.4	635	165	44	66	5.536	6.802
1076310	3x10	12.7	18.2	840	185	61	88	3.322	4.042
1076311	3x16	14.7	20.9	1,200	210	82	115	2.117	2.540
1076312	3x25	17.9	24.2	1,650	245	110	150	1.370	1.606
1076313	3x35	20.2	26.6	2,055	265	135	180	1.009	1.157
1076314	3x50	23.0	29.6	2,595	300	165	215	0.766	0.855
1076316	3x95	30.3	38.4	4,655	385	260	310	0.418	0.426
1076317	3x120	34.3	42.6	5,725	430	300	355	0.346	0.338
1076318	3x150	39.0	48.6	7,310	490	350	400	0.296	0.274
1076319	3x185	42.6	52.7	8,825	530	400	450	0.251	0.219
1076320	3x240	48.0	58.7	11,075	590	475	520	0.208	0.167
1076321	3x300	53.7	64.5	13,495	645	545	590	0.180	0.133
1076322	3x400	60.7	73.6	17,650	740	645	665	0.157	0.104
1076406	4x1.5	8.5	13.4	365	135	17	28	21.49	26.72
1076407	4x2.5	9.4	14.4	435	145	25	40	13.20	16.37
1076408	4x4	10.6	16.2	605	165	34	52	8.244	10.18
1076409	4x6	12.0	17.6	745	180	44	66	5.536	6.802
1076410	4x10	14.1	19.7	990	200	61	88	3.322	4.042
1076411	4x16	16.2	22.5	1,405	225	82	115	2.117	2.540
1076412	4x25	19.9	26.2	1,965	265	110	150	1.370	1.606
1076413	4x35	22.4	29.0	2,495	290	135	180	1.009	1.157
1076414	4x50	25.6	33.3	3,375	335	165	215	0.766	0.855
1076415	4x70	29.8	37.8	4,465	380	210	260	0.553	0.592
1076416	4x95	33.8	43.1	6,065	435	260	310	0.418	0.426
1076417	4x120	38.5	48.1	7,505	485	300	355	0.346	0.338
1076418	4x150	43.6	53.8	9,095	540	350	400	0.296	0.274
1076419	4x185	47.7	58.2	10,930	585	400	450	0.251	0.219
1076420	4x240	53.7	64.5	13,735	645	475	520	0.208	0.167
1076421	4x300	60.1	71.4	16,895	715	545	590	0.180	0.133
1076422	4x400	67.9	81.4	22,055	815	645	665	0.157	0.104
1076506	5x1.5	9.4	14.3	415	145	17	28	21.49	26.72
1076507	5x2.5	10.4	15.4	505	155	25	40	13.20	16.37
1076508	5x4	11.7	16.6	620	170	34	52	8.244	10.18
1076509	5x6	13.2	18.2	765	185	44	66	5.536	6.802
1076510	5x10	15.6	21.9	1,260	220	61	88	3.322	4.042
1076511	5x16	18.1	24.4	1,670	245	82	115	2.117	2.540

PHYSICAL & ELECTRICAL CHARACTERISTICS:

CATEGORY C - CONDUCTOR CLASS 2

General Cable Code	Cross section (mm ²)	Diameters		Weight (kg/km)	Bending radius (mm)	Maximum current rating		Voltage drop	
		Under armour (mm)	Overall (mm)			Air 40 °C (A)	Buried 25 °C (A)	Cos μ = 0.8 (V/A-km)	Cos μ = 1 (V/A-km)
1076512	5x25	22.1	28.8	2,355	290	110	150	1.370	1.606
1076513	5x35	25.0	32.5	3,175	325	135	180	1.009	1.157
1076514	5x50	28.5	36.5	4,080	365	165	215	0.766	0.855
1076515	5x70	33.3	41.6	5,420	420	210	260	0.553	0.592
1076516	5x95	38.5	48.2	7,460	485	260	310	0.419	0.426
1076517	5x120	43.2	53.4	9,130	535	300	355	0.346	0.338
1076518	5x150	49.0	59.5	11,060	595	350	400	0.296	0.274
1076519	5x185	53.5	64.3	13,350	645	400	450	0.251	0.219
1076520	5x240	60.3	73.1	17,650	735	475	520	0.208	0.167

CATEGORY A - CONDUCTOR CLASS 1

1080206	2x1.5	8.3	13.7	365	140	25	36	21.50	26.72
1080207	2x2.5	9.1	14.5	410	145	33	52	13.21	16.37
1080208	2x4	10.4	15.8	505	160	44	67	8.256	10.18
1080306	3x1.5	8.8	14.2	390	145	17	28	21.50	26.72
1080307	3x2.5	9.6	15.0	450	150	25	40	13.21	16.37
1080308	3x4	10.6	16.0	535	160	34	52	8.252	10.18
1080406	4x1.5	9.5	14.9	435	150	17	28	21.50	26.72
1080407	4x2.5	10.4	15.8	505	160	25	40	13.21	16.37
1080408	4x4	11.5	17.6	695	180	34	52	8.252	10.18
1080506	5x1.5	10.3	15.7	480	160	17	28	21.50	26.72
1080507	5x2.5	11.3	17.4	650	175	25	40	13.21	16.37
1080508	5x4	12.6	18.7	780	190	34	52	8.252	10.18

CATEGORY A - CONDUCTOR CLASS 2

1075110	1x10	7.6	14.4	335	145	64	96	3.387	4.042
1075111	1x16	8.5	15.3	405	200	86	125	2.176	2.540
1075112	1x25	10.0	16.8	530	170	120	160	1.421	1.606
1075113	1x35	11.0	17.8	645	180	145	190	1.055	1.157
1075114	1x50	12.3	19.1	790	195	180	230	0.807	0.855
1075115	1x70	14.1	20.9	1,030	210	230	280	0.590	0.592
1075116	1x95	15.7	22.5	1,300	225	285	335	0.450	0.426
1075117	1x120	17.6	24.4	1,580	245	335	380	0.376	0.338
1075118	1x150	19.6	26.4	1,880	265	385	425	0.322	0.274
1075119	1x185	21.2	28.0	2,265	280	450	480	0.276	0.219
1075120	1x240	23.6	30.6	2,855	310	535	550	0.231	0.167

PHYSICAL & ELECTRICAL CHARACTERISTICS:

CATEGORY C - CONDUCTOR CLASS 2

General Cable Code	Cross section (mm²)	Diameters		Weight (kg/km)	Bending radius (mm)	Maximum current rating		Voltage drop	
		Under armour (mm)	Overall (mm)			Air 40 °C (A)	Buried 25 °C (A)	Cos μ = 0.8 (V/A·km)	Cos μ = 1 (V/A·km)
1075121	1x300	26.2	34.2	3,590	345	615	620	0.203	0.133
1075122	1x400	29.3	37.7	4,500	380	720	705	0.178	0.104
1075123	1x500	40.5	49.5	6,335	495	825	790	0.167	0.081
1075124	1x630	37.9	46.7	7,165	470	950	885	0.139	0.063
1075125	1x800	43.5	53.7	9,415	540	1063	962	0.128	0.049
1075126	1x1000	49.2	59.6	11,670	600	1195	1049	0.118	0.039
1075206	2x1.5	8.3	13.7	365	140	25	36	21.50	26.72
1075207	2x2.5	9.3	14.7	425	150	33	52	13.20	16.37
1075208	2x4	10.2	15.6	495	160	44	67	8.244	10.18
1075209	2x6	11.4	16.8	580	170	58	86	5.536	6.802
1075210	2x10	13.1	19.2	830	195	79	115	3.322	4.042
1075211	2x16	15.1	21.2	1,055	215	103	150	2.117	2.540
1075212	2x25	18.1	24.9	1,545	250	138	190	1.370	1.606
1075213	2x35	20.2	27.0	1,875	270	170	230	1.009	1.157
1075214	2x50	22.8	29.8	2,320	300	200	270	0.766	0.855
1075215	2x70	26.3	34.5	3,205	345	255	325	0.553	0.592
1075216	2x95	30.0	38.4	4,075	385	310	385	0.418	0.426
1075217	2x120	33.7	42.3	4,925	425	360	440	0.346	0.338
1075218	2x150	38.0	46.8	5,915	470	415	495	0.296	0.274
1075219	2x185	41.4	51.6	7,455	520	485	555	0.251	0.219
1075220	2x240	46.4	57.0	9,235	570	565	635	0.208	0.167
1075221	2x300	51.5	62.3	11,140	625	660	720	0.180	0.133
1075306	3x1.5	9.0	14.4	400	145	17	28	21.49	26.72
1075307	3x2.5	9.8	15.2	465	155	25	40	13.20	16.37
1075308	3x4	10.8	16.2	545	165	34	52	8.244	10.18
1075309	3x6	12.0	18.2	740	185	44	66	5.536	6.802
1075310	3x10	13.9	20.0	945	200	61	88	3.322	4.042
1075311	3x16	16.1	22.9	1,335	230	82	115	2.117	2.540
1075312	3x25	19.3	26.1	1,800	265	110	150	1.370	1.606
1075313	3x35	21.6	28.6	2,230	290	135	180	1.009	1.157
1075314	3x50	24.4	31.6	2,780	320	165	215	0.766	0.855
1075315	3x70	28.2	36.4	3,875	365	210	260	0.553	0.592
1075316	3x95	32.1	40.5	4,955	405	260	310	0.418	0.426
1075317	3x120	36.3	45.1	6,095	455	300	355	0.346	0.338
1075318	3x150	40.8	50.8	7,725	510	350	400	0.296	0.274
1075319	3x185	44.4	54.8	9,220	550	400	450	0.251	0.219

PHYSICAL & ELECTRICAL CHARACTERISTICS:

CATEGORY A - CONDUCTOR CLASS 2

General Cable Code	Cross section (mm ²)	Diameters		Weight (kg/km)	Bending radius (mm)	Maximum current rating		Voltage drop	
		Under armour (mm)	Overall (mm)			Air 40 °C (A)	Buried 25 °C (A)	Cos μ = 0.8 (V/A·km)	Cos μ = 1 (V/A·km)
1075320	3x240	49.8	60.6	11,495	610	475	520	0.208	0.167
1075321	3x300	55.5	66.7	14,000	670	545	590	0.180	0.133
1075322	3x400	62.7	75.8	18,260	760	645	665	0.157	0.104
1075406	4x1.5	9.7	15.1	440	155	17	28	21.49	26.72
1075407	4x2.5	10.6	16.0	515	160	25	40	13.20	16.37
1075408	4x4	11.8	17.9	700	180	34	52	8.244	10.18
1075409	4x6	13.2	19.3	845	195	44	66	5.536	6.802
1075410	4x10	15.3	21.4	1,100	215	61	88	3.322	4.042
1075411	4x16	17.6	24.4	1,565	245	82	115	2.117	2.540
1075412	4x25	21.3	28.1	2,135	285	110	150	1.370	1.606
1075413	4x35	23.8	30.8	2,665	310	135	180	1.009	1.157
1075414	4x50	27.0	35.2	3,585	355	165	215	0.766	0.855
1075415	4x70	31.2	39.6	4,695	400	210	260	0.553	0.592
1075416	4x95	35.8	44.6	6,100	450	260	310	0.418	0.426
1075417	4x120	40.3	50.3	7,865	505	300	355	0.346	0.338
1075418	4x150	45.4	55.8	9,480	560	350	400	0.296	0.274
1075419	4x185	49.5	60.3	11,355	605	400	450	0.251	0.219
1075420	4x240	55.5	66.7	14,220	670	475	520	0.208	0.167
1075421	4x300	61.9	73.5	17,405	735	545	590	0.180	0.133
1075422	4x400	69.9	83.4	22,645	835	645	665	0.157	0.104
1075506	5x1.5	10.6	16.0	495	160	17	28	21.49	26.72
1075507	5x2.5	11.6	17.7	670	180	25	40	13.20	16.37
1075508	5x4	12.9	19.0	805	190	34	52	8.244	10.18
1075509	5x6	14.4	20.5	970	205	44	66	5.536	6.802
1075510	5x10	16.8	23.6	1,390	240	61	88	3.322	4.042
1075511	5x16	19.5	26.3	1,815	265	82	115	2.117	2.540
1075512	5x25	23.5	30.5	2,535	305	110	150	1.370	1.606
1075513	5x35	26.4	34.6	3,405	350	135	180	1.009	1.157
1075514	5x50	29.9	38.3	4,300	385	165	215	0.766	0.855
1075515	5x70	34.7	43.3	5,660	435	210	260	0.553	0.592
1075516	5x95	39.8	49.8	7,730	500	260	310	0.418	0.426
1075517	5x120	45.0	55.4	9,550	555	300	355	0.346	0.338
1075518	5x150	50.8	61.5	11,445	615	350	400	0.296	0.274
1075519	5x185	55.3	66.5	13,825	665	400	450	0.251	0.219
1075520	5x240	62.3	75.4	18,230	755	475	520	0.208	0.167

STANDARDS:

CONSTRUCTION: IEC 60502-1 / ISO 4892.

FIRE PERFORMANCE: IEC 60332-3 (categories A or C) / IEC 60332-1-2.



CONSTRUCTION:

1. CONDUCTOR:

Copper class 1 (up to 4 mm²) or class 2 (all the range) to IEC 60228.

2. INSULATION:

XLPE Black, numbered in white.

3. INNER COVERING:

PVC.

4. ARMOUR:

Galvanised steel wires.

5. SHEATH:

PVC.

APPLICATIONS:

Fire Retardant (Unfire[®]) characteristic according to standard IEC 60332-3, categories A or C.

Excellent mechanical protection during laying, installation and service.

Highly recommended in areas with high risk of explosion or fire.

Extra pulling force. Armour can be used to pull the cable.

Maximum conductor temperature at continuous rating 90 °C.



PHYSICAL & ELECTRICAL CHARACTERISTICS:

CATEGORY C - CONDUCTOR CLASS 1

General Cable Code	Cross section (mm ²)	Diameters		Weight (kg/km)	Bending radius (mm)
		Under armour (mm)	Overall (mm)		
2178076	7x1.5	10.1	15.1	470	150
2178077	7x2.5	11.1	16.8	650	170
2178126	12x1.5	13.2	18.8	750	190
2178127	12x2.5	14.8	20.4	920	205
2178128	12x4	16.7	23	1,290	230
2178196	19x1.5	15.6	21.2	950	215
2178197	19x2.5	17.5	23.8	1,335	240
2178246	24x1.5	18.3	24.6	1,285	250
2178247	24x2.5	20.5	26.9	1,615	270
2178366	36x1.5	21.1	27.5	1,620	275
2178367	36x2.5	23.8	30.4	2,095	305

CATEGORY C - CONDUCTOR CLASS 2

2181076	7x1.5	10.3	15.2	475	155
2181077	7x2.5	11.4	17.1	660	175
2181078	7x4	12.8	18.5	825	185
2181126	12x1.5	13.6	19.2	775	195
2181127	12x2.5	15.2	20.7	940	210
2181128	12x4	17.1	23.4	1,325	235
2181196	19x1.5	16	21.6	980	220
2181197	19x2.5	18	24.3	1,375	245
2181198	19x4	20.3	26.7	1,760	270
2181217	21x2.5	20	26.4	1,555	265
2181246	24x1.5	18.8	25.2	1,325	255
2181247	24x2.5	21.1	27.5	1,660	275
2181248	24x4	23.9	30.4	2,170	305
2181276	27x1.5	19.3	25.6	1,390	260
2181277	27x2.5	21.7	28.1	1,755	285
2181278	27x4	24.5	31.2	2,320	315
2181366	36x1.5	21.7	28.2	1,680	285
2181367	36x2.5	24.5	31.2	2,170	315
2181368	36x4	27.7	35.5	3,085	355
2181376	37x1.5	21.7	28.1	1,670	285
2181377	37x2.5	24.4	31.1	2,165	315
2181378	37x4	27.6	35.4	3,105	355

PHYSICAL & ELECTRICAL CHARACTERISTICS:

CATEGORY A - CONDUCTOR CLASS 1

General Cable Code	Cross section (mm ²)	Diameters		Weight (kg/km)	Bending radius (mm)
		Under armour (mm)	Overall (mm)		
2177066	6x1.5	11	17.1	600	175
2177067	6x2.5	12	18.1	705	185
2177068	6x4	13.5	19.6	860	200
2177076	7x1.5	10.9	17	605	170
2177077	7x2.5	11.9	18	720	180
2177078	7x4	13.4	19.5	880	195
2177086	8x1.5	12.8	18.9	730	190
2177087	8x2.5	14	20.1	865	205
2177096	9x1.5	13.7	19.8	780	200
2177097	9x2.5	15.3	22.1	1,075	225
2177106	10x1.5	13.7	19.8	790	200
2177107	10x2.5	15.1	21.9	1,045	240
2177108	10x4	17.1	23.9	1,300	240
2177126	12x1.5	14.2	20.3	835	205
2177127	12x2.5	15.6	22.4	1,110	225
2177128	12x4	17.7	24.5	1,395	245
2177136	13x1.5	14.9	21	895	210
2177137	13x2.5	16.4	23.2	1,195	235
2177146	14x1.5	14.9	21	900	210
2177147	14x2.5	15.9	22.2	1,110	225
2177148	14x4	18.6	25.4	1,525	255
2177166	16x1.5	15.7	22.5	1,070	225
2177167	16x2.5	17.3	24.1	1,300	245
2177186	18x1.5	16.6	23.4	1,160	235
2177187	18x2.5	18.3	25.1	1,410	255
2177196	19x1.5	16.6	23.4	1,170	235
2177197	19x2.5	18.3	25.1	1,425	255
2177198	19x4	20.8	27.6	1,830	280
2177206	20x1.5	17.5	24.3	1,250	245
2177207	20x2.5	19.3	26.1	1,505	265
2177217	21x2.5	20.3	27.1	1,620	290
2177246	24x1.5	19.5	26.3	1,430	265
2177247	24x2.5	21.3	28.4	1,735	285
2177256	25x1.5	19.8	26.6	1,450	270
2177276	27x1.5	19.8	26.6	1,465	270
2177277	27x2.5	21.9	28.9	1,830	290
2177278	27x4	24.9	32.9	2,585	330

PHYSICAL & ELECTRICAL CHARACTERISTICS:

CATEGORY A - CONDUCTOR CLASS 1

General Cable Code	Cross section (mm²)	Diameters		Weight (kg/km)	Bending radius (mm)
		Under armour (mm)	Overall (mm)		
2177306	30x1.5	20.5	27.3	1,545	275
2177307	30x2.5	22.7	29.3	1,900	295
2177336	33x1.5	21.3	28.3	1,660	285
2177346	34x1.5	22.2	29	1,720	305
2177366	36x1.5	22.2	29.2	1,750	295
2177367	36x2.5	24.6	31.8	2,225	320
2177376	37x1.5	22.1	29.1	1,760	295
2177377	37x2.5	24.1	31.3	2,190	315
2177378	37x4	28	36.2	3,195	365
2177406	40x1.5	24.1	31.1	1,960	315
2177407	40x2.5	26.7	34.7	2,695	365
2177486	48x1.5	25.5	33.5	2,345	335
2177487	48x2.5	28.2	36.4	2,960	365
2177507	50x2.5	29.1	37.5	3,090	375
2177616	61x1.5	27.8	36	2,705	360

CATEGORY A - CONDUCTOR CLASS 2

2180037	3x2.5	9.4	14.8	440	150
2180038	3x4	10.4	16.5	600	165
2180048	4x4	11.4	17.5	675	175
2180049	4x6	12.8	18.9	815	190
2180058	5x4	12.6	18.7	775	190
2180068	6x4	13.7	19.8	875	200
2180076	7x1.5	11.1	17.2	620	175
2180077	7x2.5	12.2	18.3	730	185
2180087	8x2.5	14.4	20.5	880	205
2180098	9x4	17.3	24.1	1,285	245
2180099	9x6	19.7	26.5	1,590	265
2180106	10x1.5	13.9	20	800	200
2180107	10x2.5	15.5	22.3	1,075	225
2180126	12x1.5	14.4	20.5	840	205
2180127	12x2.5	16	22.8	1,145	230
2180147	14x2.5	16.8	23.6	1,245	240
2180167	16x2.5	17.8	24.6	1,340	250
2180196	19x1.5	16.8	23.6	1,195	240
2180197	19x2.5	18.8	25.6	1,465	260
2180198	19x4	21.1	27.9	1,855	280

PHYSICAL & ELECTRICAL CHARACTERISTICS:

CATEGORY A - CONDUCTOR CLASS 2

General Cable Code	Cross section (mm ²)	Diameters		Weight (kg/km)	Bending radius (mm)
		Under armour (mm)	Overall (mm)		
2180206	20x1.5	17.7	24.5	1,265	245
2180207	20x2.5	19.8	26.6	1,550	270
2180217	21x2.5	20.8	27.7	1,665	295
2180246	24x1.5	19.6	26.4	1,430	265
2180247	24x2.5	21.9	28.8	1,770	290
2180248	24x4	24.7	31.9	2,295	320
2180256	25x1.5	20.1	26.9	1,475	270
2180257	25x2.5	22.5	29.5	1,855	295
2180276	27x1.5	20.1	26.9	1,480	270
2180277	27x2.5	22.5	29.5	1,880	295
2180278	27x4	25.3	33.3	2,640	335
2180306	30x1.5	20.8	27.6	1,580	280
2180307	30x2.5	23.3	30.3	1,990	305
2180366	36x1.5	22.5	29.5	1,790	295
2180367	36x2.5	25.3	32.5	2,285	325
2180376	37x1.5	22.5	29.5	1,795	295
2180377	37x2.5	25.2	32.4	2,300	325
2180378	37x4	29.5	37.7	3,200	380
2180379	37x6	32.6	41.2	4,180	415
2180406	40x1.5	24.3	31.3	1,980	330
2180407	40x2.5	27.3	35.3	2,760	375
2180408	40x4	30.9	39.3	3,590	395
2180458	45x4	32.7	41.3	3,920	415
2180486	48x1.5	25.8	33.8	2,365	340
2180487	48x2.5	28.9	37.2	3,030	375
2180506	50x1.5	26.5	34.5	2,485	345
2180507	50x2.5	29.8	38.2	3,165	385
2180508	50x4	33.7	42.3	4,145	425



STANDARDS:

CONSTRUCTION: IEC 60502-1 / UIC 895 OR / ISO 4892.

FIRE PERFORMANCE: IEC 60332-3 (category C) / IEC 60332-1-2.



CONSTRUCTION:

1. CONDUCTOR:

Copper class 1 (up to 4 mm²) or class 2 (all the range) to IEC 60228.

2. INSULATION:

XLPE Identification by colour.

3. INNER COVERING:

PVC.

4. ARMOUR:

Galvanised steel wires for multicore or aluminium for single core.

5. SHEATH:

Hydrocarbon resistant PVC.

APPLICATIONS:

Fire Retardant (Unfire[®]) characteristic according to standard IEC 60332-3, category C.

Excellent mechanical protection during laying, installation and service.

Highly recommended in areas with high risk of explosion or fire.

Extra pulling force. Armour can be used to pull the cable.

Resistance to hydrocarbons.

Maximum conductor temperature at continuous rating 90 °C.



PHYSICAL & ELECTRICAL CHARACTERISTICS:

CONDUCTOR CLASS 1

General Cable Code	Cross section (mm ²)	Diameters		Weight (kg/km)	Bending radius (mm)	Maximum current rating		Voltage drop	
		Under armour (mm)	Overall (mm)			Air 40 °C (A)	Buried 25 °C (A)	Cos μ = 0.8 (V/A-km)	Cos μ = 1 (V/A-km)
1713206	2x1.5	7.1	11.9	275	120	25	36	21.50	26.72
1713207	2x2.5	7.9	12.7	320	130	33	52	13.21	16.37
1713208	2x4	8.8	13.6	385	140	44	67	8.252	10.18
1713306	3x1.5	7.6	12.4	300	125	17	28	21.50	26.72
1713307	3x2.5	8.4	13.2	355	135	25	40	13.21	16.37
1713308	3x4	9.4	14.2	435	145	34	52	8.252	10.18
1713406	4x1.5	8.3	13.2	345	135	17	28	21.50	26.72
1713407	4x2.5	9.2	14.1	410	145	25	40	13.21	16.37
1713408	4x4	10.3	15.3	505	155	34	52	8.252	10.18
1713506	5x1.5	9.1	14.1	385	140	17	28	21.50	26.72
1713507	5x2.5	10.1	15.1	470	155	25	40	13.21	16.37
1713508	5x4	11.4	16.4	585	165	34	52	8.252	10.18

CONDUCTOR CLASS 2

1712111	1x16	7.7	13.9	345	140	86	125	2.169	2.540
1712112	1x25	9.2	15.4	455	155	120	160	1.415	1.606
1712113	1x35	10.2	16.4	570	165	145	190	1.050	1.157
1712114	1x50	11.5	17.7	715	180	180	230	0.802	0.855
1712115	1x70	13.3	19.5	940	195	230	280	0.585	0.592
1712116	1x95	14.9	21.2	1,210	215	285	335	0.446	0.426
1712117	1x120	16.8	23.1	1,485	230	335	380	0.372	0.338
1712118	1x150	18.6	24.9	1,775	250	385	425	0.319	0.274
1712119	1x185	20.4	26.8	2,155	270	450	480	0.273	0.219
1712120	1x240	22.8	29.4	2,745	295	535	550	0.228	0.167
1712121	1x300	25.4	32.0	3,375	320	615	620	0.199	0.133
1712122	1x400	28.5	35.5	4,245	355	720	705	0.174	0.104
1712123	1x500	32.9	41.0	5,470	410	825	790	0.154	0.081
1712124	1x630	37.3	45.7	6,995	460	950	885	0.138	0.063
1712206	2x1.5	7.3	12.1	280	125	25	36	21.49	26.72
1712207	2x2.5	8.1	12.9	330	130	33	52	13.20	16.37
1712208	2x4	9.0	13.8	395	140	44	67	8.244	10.18
1712209	2x6	10.2	15.0	475	150	58	86	5.536	6.802
1712210	2x10	11.9	16.7	620	170	79	115	3.322	4.042
1712211	2x16	13.7	18.5	805	185	103	150	2.117	2.540
1712212	2x25	16.7	23.0	1,355	230	138	190	1.370	1.606
1712213	2x35	18.8	25.1	1,670	255	170	230	1.009	1.157

PHYSICAL & ELECTRICAL CHARACTERISTICS:

CONDUCTOR CLASS 2

General Cable Code	Cross section (mm ²)	Diameters		Weight (kg/km)	Bending radius (mm)	Maximum current rating		Voltage drop	
		Under armour (mm)	Overall (mm)			Air 40 °C (A)	Buried 25 °C (A)	Cos μ = 0.8 (V/A-km)	Cos μ = 1 (V/A-km)
1712214	2x50	21.4	27.8	2,090	280	200	270	0.766	0.855
1712215	2x70	24.9	31.6	2,730	320	255	325	0.553	0.592
1712216	2x95	28.2	36.0	3,700	360	310	385	0.418	0.426
1712217	2x120	31.9	40.0	4,545	400	360	440	0.346	0.338
1712218	2x150	35.8	44.2	5,445	445	415	495	0.296	0.274
1712219	2x185	39.4	49.1	6,930	495	485	555	0.251	0.219
1712220	2x240	44.4	54.6	8,655	550	565	635	0.208	0.167
1712221	2x300	49.7	60.2	10,530	605	660	720	0.180	0.133
1712306	3x1.5	7.8	12.6	310	130	17	28	21.49	26.72
1712307	3x2.5	8.6	13.4	370	135	25	40	13.20	16.37
1712308	3x4	9.6	14.4	445	145	34	52	8.244	10.18
1712309	3x6	10.8	15.7	545	160	44	66	5.536	6.802
1712310	3x10	12.7	17.5	725	175	61	88	3.322	4.042
1712311	3x16	14.7	20.9	1,175	210	82	115	2.117	2.540
1712312	3x25	17.9	24.2	1,625	245	110	150	1.370	1.606
1712313	3x35	20.2	26.6	2,025	265	135	180	1.009	1.157
1712314	3x50	23.0	29.6	2,560	300	165	215	0.766	0.855
1712315	3x70	26.8	34.3	3,590	345	210	260	0.553	0.592
1712316	3x95	30.3	38.4	4,595	385	260	310	0.418	0.426
1712317	3x120	34.3	42.6	5,655	430	300	355	0.346	0.338
1712318	3x150	38.5	48.2	7,195	485	350	400	0.296	0.274
1712319	3x185	42.6	52.5	8,700	525	400	450	0.251	0.219
1712320	3x240	48.0	58.5	10,925	585	475	520	0.208	0.167
1712321	3x300	53.7	64.5	13,385	645	545	590	0.180	0.133
1712322	3x400	60.7	73.6	17,445	740	645	665	0.157	0.104
1712406	4x1.5	8.5	13.4	350	135	17	28	21.49	26.72
1712407	4x2.5	9.4	14.4	420	145	25	40	13.20	16.37
1712408	4x4	10.6	15.5	515	155	34	52	8.244	10.18
1712409	4x6	12.0	16.9	640	170	44	66	5.536	6.802
1712410	4x10	14.1	19.7	965	200	61	88	3.322	4.042
1712411	4x16	16.2	22.5	1,380	225	82	115	2.117	2.540
1712412	4x25	19.9	26.2	1,930	265	110	150	1.370	1.606
1712413	4x35	22.4	29.0	2,455	290	135	180	1.009	1.157
1712414	4x50	25.6	33.1	3,315	335	165	215	0.766	0.855
1712415	4x70	29.8	37.8	4,400	380	210	260	0.553	0.592
1712416	4x95	33.8	42.1	5,655	425	260	310	0.418	0.426

PHYSICAL & ELECTRICAL CHARACTERISTICS:

CONDUCTOR CLASS 2

General Cable Code	Cross section (mm ²)	Diameters		Weight (kg/km)	Bending radius (mm)	Maximum current rating		Voltage drop	
		Under armour (mm)	Overall (mm)			Air 40 °C (A)	Buried 25 °C (A)	Cos μ = 0.8 (V/A-km)	Cos μ = 1 (V/A-km)
1712417	4x120	38.5	48.1	7,420	485	300	355	0.346	0.338
1712418	4x150	43.1	53.1	8,780	535	350	400	0.296	0.274
1712419	4x185	47.7	58.2	10,815	585	400	450	0.251	0.219
1712420	4x240	53.7	64.5	13,600	645	475	520	0.208	0.167
1712421	4x300	60.1	71.4	16,730	715	545	590	0.180	0.133
1712422	4x400	67.9	81.2	21,805	815	645	665	0.157	0.104
1712506	5x1.5	9.4	14.3	400	145	17	28	21.49	26.72
1712507	5x2.5	10.4	15.4	485	155	25	40	13.20	16.37
1712508	5x4	11.7	17.3	685	175	34	52	8.244	10.18
1712509	5x6	13.2	18.9	840	190	44	66	5.536	6.802
1712510	5x10	15.6	21.9	1,240	220	61	88	3.322	4.042
1712511	5x16	18.1	24.4	1,640	245	82	115	2.117	2.540
1712512	5x25	22.1	28.6	2,305	290	110	150	1.370	1.606
1712513	5x35	25.0	32.5	3,135	325	135	180	1.009	1.157
1712514	5x50	28.5	36.3	4,010	365	165	215	0.766	0.855
1712515	5x70	33.3	41.6	5,355	420	210	260	0.553	0.592
1712516	5x95	38.0	47.6	7,295	480	260	310	0.418	0.426
1712517	5x120	43.2	53.2	9,010	535	300	355	0.346	0.338
1712518	5x150	48.4	58.9	10,880	590	350	400	0.296	0.274
1712519	5x185	53.5	64.3	13,215	645	400	450	0.251	0.219
1712520	5x240	60.3	71.6	16,705	720	475	520	0.208	0.167
1712612	3x25/2x16	21.4	27.8	2,080	280	110	150	1.370	1.606
1712613	3x35/2x16	24.1	30.8	2,575	310	135	180	1.009	1.157
1712614	3x50/2x25	27.5	35.3	3,530	355	165	215	0.766	0.855
1712615	3x70/2x35	32.1	40.2	4,695	405	210	260	0.553	0.592
1712616	3x95/2x50	36.6	46.2	6,420	465	260	310	0.418	0.426
1712617	3x120/2x70	41.7	51.6	7,970	520	300	355	0.346	0.338
1712618	3x150/2x70	46.7	57.2	9,465	575	350	400	0.296	0.274
1712619	3x185/2x95	51.7	62.4	11,540	625	400	450	0.251	0.219
1712620	3x240/2x120	58.1	69.4	14,270	695	475	520	0.208	0.167

STANDARDS:

CONSTRUCTION: IEC 60502-1 / UIC 895 OR / ISO 4892.

FIRE PERFORMANCE: IEC 60332-3 (category C) / IEC 60332-1-2.



CONSTRUCTION:

1. CONDUCTOR:

Copper class 1 or class 2 to IEC 60228.

2. INSULATION:

XLPE Black, numbered in white.

3. INNER COVERING:

PVC.

4. ARMOUR:

Galvanised steel wires.

5. SHEATH:

Hydrocarbon resistant PVC.

APPLICATIONS:

Fire Retardant (Unfire[®]) characteristic according to standard IEC 60332-3, category C.

Excellent mechanical protection during laying, installation and service.

Highly recommended in areas with high risk of explosion or fire.

Extra pulling force. Armour can be used to pull the cable.

Resistance to hydrocarbons.

Maximum conductor temperature at continuous rating 90 °C.



PHYSICAL & ELECTRICAL CHARACTERISTICS:

CONDUCTOR CLASS 1

General Cable Code	Cross section (mm ²)	Diameters		Weight (kg/km)	Bending radius (mm)
		Under armour (mm)	Overall (mm)		
2040076	7x1.5	10.1	15	445	150
2040077	7x2.5	11.1	16.7	630	170
2040126	12x1.5	13.3	19	735	190
2040127	12x2.5	14.7	20.4	895	205
2040196	19x1.5	15.8	21.3	940	215
2040197	19x2.5	17.5	23.8	1,305	240
2040246	24x1.5	18.5	24.8	1,275	250
2040247	24x2.5	20.5	26.9	1,585	270
2040366	36x1.5	21.4	27.8	1,610	280
2040367	36x2.5	23.7	30.4	2,060	305

CONDUCTOR CLASS 2

2042076	7x1.5	10.2	15.2	455	155
2042077	7x2.5	11.4	17	640	170
2042097	9x2.5	14.6	20.3	850	225
2042106	10x1.5	13.1	18.7	700	190
2042107	10x2.5	14.7	20.3	870	205
2042126	12x1.5	13.5	19.2	740	195
2042127	12x2.5	15.1	20.7	920	210
2042146	14x1.5	14.3	19.9	805	200
2042147	14x2.5	16	21.6	1,005	220
2042196	19x1.5	16	21.6	955	220
2042197	19x2.5	18	24.3	1,345	245
2042206	20x1.5	16.9	23.2	1,150	235
2042207	20x2.5	19	25.4	1,450	255
2042217	21x2.5	20	26.4	1,535	285
2042246	24x1.5	18.8	25.1	1,295	255
2042247	24x2.5	21.1	27.5	1,630	275
2042366	36x1.5	21.7	28.1	1,630	285
2042367	36x2.5	24.4	31.1	2,130	315

STANDARDS:

CONSTRUCTION: IEC 60502-1 / UIC 895 OR / ISO 4892.
FIRE PERFORMANCE: IEC 60332-3 (category C) / IEC 60332-1-2.



CONSTRUCTION:

- 1. CONDUCTOR:**
Copper class 5 to IEC 60228.
- 2. INSULATION:**
XLPE Identification by colour.
- 3. INNER COVERING:**
Hydrocarbon resistant PVC.
- 4. ARMOUR:**
Galvanised steel wires for multicore or aluminium for single core.
- 5. SHEATH:**
Hydrocarbon resistant PVC.

APPLICATIONS:

Fire Retardant (Unfire[®]) characteristic according to standard IEC 60332-3, category C.
Excellent mechanical protection during laying, installation and service.
Flameproofness. Highly recommended in areas with high risk of explosion or fire.
Extra pulling force. Armour can be used to pull the cable.
Resistance to hydrocarbons.
Flexible conductors for easy installation of cable terminations
Flexible sectoral conductor (Sectorflex[®]) that significantly reduces diameter and weight of the cable.
Maximum conductor temperature at continuous rating 90 °C.



PHYSICAL & ELECTRICAL CHARACTERISTICS:

CATEGORY C

General Cable Code	Cross section (mm ²)	Diameters		Weight (kg/km)	Bending radius (mm)	Maximum current rating		Voltage drop	
		Under armour (mm)	Overall (mm)			Air 40 °C (A)	Buried 25 °C (A)	Cos μ = 0.8 (V/A·km)	Cos μ = 1 (V/A·km)
1714114	1x50	13.1	20.3	785	205	180	230	0.799	0.852
1714115	1x70	15.2	22.5	1,025	225	230	280	0.592	0.601
1714116	1x95	16.8	23.1	1,220	230	285	335	0.468	0.455
1714117	1x120	18.8	26.2	1,530	265	335	380	0.387	0.356
1714118	1x150	20.6	28.0	1,835	280	385	425	0.329	0.285
1714119	1x185	22.5	30.0	2,160	300	450	480	0.287	0.234
1714120	1x240	25.6	33.3	2,785	335	535	550	0.238	0.177
1714121	1x300	29.0	37.6	3,495	380	615	620	0.207	0.142
1714122	1x400	33.4	42.5	4,640	425	720	705	0.178	0.107
1714123	1x500	37.5	46.9	5,805	470	825	790	0.158	0.085
1714124	1x630	41.9	52.6	7,610	530	950	885	0.140	0.063
1714206	2x1.5	7.6	13.0	305	130	25	36	23.61	29.37
1714207	2x2.5	8.4	13.8	355	140	33	52	14.20	17.62
1714208	2x4	9.5	14.9	420	150	44	67	8.839	10.93
1714209	2x6	10.6	16.0	500	160	58	86	5.919	7.288
1714210	2x10	12.5	17.9	650	180	79	115	3.458	4.218
1714211	2x16	14.5	19.9	830	200	103	150	2.218	2.672
1714212	2x25	17.8	24.7	1,385	250	138	190	1.458	1.723
1714213	2x35	20.0	26.9	1,695	270	170	230	1.057	1.224
1714214	2x50	23.4	30.7	2,210	310	200	270	0.759	0.852
1717215	2x70	23.5	31.8	2,710	320	255	325	0.556	0.601
1717216	2x95	26.1	34.7	3,295	350	310	385	0.438	0.455
1717217	2x120	29.5	38.3	4,015	385	360	440	0.358	0.356
1717218	2x150	32.7	42.8	5,125	430	415	495	0.302	0.285
1717219	2x185	35.8	46.2	5,985	465	485	555	0.262	0.234
1717220	2x240	41.1	52.1	7,585	520	565	635	0.215	0.177
1714306	3x1.5	8.0	13.4	335	135	17	28	23.61	29.37
1714307	3x2.5	8.9	14.3	395	145	25	40	14.20	17.62
1714308	3x4	10.1	15.5	470	155	34	52	8.839	10.93
1714309	3x6	11.3	16.7	565	170	44	66	5.919	7.288
1714310	3x10	13.3	18.7	750	190	61	88	3.458	4.218
1714311	3x16	15.5	22.4	1,210	225	82	115	2.218	2.672
1714312	3x25	19.0	26.0	1,650	260	110	150	1.458	1.723
1714313	3x35	21.6	28.7	2,055	290	135	180	1.057	1.224
1714314	3x50	25.2	32.5	2,680	325	165	215	0.759	0.852
1717315	3x70	27.6	35.9	3,455	360	210	260	0.556	0.601

PHYSICAL & ELECTRICAL CHARACTERISTICS:

CATEGORY C

General Cable Code	Cross section (mm ²)	Diameters		Weight (kg/km)	Bending radius (mm)	Maximum current rating		Voltage drop	
		Under armour (mm)	Overall (mm)			Air 40 °C (A)	Buried 25 °C (A)	Cos μ = 0.8 (V/A·km)	Cos μ = 1 (V/A·km)
1717316	3x95	30.6	39.3	4,245	395	260	310	0.438	0.455
1717317	3x120	34.6	43.6	5,195	440	300	355	0.358	0.356
1717318	3x150	38.4	48.6	6,615	490	350	400	0.302	0.285
1717319	3x185	42.3	53.1	7,770	535	400	450	0.262	0.234
1717320	3x240	48.8	60.1	9,980	605	475	520	0.215	0.177
1717321	3x300	55.5	66.9	12,105	670	545	590	0.186	0.142
1714406	4x1.5	8.9	14.5	385	145	17	28	23.61	29.37
1714407	4x2.5	9.9	15.5	455	155	25	40	14.20	17.62
1714408	4x4	11.2	16.8	550	170	34	52	8.839	10.93
1714409	4x6	12.5	18.1	665	185	44	66	5.919	7.288
1714410	4x10	14.8	20.4	895	205	61	88	3.458	4.218
1714411	4x16	17.3	24.2	1,430	245	82	115	2.218	2.672
1714412	4x25	21.3	28.4	1,985	285	110	150	1.458	1.723
1714413	4x35	24.0	31.3	2,505	315	135	180	1.057	1.224
1714414	4x50	28.0	36.4	3,500	365	165	215	0.759	0.852
1717415	4x70	30.4	39.0	4,315	390	210	260	0.556	0.601
1717416	4x95	33.8	42.9	5,340	430	260	310	0.438	0.455
1717417	4x120	38.5	48.7	6,975	490	300	355	0.358	0.356
1717418	4x150	42.6	53.4	8,400	535	350	400	0.302	0.285
1717419	4x185	47.0	58.2	9,930	585	400	450	0.262	0.234
1717420	4x240	54.0	65.6	12,695	660	475	520	0.215	0.177
1717421	4x300	61.6	73.8	15,615	740	545	590	0.186	0.142
1714506	5x1.5	9.8	15.3	435	155	17	28	23.61	29.37
1714507	5x2.5	10.9	16.5	515	165	25	40	14.20	17.62
1714508	5x4	12.4	17.9	635	180	34	52	8.839	10.93
1714509	5x6	13.9	20.1	865	205	44	66	5.919	7.288
1714510	5x10	16.5	23.4	1,290	235	61	88	3.458	4.218
1714511	5x16	19.2	26.1	1,685	265	82	115	2.218	2.672
1714512	5x25	23.8	31.1	2,370	310	110	150	1.458	1.723
1714513	5x35	26.8	35.0	3,210	350	135	180	1.057	1.224
1714514	5x50	31.3	39.9	4,220	400	165	215	0.759	0.852
1714515	5x70	37.1	46.1	5,610	465	210	260	0.556	0.601
1714516	5x95	41.6	51.9	7,395	520	260	310	0.438	0.455
1714518	5x150	52.4	63.6	10,975	640	350	400	0.302	0.285



STANDARDS:

CONSTRUCTION: IEC 60502-1 / UIC 895 OR / ISO 4892.
FIRE PERFORMANCE: IEC 60332-3 (category C) / IEC 60332-1-2.



CONSTRUCTION:

- 1. CONDUCTOR:**
Copper class 2 to IEC 60228.
- 2. INSULATION:**
XLPE Identification by colour.
- 3. FIRST INNER COVERING:**
PVC.
- 4. LEAD SHEATH**
- 5. SECOND INNER COVERING:**
Hydrocarbon resistant PVC.
- 6. ARMOUR:**
Galvanised steel wires for multicore or aluminium for single core.
- 7. SHEATH:**
Hydrocarbon resistant PVC.

APPLICATIONS:

Fire Retardant (Unfire®) characteristic according to standard IEC 60332-3, category C.
Excellent mechanical protection during laying, installation and service.
Highly recommended in areas with high risk of explosion or fire.
Extra pulling force. Armour can be used to pull the cable.
Resistance to hydrocarbons.
Lead sheath provides watertightness and chemical protection.
Maximum conductor temperature at continuous rating 90 °C.



PHYSICAL & ELECTRICAL CHARACTERISTICS:

CATEGORY C

General Cable Code	Cross section (mm ²)	Diameters		Weight (kg/km)	Bending radius (mm)	Maximum current rating		Voltage drop	
		Under armour (mm)	Overall (mm)			Air 40 °C (A)	Buried 25 °C (A)	Cos μ = 0.8 (V/A·km)	Cos μ = 1 (V/A·km)
1727114	1x50	16.8	23.4	1,510	235	180	230	0.819	0.855
1727115	1x70	18.4	25.0	1,820	250	230	280	0.601	0.592
1727116	1x95	20.1	26.7	2,175	270	285	335	0.462	0.426
1727117	1x120	22.0	28.6	2,540	290	335	380	0.386	0.338
1727118	1x150	23.7	30.6	2,930	310	385	425	0.332	0.274
1727119	1x185	25.9	32.9	3,525	330	450	480	0.286	0.219
1727120	1x240	28.6	36.7	4,455	370	535	550	0.242	0.167
1727121	1x300	31.0	39.1	5,220	395	615	620	0.211	0.133
1727122	1x400	34.6	43.2	6,495	435	720	705	0.187	0.104
1727123	1x500	39.0	49.4	8,245	495	825	790	0.168	0.081
1727211	2x16	18.9	25.5	2,005	255	103	150	2.117	2.540
1727212	2x25	21.9	28.6	2,510	290	138	190	1.370	1.606
1727213	2x35	24.0	30.9	2,955	310	170	230	1.009	1.157
1727214	2x50	27.0	34.0	3,640	340	200	270	0.765	0.855
1727215	2x70	30.4	38.6	4,810	390	255	325	0.552	0.592
1727216	2x95	34.4	43.1	5,995	435	310	385	0.418	0.426
1727217	2x120	38.5	48.9	7,665	490	360	440	0.346	0.338
1727218	2x150	42.2	52.7	8,970	530	415	495	0.295	0.274
1727219	2x185	47.0	58.0	10,765	580	485	555	0.251	0.219
1727220	2x240	52.6	63.4	13,220	635	565	635	0.208	0.167
1727221	2x300	58.2	69.3	15,825	695	660	720	0.180	0.133
1727308	3x4	14.8	20.6	1,270	210	34	52	8.244	10.181
1727311	3x16	19.9	26.5	2,215	265	82	115	2.117	2.540
1727312	3x25	23.1	29.8	2,825	300	110	150	1.370	1.606
1727313	3x35	25.6	33.5	3,660	335	135	180	1.009	1.157
1727314	3x50	28.8	37.0	4,525	370	165	215	0.765	0.855
1727315	3x70	32.9	41.3	5,775	415	210	260	0.552	0.592
1727316	3x95	36.9	45.7	7,190	460	260	310	0.418	0.426
1727317	3x120	41.1	51.6	9,120	520	300	355	0.346	0.338
1727318	3x150	45.7	56.5	10,830	565	350	400	0.295	0.274
1727319	3x185	50.4	61.7	12,970	620	400	450	0.251	0.219
1727320	3x240	57.0	68.1	16,345	685	475	520	0.208	0.167
1727411	4x16	21.4	28.1	2,515	285	82	115	2.117	2.540
1727412	4x25	25.3	32.2	3,360	325	110	150	1.370	1.606
1727413	4x35	27.8	35.8	4,250	360	135	180	1.009	1.157
1727414	4x50	31.6	40.1	5,400	405	165	215	0.765	0.855

PHYSICAL & ELECTRICAL CHARACTERISTICS:

CATEGORY C

General Cable Code	Cross section (mm ²)	Diameters		Weight (kg/km)	Bending radius (mm)	Maximum current rating		Voltage drop	
		Under armour (mm)	Overall (mm)			Air 40 °C (A)	Buried 25 °C (A)	Cos μ = 0.8 (V/A·km)	Cos μ = 1 (V/A·km)
1727415	4x70	36.1	44.8	6,940	450	210	260	0.552	0.592
1727416	4x95	40.6	51.0	9,140	510	260	310	0.418	0.426
1727417	4x120	45.9	56.6	11,135	570	300	355	0.346	0.338
1727418	4x150	50.5	61.8	13,135	620	350	400	0.295	0.274
1727419	4x185	55.9	66.8	15,825	670	400	450	0.251	0.219
1727420	4x240	63.0	74.4	19,845	745	475	520	0.208	0.167
1727511	5x16	23.3	30.2	2,880	305	82	115	2.117	2.540
1727512	5x25	27.5	35.4	4,075	355	110	150	1.370	1.606
1727513	5x35	30.6	38.9	5,040	390	135	180	1.009	1.157
1727514	5x50	35.0	43.6	6,350	440	165	215	0.765	0.855
1727515	5x70	40.0	50.4	8,725	505	210	260	0.552	0.592
1727516	5x95	45.4	56.3	11,000	565	260	310	0.418	0.426
1727517	5x120	50.8	62.1	13,295	625	300	355	0.346	0.338



STANDARDS:

CONSTRUCTION: IEC 60502-1 / CSA C22.2 No. 0.3-01 / ISO 4892.

FIRE PERFORMANCE: IEC 60332-3 (categories A or C) / IEC 60332-1-2 / IEC 60754 / IEC 61034.



CONSTRUCTION:

1. CONDUCTOR:

Copper class 1 or class 2 to IEC 60228.

2. INSULATION:

XLPE Identification by colour.

3. INNER COVERING:

Halogen-free thermoplastic polyolefin.

4. ARMOUR:

Galvanised steel wires for multicore or aluminium for single core.

5. SHEATH:

Halogen-free thermoplastic polyolefin.

APPLICATIONS:

Fire Retardant (Unfire®) according to IEC 60332-3, categories A or C.

Halogen-free according to IEC 60754-1.

Low acidity and corrosivity of the combustion gases according to IEC 60754-2.

Reduced darkness of fumes generated during combustion according to IEC 61034.

Excellent mechanical protection during laying, installation and service.

Highly recommended in areas with high risk of explosion or fire.

Extra pulling force. Armour can be used to pull the cable.

Able to work at very low temperatures [-45 °C].

Maximum conductor temperature at continuous rating 90 °C.



PHYSICAL & ELECTRICAL CHARACTERISTICS:

CATEGORY C - CONDUCTOR CLASS 2

General Cable Code	Cross section (mm ²)	Diameters		Weight (kg/km)	Bending radius (mm)	Maximum current rating		Voltage drop	
		Under armour (mm)	Overall (mm)			Air 40 °C (A)	Buried 25 °C (A)	Cos $\mu = 0.8$ (V/A·km)	Cos $\mu = 1$ (V/A·km)
1965109	1x6	6.3	12.5	235	125	46	72	5.604	6.802
1965110	1x10	7.2	13.4	290	135	64	96	3.382	4.042
1965111	1x16	8.1	14.3	365	145	86	125	2.171	2.540
1965112	1x25	9.6	15.8	480	160	120	160	1.417	1.606
1965113	1x35	10.6	16.8	595	170	145	190	1.051	1.157
1965114	1x50	11.9	18.1	740	185	180	230	0.803	0.855
1965115	1x70	13.7	19.9	970	200	230	280	0.587	0.592
1965116	1x95	15.3	21.6	1,235	220	285	335	0.448	0.426
1965117	1x120	17.2	23.5	1,515	235	335	380	0.373	0.338
1965118	1x150	19.2	25.6	1,815	260	385	425	0.320	0.274
1965119	1x185	20.8	27.2	2,195	275	450	480	0.274	0.219
1965120	1x240	23.2	29.8	2,785	300	535	550	0.229	0.167
1965121	1x300	25.8	33.3	3,505	335	615	620	0.201	0.133
1965122	1x400	29.3	37.1	4,425	375	720	705	0.177	0.104
1965123	1x500	33.7	41.8	5,580	420	825	790	0.155	0.081
1965124	1x630	37.9	46.3	7,090	465	950	885	0.139	0.063
1965125	1x800	43.5	53.3	9,325	535	1,063	962	0.128	0.049
1965126	1x1000	49.2	59.5	11,615	595	1,195	1,049	0.118	0.039
1965206	2x1.5	7.7	12.5	305	125	25	36	21.49	26.72
1965207	2x2.5	8.5	13.3	350	135	33	52	13.20	16.37
1965208	2x4	9.4	14.2	410	145	44	67	8.244	10.18
1965209	2x6	10.6	15.4	490	155	58	86	5.536	6.802
1965210	2x10	12.3	17.8	730	180	79	115	3.322	4.042
1965211	2x16	14.1	19.6	920	200	103	150	2.117	2.540
1965212	2x25	17.1	23.4	1,375	235	138	190	1.370	1.606
1965213	2x35	19.2	25.6	1,690	260	170	230	1.009	1.157
1965214	2x50	21.8	28.2	2,100	285	200	270	0.766	0.855
1965215	2x70	25.3	32.0	2,735	320	255	325	0.553	0.592
1965216	2x95	29.0	36.8	3,740	370	310	385	0.418	0.426
1965217	2x120	32.7	40.8	4,570	410	360	440	0.346	0.338
1965218	2x150	36.8	45.2	5,490	455	415	495	0.296	0.274
1965219	2x185	40.4	50.1	6,965	505	485	555	0.251	0.219
1965220	2x240	45.2	55.4	8,645	555	565	635	0.208	0.167
1965221	2x300	50.7	61.2	10,530	615	660	720	0.180	0.133
1965306	3x1.5	8.2	13.0	330	130	17	28	21.49	26.72
1965307	3x2.5	9.0	13.8	385	140	25	40	13.20	16.37

PHYSICAL & ELECTRICAL CHARACTERISTICS:

CATEGORY C - CONDUCTOR CLASS 2

General Cable Code	Cross section (mm²)	Diameters		Weight (kg/km)	Bending radius (mm)	Maximum current rating		Voltage drop	
		Under armour (mm)	Overall (mm)			Air 40 °C (A)	Buried 25 °C (A)	Cos μ = 0.8 (V/A·km)	Cos μ = 1 (V/A·km)
1965308	3x4	10.0	14.8	465	150	34	52	8.244	10.18
1965309	3x6	11.2	16.1	560	160	44	66	5.536	6.802
1965310	3x10	13.1	18.6	835	190	61	88	3.322	4.042
1965311	3x16	15.1	21.3	1,190	215	82	115	2.117	2.540
1965312	3x25	18.3	24.6	1,635	250	110	150	1.370	1.606
1965313	3x35	20.6	27.0	2,030	270	135	180	1.009	1.157
1965314	3x50	23.4	30.0	2,580	300	165	215	0.766	0.855
1965315	3x70	27.6	35.1	3,645	355	210	260	0.553	0.592
1965316	3x95	31.1	39.2	4,655	395	260	310	0.418	0.426
1965317	3x120	35.1	43.5	5,715	435	300	355	0.346	0.338
1965318	3x150	40.0	49.6	7,355	500	350	400	0.296	0.274
1965319	3x185	43.4	53.4	8,755	535	400	450	0.251	0.219
1965320	3x240	49.0	59.5	11,000	595	475	520	0.208	0.167
1965321	3x300	54.5	65.3	13,380	655	545	590	0.180	0.133
1965322	3x400	61.3	72.7	16,630	730	645	665	0.157	0.104
1965406	4x1.5	8.9	13.8	375	140	17	28	21.49	26.72
1965407	4x2.5	9.8	14.8	445	150	25	40	13.20	16.37
1965408	4x4	11.0	15.9	535	160	34	52	8.244	10.18
1965409	4x6	12.4	18.0	750	180	44	66	5.536	6.802
1965410	4x10	14.5	20.4	1,000	205	61	88	3.322	4.042
1965411	4x16	16.6	22.9	1,415	230	82	115	2.117	2.540
1965412	4x25	20.3	26.7	1,965	270	110	150	1.370	1.606
1965413	4x35	22.8	29.5	2,490	295	135	180	1.009	1.157
1965414	4x50	26.0	32.7	3,135	330	165	215	0.766	0.855
1965415	4x70	30.6	38.6	4,505	390	210	260	0.553	0.592
1965416	4x95	34.6	42.9	5,745	430	260	310	0.418	0.426
1965417	4x120	39.5	49.1	7,530	495	300	355	0.346	0.338
1965418	4x150	44.4	54.4	9,050	545	350	400	0.296	0.274
1965419	4x185	48.3	58.8	10,855	590	400	450	0.251	0.219
1965420	4x240	54.5	65.3	13,665	655	475	520	0.208	0.167
1965421	4x300	60.7	72.4	16,785	725	545	590	0.180	0.133
1965422	4x400	68.7	82.0	21,800	820	645	665	0.157	0.104
1965506	5x1.5	9.8	14.7	420	150	17	28	21.49	26.72
1965507	5x2.5	10.8	15.8	505	160	25	40	13.20	16.37
1965508	5x4	12.1	17.7	710	180	34	52	8.244	10.18
1965509	5x6	13.6	19.3	865	195	44	66	5.536	6.802

PHYSICAL & ELECTRICAL CHARACTERISTICS:

CATEGORY C - CONDUCTOR CLASS 2

General Cable Code	Cross section (mm ²)	Diameters		Weight (kg/km)	Bending radius (mm)	Maximum current rating		Voltage drop	
		Under armour (mm)	Overall (mm)			Air 40 °C (A)	Buried 25 °C (A)	Cos μ = 0.8 (V/A-km)	Cos μ = 1 (V/A-km)
1965510	5x10	16.0	22.3	1,270	225	61	88	3.322	4.042
1965511	5x16	18.5	24.8	1,675	250	82	115	2.117	2.540
1965512	5x25	22.5	29.0	2,335	290	110	150	1.370	1.606
1965513	5x35	25.4	32.9	3,100	330	135	180	1.009	1.157
1965514	5x50	29.3	37.1	4,085	375	165	215	0.766	0.855
1965515	5x70	34.1	42.4	5,435	425	210	260	0.553	0.592
1965516	5x95	39.0	48.6	7,410	490	260	310	0.418	0.426
1965517	5x120	44.0	54.0	9,075	540	300	355	0.346	0.338
1965518	5x150	49.6	60.1	11,005	605	350	400	0.296	0.274
1965519	5x185	54.3	65.1	13,285	655	400	450	0.251	0.219
1965520	5x240	60.9	72.2	16,700	725	475	520	0.208	0.167

CATEGORY A & C - CONDUCTOR CLASS 1

1966206	2x1.5	7.5	12.3	295	125	25	36	21.50	26.72
1966207	2x2.5	8.3	13.1	340	135	33	52	13.21	16.37
1966208	2x4	9.2	14.0	405	140	44	67	8.252	10.18
1966306	3x1.5	8.0	12.8	325	130	17	28	21.50	26.72
1966307	3x2.5	8.8	13.6	375	140	25	40	13.21	16.37
1966308	3x4	9.8	14.6	460	150	34	52	8.252	10.18
1966406	4x1.5	8.7	13.6	365	140	17	28	21.50	26.72
1966407	4x2.5	9.6	14.5	430	145	25	40	13.21	16.37
1966408	4x4	10.7	15.7	530	160	34	52	8.252	10.18
1966506	5x1.5	9.5	14.5	410	145	17	28	21.50	26.72
1966507	5x2.5	10.5	15.5	490	155	25	40	13.21	16.37
1966508	5x4	11.8	17.5	690	175	34	52	8.252	10.18

CATEGORY A - CONDUCTOR CLASS 2

1965109	1x6	6.3	12.5	235	125	46	72	5.604	6.802
1965110	1x10	7.2	13.4	290	135	64	96	3.382	4.042
1965111	1x16	8.1	14.3	365	145	86	125	2.171	2.540
1965112	1x25	9.6	15.8	480	160	120	160	1.417	1.606
1965113	1x35	10.6	16.8	595	170	145	190	1.051	1.157
7160114	1x50	15.9	22.7	975	230	180	230	0.818	0.855
7160115	1x70	17.7	24.5	1,220	245	230	280	0.600	0.592
7160116	1x95	19.3	26.1	1,505	265	285	335	0.460	0.426
7160117	1x120	21.2	28.0	1,800	280	335	380	0.385	0.338

PHYSICAL & ELECTRICAL CHARACTERISTICS:

CATEGORY A - CONDUCTOR CLASS 2

General Cable Code	Cross section (mm ²)	Diameters		Weight (kg/km)	Bending radius (mm)	Maximum current rating		Voltage drop	
		Under armour (mm)	Overall (mm)			Air 40 °C (A)	Buried 25 °C (A)	Cos μ = 0.8 (V/A-km)	Cos μ = 1 (V/A-km)
7160118	1x150	23.2	30.0	2,115	300	385	425	0.330	0.274
7160119	1x185	24.8	31.6	2,510	320	450	480	0.284	0.219
7160120	1x240	27.2	34.2	3,120	345	535	550	0.238	0.167
7160121	1x300	29.8	37.8	3,885	380	615	620	0.209	0.133
1965206	2x1.5	7.7	12.5	305	125	25	36	21.49	26.72
1965207	2x2.5	8.5	13.3	350	135	33	52	13.20	16.37
1965208	2x4	9.4	14.2	410	145	44	67	8.244	10.18
1965209	2x6	10.6	15.4	490	155	58	86	5.536	6.802
1965210	2x10	12.3	17.8	730	180	79	115	3.322	4.042
1965211	2x16	14.1	19.6	920	200	103	150	2.117	2.540
1965212	2x25	17.1	23.4	1,375	235	138	190	1.370	1.606
1965213	2x35	19.2	25.6	1,690	260	170	230	1.009	1.157
7160214	2x50	22.8	29.6	2,205	300	200	270	0.766	0.855
7160215	2x70	26.3	33.5	2,855	335	255	325	0.553	0.592
7160216	2x95	29.6	37.8	3,820	380	310	385	0.418	0.426
7160217	2x120	33.3	41.7	4,645	420	360	440	0.346	0.338
7160218	2x150	37.4	46.0	5,555	460	415	495	0.296	0.274
7160219	2x185	40.2	50.2	6,980	505	485	555	0.251	0.219
7160220	2x240	45.2	55.6	8,670	560	565	635	0.208	0.167
7160221	2x300	50.7	61.3	10,535	615	660	720	0.180	0.133
1965306	3x1.5	8.2	13.0	330	130	17	28	21.49	26.72
1965307	3x2.5	9.0	13.8	385	140	25	40	13.20	16.37
1965308	3x4	10.0	14.8	465	150	34	52	8.244	10.18
1965309	3x6	11.2	16.1	560	160	44	66	5.536	6.802
1965310	3x10	13.1	18.6	835	190	61	88	3.322	4.042
1965311	3x16	15.1	21.3	1,190	215	82	115	2.117	2.540
1965312	3x25	18.3	24.6	1,635	250	110	150	1.370	1.606
1965313	3x35	20.6	27.0	2,030	270	135	180	1.009	1.157
7160314	3x50	24.4	31.4	2,675	315	165	215	0.766	0.855
7160315	3x70	28.2	36.2	3,735	365	210	260	0.553	0.592
7160316	3x95	31.7	40.1	4,740	405	260	310	0.418	0.426
7160317	3x120	35.7	44.3	5,790	445	300	355	0.346	0.338
7160318	3x150	40.2	50.2	7,375	505	350	400	0.296	0.274
7160319	3x185	43.4	53.6	8,785	540	400	450	0.251	0.219
7160320	3x240	49.0	59.6	11,015	600	475	520	0.208	0.167
7160321	3x300	54.5	65.5	13,405	655	545	590	0.180	0.133

PHYSICAL & ELECTRICAL CHARACTERISTICS:

CATEGORY A - CONDUCTOR CLASS 2

General Cable Code	Cross section (mm ²)	Diameters		Weight (kg/km)	Bending radius (mm)	Maximum current rating		Voltage drop	
		Under armour (mm)	Overall (mm)			Air 40 °C (A)	Buried 25 °C (A)	Cos μ = 0.8 (V/A-km)	Cos μ = 1 (V/A-km)
7160322	3x400	61.3	72.7	16,635	730	645	665	0.157	0.104
1965406	4x1.5	8.9	13.8	375	140	17	28	21.49	26.72
1965407	4x2.5	9.8	14.8	445	150	25	40	13.20	16.37
1965408	4x4	11.0	15.9	535	160	34	52	8.244	10.18
1965409	4x6	12.4	18.0	750	180	44	66	5.536	6.802
1965410	4x10	14.5	20.4	1,000	205	61	88	3.322	4.042
1965411	4x16	16.6	22.9	1,415	230	82	115	2.117	2.540
1965412	4x25	20.3	26.7	1,965	270	110	150	1.370	1.606
1965413	4x35	22.8	29.5	2,490	295	135	180	1.009	1.157
7160414	4x50	27.0	34.2	3,265	345	165	215	0.766	0.855
7160415	4x70	31.2	39.6	4,570	400	210	260	0.553	0.592
7160416	4x95	35.2	43.8	5,830	440	260	310	0.418	0.426
7160417	4x120	39.7	49.7	7,560	500	300	355	0.346	0.338
7160418	4x150	44.6	54.8	9,060	550	350	400	0.296	0.274
7160419	4x185	48.5	59.1	10,895	595	400	450	0.251	0.219
7160420	4x240	54.5	65.5	13,690	655	475	520	0.208	0.167
7160421	4x300	60.7	72.5	16,785	725	545	590	0.180	0.133
7160422	4x400	68.7	82.0	21,800	820	645	665	0.157	0.104
1965506	5x1.5	9.8	14.7	420	150	17	28	21.49	26.72
1965507	5x2.5	10.8	15.8	505	160	25	40	13.20	16.37
1965508	5x4	12.1	17.7	710	180	34	52	8.244	10.18
1965509	5x6	13.6	19.3	865	195	44	66	5.536	6.802
1965510	5x10	16.0	22.3	1,270	225	61	88	3.322	4.042
1965511	5x16	18.5	24.8	1,675	250	82	115	2.117	2.540
1965512	5x25	22.5	29.0	2,335	290	110	150	1.370	1.606
1965513	5x35	25.4	32.9	3,100	330	135	180	1.009	1.157
7160514	5x50	29.9	38.1	4,175	385	165	215	0.766	0.855
7160515	5x70	34.7	43.3	5,525	435	210	260	0.553	0.592
7160516	5x95	39.2	49.2	7,480	495	260	310	0.418	0.426
7160517	5x120	44.2	54.4	9,155	545	300	355	0.346	0.338
7160518	5x150	49.8	60.4	11,000	605	350	400	0.296	0.274
7160519	5x185	54.3	65.3	13,310	655	400	450	0.251	0.219
7160520	5x240	60.9	72.3	16,705	725	475	520	0.208	0.167

STANDARDS:

CONSTRUCTION: IEC 60502-1 / CSA C22.2 No. 0.3-01 / ISO 4892.

FIRE PERFORMANCE: IEC 60332-3 (categories A or C) / IEC 60332-1-2 / IEC 60754 / IEC 61034.



CONSTRUCTION:

1. CONDUCTOR:

Copper class 1 or class 2 to IEC 60228.

2. INSULATION:

XLPE Black, numbered in white.

3. INNER COVERING:

Halogen-free thermoplastic polyolefin.

4. ARMOUR:

Galvanised steel wires.

5. SHEATH:

Halogen-free thermoplastic polyolefin.

APPLICATIONS:

Fire Retardant (Unfire[®]) according to IEC 60332-3, categories A or C.

Halogen-free according to IEC 60754-1.

Low acidity and corrosivity of the combustion gases according to IEC 60754-2.

Reduced darkness of fumes generated during combustion according to IEC 61034.

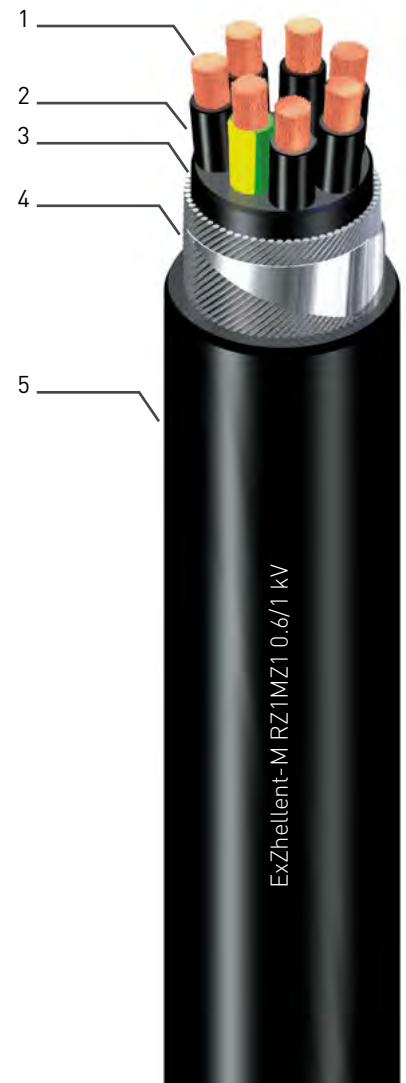
Excellent mechanical protection during laying, installation and service.

Highly recommended in areas with high risk of explosion or fire.

Extra pulling force. Armour can be used to pull the cable.

Able to work at very low temperatures [-45 °C].

Maximum conductor temperature at continuous rating 90 °C.



PHYSICAL & ELECTRICAL CHARACTERISTICS:

CATEGORY C - CONDUCTOR CLASS 1

General Cable Code	Cross section (mm ²)	Diameters		Weight (kg/km)	Bending radius (mm)
		Under armour (mm)	Overall (mm)		
2965066	6x1.5	10.6	15.5	470	155
2965067	6x2.5	11.6	17.3	645	175
2965076	7x1.5	10.5	15.5	475	155
2965077	7x2.5	11.5	17.2	660	175
2965086	8x1.5	12.4	18	665	180
2965087	8x2.5	13.6	19.2	795	195
2965106	10x1.5	13.3	19	720	190
2965107	10x2.5	14.7	20.3	870	205
2965126	12x1.5	13.8	19.4	765	195
2965127	12x2.5	15.2	20.7	925	210
2965146	14x1.5	14.5	20.1	830	205
2965147	14x2.5	16	21.6	1,005	220
2965166	16x1.5	15.3	21.4	930	215
2965186	18x1.5	16.2	21.8	965	220
2965196	19x1.5	16.2	21.8	975	220
2965197	19x2.5	17.9	24.2	1,335	245
2965206	20x1.5	17.1	23.4	1,160	235
2965207	20x2.5	18.9	25.2	1,430	255
2965246	24x1.5	18.9	25.3	1,305	255
2965247	24x2.5	20.9	27.3	1,625	275
2965276	27x1.5	19.4	25.7	1,370	260
2965306	30x1.5	20.1	26.5	1,465	265
2965307	30x2.5	22.3	28.9	1,855	290
2965366	36x1.5	21.8	28.2	1,655	285
2965367	36x2.5	24.2	30.9	2,110	310
2965376	37x1.5	21.7	28.1	1,645	285

PHYSICAL & ELECTRICAL CHARACTERISTICS:

CATEGORY C - CONDUCTOR CLASS 2

General Cable Code	Cross section (mm ²)	Diameters		Weight (kg/km)	Bending radius (mm)
		Under armour (mm)	Overall (mm)		
2966076	7x1.5	10.7	15.6	480	160
2966077	7x2.5	11.8	17.5	670	175
2966126	12x1.5	14	19.6	775	200
2966127	12x2.5	15.9	21.4	965	215
2966196	19x1.5	16.4	22	990	220
2966197	19x2.5	18.4	24.7	1,370	250
2966246	24x1.5	19.2	25.6	1,335	260
2966247	24x2.5	21.5	28	1,670	280
2966276	27x1.5	19.6	25.9	1,395	260
2966277	27x2.5	22.1	28.5	1,760	285
2966366	36x1.5	22.1	28.6	1,675	290
2966367	36x2.5	24.9	31.6	2,165	320
2966377	37x2.5	24.8	31.5	2,180	315

CATEGORY A - CONDUCTOR CLASS 2

2966076	7x1.5	10.7	15.6	480	160
2966077	7x2.5	11.8	17.5	670	175
2966126	12x1.5	14	19.6	775	200
2966127	12x2.5	15.9	21.4	965	215
2260196	19x1.5	16.4	22	990	220
2260197	19x2.5	18.4	24.7	1,370	250
2260246	24x1.5	19.2	25.6	1,335	260
2260247	24x2.5	21.5	28	1,670	280
2260366	36x1.5	22.1	28.6	1,675	290
2260367	36x2.5	24.9	31.6	2,165	320



STANDARDS:

CONSTRUCTION: IEC 60502-1 / CSA C22.2 No. 0.3-01 / ISO 4892
FIRE PERFORMANCE: IEC 60331 / IEC 60332-3 (category C) / IEC 60332-1-2 / IEC 60754 / IEC 61034



CONSTRUCTION:

- 1. CONDUCTOR:**
Copper class 1 (up to 4 mm²) or class 2 (all the range) to IEC 60228.
- 2. MICA TAPE (-M)**
- 3. INSULATION:**
XLPE Identification by colour.
- 4. INNER COVERING:**
Halogen-free thermoplastic polyolefin.
- 5. ARMOUR:**
Galvanised steel wires for multicore or aluminium for single core.
- 6. SHEATH:**
Halogen-free thermoplastic polyolefin.

APPLICATIONS:

Fire Retardant (Unfire[®]) according to IEC 60332-3, category C.
Halogen-free according to IEC 60754-1.
Low acidity and corrosivity of the combustion gases according to IEC 60754-2.
Reduced darkness of fumes generated during combustion according to IEC 61034.
Excellent mechanical protection during laying, installation and service.
Highly recommended in areas with high risk of explosion or fire.
Extra pulling force. Armour can be used to pull the cable.
Fire Resistant according to IEC 60331.
Able to work at very low temperatures (-45 °C).
Maximum conductor temperature at continuous rating 90 °C.



PHYSICAL & ELECTRICAL CHARACTERISTICS:

CATEGORY C - CONDUCTOR CLASS 1

General Cable Code	Cross section (mm ²)	Diameters		Weight (kg/km)	Bending radius (mm)	Maximum current rating		Voltage drop	
		Under armour (mm)	Overall (mm)			Air 40 °C (A)	Buried 25 °C (A)	Cos μ = 0.8 (V/A-km)	Cos μ = 1 (V/A-km)
7162206	2x1.5	8.9	13.7	355	140	25	36	21.51	26.72
7162207	2x2.5	9.6	14.4	400	145	33	52	13.22	16.37
7162208	2x4	10.6	15.4	465	155	44	67	8.263	10.18
7162306	3x1.5	9.5	14.3	390	145	17	28	21.51	26.72
7162307	3x2.5	10.2	15.0	440	150	25	40	13.22	16.37
7162308	3x4	11.3	16.1	520	165	34	52	8.263	10.18
7162406	4x1.5	10.4	15.3	435	155	17	28	21.51	26.72
7162407	4x2.5	11.2	16.1	500	165	25	40	13.22	16.37
7162408	4x4	12.4	17.4	605	175	34	52	8.263	10.18
7162506	5x1.5	11.4	16.4	500	165	17	28	21.51	26.72
7162507	5x2.5	12.3	17.3	580	175	25	40	13.22	16.37
7162508	5x4	13.7	19.3	800	195	34	52	8.263	10.18

CATEGORY C - CONDUCTOR CLASS 2

7161109	1x6	7.0	13.2	255	135	46	72	5.607	6.802
7161114	1x50	12.7	18.9	765	190	180	230	0.805	0.855
7161115	1x70	14.3	20.5	1,000	205	230	280	0.588	0.592
7161116	1x95	16.0	22.2	1,275	225	285	335	0.450	0.426
7161117	1x120	17.8	24.1	1,550	245	335	380	0.375	0.338
7161118	1x150	19.6	25.9	1,840	260	385	425	0.321	0.274
7161119	1x185	21.6	28.0	2,235	280	450	480	0.275	0.219
7161120	1x240	24.1	30.7	2,845	310	535	550	0.230	0.167
7161121	1x300	26.5	34.0	3,550	340	615	620	0.202	0.133
7161206	2x1.5	9.0	13.8	360	140	25	36	21.51	26.72
7161207	2x2.5	9.8	14.6	410	150	33	52	13.21	16.37
7161208	2x4	10.7	15.5	475	155	44	67	8.255	10.18
7161209	2x6	11.9	16.7	560	170	58	86	5.545	6.802
7161210	2x10	13.6	19.1	805	195	79	115	3.330	4.042
7161211	2x16	15.4	21.0	1,005	210	103	150	2.124	2.540
7161212	2x25	18.4	24.8	1,465	250	138	190	1.376	1.606
7161213	2x35	20.5	26.9	1,790	270	170	230	1.014	1.157
7161214	2x50	23.3	29.8	2,220	300	200	270	0.769	0.855
7161215	2x70	26.5	33.2	2,850	335	255	325	0.556	0.592
7161216	2x95	30.3	38.1	3,895	385	310	385	0.421	0.426
7161217	2x120	34.0	42.1	4,730	425	360	440	0.349	0.338
7161218	2x150	37.5	45.9	5,590	460	415	495	0.297	0.274

PHYSICAL & ELECTRICAL CHARACTERISTICS:

CATEGORY C - CONDUCTOR CLASS 2

General Cable Code	Cross section (mm²)	Diameters		Weight (kg/km)	Bending radius (mm)	Maximum current rating		Voltage drop	
		Under armour (mm)	Overall (mm)			Air 40 °C (A)	Buried 25 °C (A)	Cos μ = 0.8 (V/A-km)	Cos μ = 1 (V/A-km)
7161219	2x185	41.9	51.6	7,200	520	485	555	0.253	0.219
7161220	2x240	46.9	57.2	8,930	575	565	635	0.210	0.167
7161221	2x300	52.1	62.7	10,785	630	660	720	0.182	0.133
7161306	3x1.5	9.6	14.4	390	145	17	28	21.51	26.72
7161307	3x2.5	10.4	15.2	450	155	25	40	13.21	16.37
7161308	3x4	11.4	16.2	530	165	34	52	8.255	10.18
7161309	3x6	12.2	17.0	610	170	44	66	5.542	6.802
7161310	3x10	14.1	20.2	930	205	61	88	3.327	4.042
7161311	3x16	16.5	22.1	1,175	225	82	115	2.124	2.540
7161312	3x25	19.7	26.1	1,750	265	110	150	1.376	1.606
7161313	3x35	22.0	28.4	2,155	285	135	180	1.014	1.157
7161314	3x50	25.0	31.7	2,725	320	165	215	0.769	0.855
7161315	3x70	28.4	36.0	3,740	360	210	260	0.555	0.592
7161316	3x95	32.6	40.6	4,820	410	260	310	0.421	0.426
7161317	3x120	36.6	44.9	5,885	450	300	355	0.349	0.338
7161318	3x150	40.7	50.4	7,480	505	350	400	0.297	0.274
7161319	3x185	45.1	55.0	9,005	550	400	450	0.253	0.219
7161320	3x240	50.4	60.9	11,220	610	475	520	0.209	0.167
7161321	3x300	56.0	66.9	13,650	670	545	590	0.182	0.133
7161322	3x400	62.5	73.9	16,860	740	645	665	0.159	0.104
7161406	4x1.5	10.5	15.4	445	155	17	28	21.51	26.72
7161407	4x2.5	11.4	16.4	515	165	25	40	13.21	16.37
7161408	4x4	12.6	17.5	615	175	34	52	8.255	10.18
7161409	4x6	14.0	19.6	840	200	44	66	5.545	6.802
7161410	4x10	16.1	21.9	1,085	220	61	88	3.330	4.042
7161411	4x16	18.2	24.6	1,530	250	82	115	2.124	2.540
7161412	4x25	21.9	28.3	2,095	285	110	150	1.376	1.606
7161413	4x35	24.4	31.1	2,615	315	135	180	1.014	1.157
7161414	4x50	27.8	34.5	3,315	345	165	215	0.769	0.855
7161415	4x70	32.1	40.1	4,675	405	210	260	0.556	0.592
7161416	4x95	36.2	44.5	5,965	445	260	310	0.421	0.426
7161417	4x120	41.1	50.8	7,755	510	300	355	0.349	0.338
7161418	4x150	45.3	55.3	9,195	555	350	400	0.297	0.274
7161419	4x185	50.1	60.6	11,135	610	400	450	0.253	0.219
7161420	4x240	56.6	67.4	14,065	675	475	520	0.210	0.167
7161421	4x300	62.4	73.8	17,060	740	545	590	0.182	0.133

PHYSICAL & ELECTRICAL CHARACTERISTICS:

CATEGORY C - CONDUCTOR CLASS 2

General Cable Code	Cross section (mm ²)	Diameters		Weight (kg/km)	Bending radius (mm)	Maximum current rating		Voltage drop	
		Under armour (mm)	Overall (mm)			Air 40 °C (A)	Buried 25 °C (A)	Cos μ = 0.8 (V/A·km)	Cos μ = 1 (V/A·km)
7161422	4x400	70.1	83.4	22,155	835	645	665	0.159	0.104
7161506	5x1.5	11.5	16.5	505	165	17	28	21.51	26.72
7161507	5x2.5	12.6	17.6	595	175	25	40	13.21	16.37
7161508	5x4	13.9	19.5	810	195	34	52	8.255	10.18
7161509	5x6	15.5	21.0	970	210	44	66	5.545	6.802
7161510	5x10	17.8	24.1	1,395	245	61	88	3.330	4.042
7161511	5x16	20.3	26.6	1,805	270	82	115	2.124	2.540
7161512	5x25	24.3	30.8	2,480	310	110	150	1.376	1.606
7161513	5x35	27.2	34.7	3,290	350	135	180	1.014	1.157
7161514	5x50	31.4	39.2	4,305	395	165	215	0.769	0.855
7161515	5x70	35.7	44.1	5,635	445	210	260	0.556	0.592
7161516	5x95	40.8	50.5	7,710	505	260	310	0.421	0.426
7161517	5x120	45.8	55.8	9,360	560	300	355	0.349	0.338
7161518	5x150	50.6	61.1	11,185	615	350	400	0.297	0.274
7161519	5x185	56.4	67.3	13,625	675	400	450	0.253	0.219
7161520	5x240	63.2	74.6	17,175	750	475	520	0.210	0.167

STANDARDS:**CONSTRUCTION:** IEC 60502-2 / UIC 895 OR / ISO 4892.**FIRE PERFORMANCE:** IEC 60332-3 (category C) / IEC 60332-1-2.**CONSTRUCTION:****1. CONDUCTOR:**

Copper class 2 to IEC 60228.

2. INNER SEMICONDUCTOR:

Cross-linked semiconductor compound.

3. INSULATION:

XLPE.

4. OUTER SEMICONDUCTOR:

Cross-linked semiconductor compound.

5. SCREEN:

Copper tape.

6. INNER COVERING:

Hydrocarbon resistant PVC.

7. ARMOUR:

Galvanised steel wires for multicore or aluminium for single core.

8. SHEATH:

Hydrocarbon resistant PVC.

APPLICATIONS:

Fire Retardant (Unfire®) characteristic according to standard IEC 60332-3, category C.

Excellent mechanical protection during laying, installation and service.

Highly recommended in areas with high risk of explosion or fire.

Extra pulling force. Armour can be used to pull the cable.

Resistance to hydrocarbons.

Maximum conductor temperature at continuous rating 90 °C.



PHYSICAL & ELECTRICAL CHARACTERISTICS:

CATEGORY C - VOLTAGE 6/10 kV

General Cable Code	Section (mm ²)	Diameters				Weight (kg/km)	Reactance (Ω/km)	Capacitance (μF/km)	Bending radius	
		Conductor (mm)	Insulation (mm)	Under armour (mm)	Overall (mm)				During installation (mm)	Under operation (mm)
1667113	1x35	6.70	14.1	17.7	25.5	990	0.148	0.211	510	385
1667114	1x50	7.90	15.3	18.9	26.9	1,160	0.141	0.236	540	405
1667115	1x70	9.50	16.9	20.5	28.5	1,405	0.131	0.268	570	430
1667116	1x95	11.30	18.7	22.4	30.6	1,750	0.124	0.305	615	460
1667117	1x120	12.70	20.1	23.8	33.0	2,110	0.121	0.333	660	495
1667118	1x150	14.00	21.4	25.0	34.2	2,390	0.117	0.360	685	515
1667119	1x185	15.70	23.1	26.7	36.1	2,805	0.113	0.394	725	545
1667120	1x240	17.90	25.3	29.0	38.4	3,430	0.108	0.438	770	580
1667121	1x300	20.25	27.7	31.4	41.0	4,125	0.104	0.485	820	615
1667122	1x400	23.00	30.7	34.5	45.5	5,160	0.103	0.547	910	685
1667123	1x500	26.20	34.3	38.1	49.1	6,325	0.099	0.619	980	740
1667124	1x630	30.90	39.0	43.0	54.4	7,940	0.095	0.713	1,090	820
1667311	3x16	4.68	12.1	32.3	41.2	3,070	0.132	0.169	618	495
1667312	3x25	5.75	13.2	34.9	45.5	4,035	0.124	0.192	685	550
1667313	3x35	6.80	14.2	37.3	48.1	4,555	0.117	0.213	725	580
1667314	3x50	7.90	15.3	39.9	50.9	5,200	0.112	0.236	765	615
1667315	3x70	9.50	16.9	43.7	54.9	6,270	0.105	0.268	825	660
1667316	3x95	11.30	18.7	47.8	59.2	7,505	0.098	0.305	890	710
1667317	3x120	12.70	20.1	51.4	63.0	8,695	0.095	0.333	945	760
1667318	3x150	14.00	21.4	54.1	65.9	9,765	0.092	0.360	990	795
1667319	3x185	15.70	23.1	58.1	70.3	11,330	0.089	0.394	1,055	845
1667320	3x240	17.90	25.3	63.2	77.1	14,420	0.086	0.438	1,160	925
1667321	3x300	20.25	27.7	68.7	82.8	17,050	0.084	0.485	1,245	995

CATEGORY C - VOLTAGE 12/20 kV

1671114	1x50	7.90	19.3	22.9	31.1	1,390	0.150	0.165	625	470
1671115	1x70	9.50	20.9	24.5	33.7	1,745	0.142	0.186	675	510
1671116	1x95	11.30	22.7	26.3	35.7	2,080	0.133	0.209	715	540
1671117	1x120	12.70	24.1	27.7	37.1	2,380	0.128	0.226	745	560
1671118	1x150	14.00	25.4	29.0	38.4	2,670	0.124	0.243	770	580
1671119	1x185	15.70	27.1	30.7	39.8	3,035	0.119	0.264	800	600
1671120	1x240	17.90	29.3	32.9	42.3	3,670	0.114	0.291	850	635
1671121	1x300	20.25	31.7	35.5	46.5	4,585	0.112	0.321	930	700
1671122	1x400	23.00	35.1	38.9	50.1	5,565	0.109	0.364	1,005	755
1671123	1x500	26.20	37.9	41.9	52.9	6,630	0.104	0.399	1,060	795
1671124	1x630	30.90	42.6	46.8	58.1	8,260	0.099	0.457	1,165	875

PHYSICAL & ELECTRICAL CHARACTERISTICS:

CATEGORY C - VOLTAGE 12/20 kV

General Cable Code	Section (mm ²)	Diameters				Weight (kg/km)	Reactance (Ω/km)	Capacitance (μF/km)	Bending radius	
		Conductor (mm)	Insulation (mm)	Under armour (mm)	Overall (mm)				During installation (mm)	Under operation (mm)
1671312	3x25	5.75	18.6	47.5	58.9	5,825	0.144	0.126	885	710
1671313	3x35	6.70	18.1	46.4	57.8	5,905	0.133	0.150	870	695
1671314	3x50	7.90	19.3	49.7	61.3	6,985	0.126	0.165	920	740
1671315	3x70	9.50	20.9	52.9	64.7	7,730	0.117	0.186	975	780
1671316	3x95	11.30	22.7	57.2	69.2	9,060	0.110	0.209	1.040	830
1671317	3x120	12.70	24.1	60.8	74.5	11,140	0.106	0.226	1.120	895
1671318	3x150	14.00	25.4	63.5	77.4	12,280	0.103	0.243	1.165	930
1671319	3x185	15.70	27.1	67.5	81.6	13,920	0.099	0.264	1.225	980
1671320	3x240	17.90	29.6	73.4	87.9	16,555	0.096	0.295	1.320	1.055

CATEGORY C - VOLTAGE 18/30 kV

1673114	1x50	7.90	24.1	27.7	37.1	1,810	0.161	0.128	745	560
1673115	1x70	9.50	25.7	29.3	38.9	2,105	0.151	0.143	780	585
1673116	1x95	11.30	27.5	31.1	40.7	2,445	0.141	0.159	815	615
1673117	1x120	12.70	28.9	32.5	42.3	2,755	0.136	0.171	850	635
1673118	1x150	14.00	30.2	33.8	44.8	3,220	0.134	0.183	900	675
1673119	1x185	15.70	31.9	35.7	46.7	3,670	0.129	0.197	935	705
1673120	1x240	17.90	34.1	37.9	49.1	4,330	0.123	0.217	985	740
1673121	1x300	20.25	36.5	40.5	51.9	5,085	0.119	0.237	1.040	780
1673122	1x400	23.00	39.5	43.5	55.1	6,060	0.115	0.263	1.105	830
1673123	1x500	26.20	44.4	48.6	60.4	7,490	0.112	0.305	1.210	910
1673124	1x630	29.85	47.4	51.8	63.8	9,020	0.107	0.330	1.280	960
1673313	3x35	6.80	23.8	59.7	71.9	8,155	0.148	0.115	1.080	865
1673314	3x50	7.90	24.1	60.5	74.2	9,335	0.140	0.128	1.115	890
1673315	3x70	9.50	25.7	64.4	78.5	10,660	0.130	0.143	1.180	945
1673316	3x95	11.30	27.5	68.4	82.7	12,030	0.122	0.159	1.245	995
1673317	3x120	12.70	28.9	71.7	86.2	13,315	0.117	0.171	1.295	1.035
1673318	3x150	14.00	30.2	74.7	89.4	14,630	0.114	0.183	1.345	1.075



STANDARDS:**CONSTRUCTION:** IEC 60502-2 / UIC 895 OR / ISO 4892.**FIRE PERFORMANCE:** IEC 60332-3 (category C) / IEC 60332-1-2.**CONSTRUCTION:**

- | | |
|---|---|
| <p>1. CONDUCTOR:
Copper class 2 to IEC 60228.</p> <p>2. INNER SEMICONDUCTOR:
Cross-linked semiconductor compound.</p> <p>3. INSULATION:
XLPE.</p> <p>4. OUTER SEMICONDUCTOR:
Cross-linked semiconductor compound.</p> <p>5. SCREEN:
Copper tape.</p> | <p>6. FIRST INNER COVERING:
PVC.</p> <p>7. LEAD SHEATH</p> <p>8. INNER COVERING:
Hydrocarbon resistant PVC.</p> <p>9. ARMOUR:
Galvanised steel wires for multicore or aluminium for single core.</p> <p>10. SHEATH:
Hydrocarbon resistant PVC.</p> |
|---|---|

APPLICATIONS:

Fire Retardant (Unfire®) characteristic according to standard IEC 60332-3, category C.

Excellent mechanical protection during laying, installation and service.

Highly recommended in areas with high risk of explosion or fire.

Extra pulling force. Armour can be used to pull the cable.

Resistance to hydrocarbons.

Lead sheath provides watertightness and chemical protection.

Maximum conductor temperature at continuous rating 90 °C.



PHYSICAL & ELECTRICAL CHARACTERISTICS:

CATEGORY C - VOLTAGE 6/10 kV

General Cable Code	Section (mm ²)	Diameters				Weight (kg/km)	Reactance (Ω/km)	Capacitance (μF/km)	Bending radius	
		Conductor (mm)	Insulation (mm)	Under armour (mm)	Overall (mm)				During installation (mm)	Under operation (mm)
7142114	1x50	7.90	15.3	26.5	34.1	2,730	0.156	0.236	685	515
7142115	1x70	9.50	16.9	28.1	35.9	3,100	0.146	0.268	720	540
7142116	1x95	11.30	18.7	30.1	38.0	3,635	0.137	0.305	760	570
7142117	1x120	12.70	20.1	31.5	39.6	4,020	0.132	0.333	795	595
7142118	1x150	14.00	21.4	33.0	41.1	4,525	0.128	0.360	825	620
7142119	1x185	15.70	23.1	34.9	44.3	5,215	0.125	0.394	890	665
7142120	1x240	17.90	25.3	37.3	46.7	6,125	0.120	0.438	935	705
7142121	1x300	20.25	27.7	39.9	50.1	7,100	0.117	0.485	1,005	755
7142122	1x400	23.00	31.1	43.5	53.5	8,390	0.113	0.555	1,070	805
7142123	1x500	26.20	34.9	47.7	57.9	10,105	0.110	0.631	1,160	870
7142124	1x630	29.85	38.9	53.1	64.1	12,565	0.108	0.710	1,285	965
7142314	3x50	7.90	15.3	46.7	57.5	8,935	0.112	0.236	865	690
7142315	3x70	9.50	16.9	51.1	62.1	10,610	0.105	0.268	935	745
7142316	3x95	11.30	18.7	55.6	67.0	12,450	0.098	0.305	1,005	805
7142317	3x120	12.70	20.1	59.1	72.0	14,840	0.095	0.333	1,080	865
7142318	3x150	14.00	21.4	62.5	75.8	16,600	0.092	0.360	1,140	910
7142319	3x185	15.70	23.1	66.7	80.2	18,910	0.089	0.394	1,205	965
7142320	3x240	17.90	25.3	72.4	86.3	22,135	0.086	0.438	1,295	1,040
7142321	3x300	20.25	27.7	78.3	92.4	25,635	0.084	0.485	1,390	1,110

CATEGORY C - VOLTAGE 12/20 kV

7143114	1x50	7.90	19.3	30.9	39.0	3,470	0.164	0.165	780	585
7143115	1x70	9.50	20.9	32.7	40.8	3,970	0.154	0.186	820	615
7143116	1x95	11.30	22.7	34.7	44.1	4,590	0.146	0.209	885	665
7143117	1x120	12.70	24.1	36.3	45.7	5,105	0.141	0.226	915	690
7143118	1x150	14.00	25.4	37.6	47.2	5,550	0.137	0.243	945	710
7143119	1x185	15.70	27.1	39.5	49.2	6,120	0.132	0.264	985	740
7143120	1x240	17.90	29.3	41.9	51.8	7,105	0.127	0.291	1,040	780
7143121	1x300	20.25	31.7	44.7	54.8	8,200	0.122	0.321	1,100	825
7143122	1x400	23.00	34.7	47.9	58.4	9,575	0.118	0.359	1,170	880
7143123	1x500	26.20	38.9	52.3	62.8	11,245	0.115	0.411	1,260	945
7143124	1x630	30.90	42.6	57.6	68.6	13,805	0.110	0.457	1,375	1,030
7143314	3x50	7.90	19.3	57.3	68.9	12,120	0.126	0.165	1,035	830
7143315	3x70	9.50	20.9	61.1	74.0	14,335	0.117	0.186	1,110	890
7143316	3x95	11.30	22.7	66.0	79.5	16,570	0.110	0.209	1,195	955
7143317	3x120	12.70	24.1	69.5	83.2	18,375	0.106	0.226	1,250	1,000

PHYSICAL & ELECTRICAL CHARACTERISTICS:

CATEGORY C - VOLTAGE 12/20 kV

General Cable Code	Section (mm²)	Diameters				Weight (kg/km)	Reactance (Ω/km)	Capacitance (µF/km)	Bending radius	
		Conductor (mm)	Insulation (mm)	Under armour (mm)	Overall (mm)				During installation (mm)	Under operation (mm)
7143318	3x150	14.00	25.4	72.7	86.6	19,970	0.103	0.243	1.300	1.040
7143319	3x185	15.70	27.1	77.1	91.2	22,420	0.099	0.264	1.370	1.095

CATEGORY C - VOLTAGE 18/30 kV

7144114	1x50	7.90	24.1	36.5	45.9	4,690	0.174	0.128	918	690
7144115	1x70	9.50	25.7	38.3	48.0	5,150	0.164	0.143	960	720
7144116	1x95	11.30	27.5	40.3	50.0	5,785	0.154	0.159	1.000	750
7144117	1x120	12.70	28.9	41.7	51.6	6,220	0.149	0.171	1.032	775
7144118	1x150	14.00	30.2	43.0	52.9	6,665	0.144	0.183	1.058	795
7144119	1x185	15.70	31.9	45.1	55.3	7,450	0.139	0.197	1.106	830
7144120	1x240	17.90	34.1	47.5	57.9	8,500	0.134	0.217	1.158	870
7144121	1x300	20.25	36.5	50.1	60.5	9,465	0.129	0.237	1.210	910
7144122	1x400	23.00	39.9	53.7	64.5	10,995	0.124	0.266	1.290	970
7144123	1x500	26.20	43.7	57.9	68.9	12,900	0.121	0.299	1.378	1.035
7144124	1x630	29.85	47.4	63.0	75.8	15,720	0.118	0.330	1.516	1.140
7144314	3x50	7.90	24.1	69.7	83.4	16,710	0.140	0.128	1.251	1.005
7144315	3x70	9.50	25.7	73.5	87.6	18,655	0.130	0.143	1.314	1.055



STANDARDS:

CONSTRUCTION: IEC 60502-2.

FIRE PERFORMANCE: IEC 60332-3 (categories A and C) / IEC 60332-1-2 / IEC 60754 / IEC 61034.



CONSTRUCTION:

- | | |
|---|---|
| <p>1. CONDUCTOR:
Copper class 2 to IEC 60228.</p> <p>2. INNER SEMICONDUCTOR:
Cross-linked semiconductor compound.</p> <p>3. INSULATION:
XLPE.</p> <p>4. OUTER SEMICONDUCTOR:
Cross-linked semiconductor compound.</p> <p>5. SCREEN:
Copper tape.</p> | <p>6. INNER COVERING:
Halogen-free thermoplastic polyolefin.</p> <p>7. ARMOUR:
Galvanised steel wires for multicore or aluminium for single core.</p> <p>8. SHEATH:
Halogen-free thermoplastic polyolefin.</p> |
|---|---|

APPLICATIONS:

Fire Retardant (Unfire®) according to IEC 60332-3, categories A or C.
Halogen-free according to IEC 60754-1.
Low acidity and corrosivity of the combustion gases according to IEC 60754-2.
Reduced darkness of fumes generated during combustion according to IEC 61034.
Excellent mechanical protection during laying, installation and service.
Highly recommended in areas with high risk of explosion or fire.
Extra pulling force. Armour can be used to pull the cable.
Able to work at very low temperatures (-45 °C).
Maximum conductor temperature at continuous rating 90 °C.



PHYSICAL & ELECTRICAL CHARACTERISTICS:

CATEGORY C - CONDUCTOR CLASS 2 - VOLTAGE 6/10 kV

General Cable Code	Section (mm ²)	Diameters				Weight (kg/km)	Reactance (Ω/km)	Capacitance (μF/km)	Bending radius	
		Conductor (mm)	Insulation (mm)	Under armour (mm)	Overall (mm)				During installation (mm)	Under operation (mm)
7145114	1x50	7.90	15.3	19.9	26.9	1,195	0.141	0.236	540	405
7145115	1x70	9.50	16.9	20.5	27.5	1,380	0.129	0.268	550	415
7145116	1x95	11.30	18.7	22.3	29.3	1,685	0.121	0.305	590	440
7145117	1x120	12.70	20.1	23.7	31.7	2,040	0.118	0.333	635	480
7145118	1x150	14.00	21.4	25.0	33.0	2,340	0.114	0.360	660	495
7145119	1x185	15.70	23.1	26.7	34.9	2,750	0.110	0.394	700	525
7145120	1x240	17.90	25.3	28.9	37.3	3,370	0.106	0.438	750	560
7145121	1x300	20.25	27.7	31.3	39.9	4,060	0.102	0.485	800	600
7145122	1x400	23.00	30.7	34.5	44.3	5,095	0.101	0.547	890	665
7145123	1x500	26.20	33.9	37.7	47.7	6,245	0.097	0.611	955	720
7145124	1x630	29.85	38.6	42.6	52.8	7,885	0.096	0.704	1.060	795
7145313	3x35	6.80	14.2	37.3	47.5	4,535	0.117	0.213	715	570
7145314	3x50	7.90	15.3	40.1	50.5	5,245	0.112	0.236	760	610
7145315	3x70	9.50	16.9	43.7	54.3	6,260	0.105	0.268	815	655
7145316	3x95	11.30	18.7	47.8	58.6	7,515	0.098	0.305	880	705
7145317	3x120	12.70	20.1	51.1	62.1	8,605	0.095	0.333	935	745
7145318	3x150	14.00	21.4	54.1	65.3	9,745	0.092	0.360	980	785
7145319	3x185	15.70	23.1	58.1	69.5	11,290	0.089	0.394	1.045	835
7145320	3x240	17.90	25.3	63.2	76.3	14,340	0.086	0.438	1.145	920
7145321	3x300	20.25	27.7	68.7	82.2	16,975	0.084	0.485	1.235	990

CATEGORY C - CONDUCTOR CLASS 2 - VOLTAGE 12/20 kV

7146114	1x50	7.90	19.3	23.9	31.9	1,505	0.151	0.165	640	480
7146115	1x70	9.50	20.9	24.5	32.7	1,705	0.140	0.186	655	495
7146116	1x95	11.30	22.7	26.3	34.5	2,035	0.131	0.209	690	520
7146117	1x120	12.70	24.1	27.7	36.1	2,335	0.126	0.226	725	545
7146118	1x150	14.00	25.4	29.0	37.4	2,630	0.122	0.243	750	565
7146119	1x185	15.70	27.1	30.7	39.3	3,065	0.118	0.264	790	590
7146120	1x240	17.90	29.3	32.9	41.5	3,685	0.113	0.291	830	625
7146121	1x300	20.25	31.7	35.5	45.5	4,545	0.111	0.321	910	685
7146122	1x400	23.00	35.1	38.9	49.1	5,520	0.107	0.364	985	740
7146123	1x500	26.20	38.9	42.9	53.3	6,800	0.104	0.411	1.070	800
7146124	1x630	29.85	42.6	46.8	57.4	8,365	0.101	0.456	1.150	865
7146313	3x35	6.80	18.2	46.7	57.5	5,925	0.132	0.151	865	690
7146314	3x50	7.90	19.3	49.3	60.3	6,635	0.126	0.165	905	725
7146315	3x70	9.50	20.9	52.9	64.1	7,735	0.117	0.186	965	770

PHYSICAL & ELECTRICAL CHARACTERISTICS:
CATEGORY C - CONDUCTOR CLASS 2 - VOLTAGE 12/20 kV

General Cable Code	Section (mm ²)	Diameters				Weight (kg/km)	Reactance (Ω/km)	Capacitance (μF/km)	Bending radius	
		Conductor (mm)	Insulation (mm)	Under armour (mm)	Overall (mm)				During installation (mm)	Under operation (mm)
7146316	3x95	11.30	22.7	57.2	68.6	9,045	0.110	0.209	1.030	825
7146317	3x120	12.70	24.1	60.5	73.6	11,015	0.106	0.226	1.105	885
7146318	3x150	14.00	25.4	63.5	76.8	12,230	0.103	0.243	1.155	925
7146319	3x185	15.70	27.1	67.5	81.0	13,875	0.099	0.264	1.215	975
7146320	3x240	17.90	29.3	72.6	86.5	16,360	0.095	0.291	1.300	1.040

CATEGORY C - CONDUCTOR CLASS 2 - VOLTAGE 18/30 kV

7147114	1x50	7.90	24.1	28.7	37.1	1,860	0.161	0.128	745	560
7147115	1x70	9.50	25.7	29.3	37.7	2,045	0.149	0.143	755	570
7147116	1x95	11.30	27.5	31.1	39.7	2,395	0.140	0.159	795	600
7147117	1x120	12.70	28.9	32.5	41.1	2,690	0.135	0.171	825	620
7147118	1x150	14.00	30.2	34.0	43.8	3,175	0.132	0.183	880	660
7147119	1x185	15.70	31.9	35.7	45.7	3,625	0.127	0.197	915	690
7147120	1x240	17.90	34.1	37.9	48.1	4,285	0.122	0.217	965	425
7147121	1x300	20.25	36.5	40.5	50.7	5,020	0.117	0.237	1.015	865
7147122	1x400	23.00	39.9	43.9	54.3	6,025	0.114	0.266	1.090	815
7147123	1x500	26.20	43.7	47.9	58.5	7,325	0.110	0.299	1.170	880
7147124	1x630	29.85	47.4	51.8	62.8	8,965	0.106	0.330	1.260	945
7147313	3x35	6.80	24.8	62.1	76.0	9,535	0.151	0.110	1.140	915
7147314	3x50	7.90	24.1	60.5	74.4	9,425	0.140	0.128	1.120	895
7147315	3x70	9.50	25.7	64.3	77.6	10,580	0.130	0.143	1.165	935
7147316	3x95	11.30	27.5	68.4	82.1	12,090	0.122	0.159	1.235	985
7147317	3x120	12.70	28.9	71.7	85.6	13,365	0.117	0.171	1.285	1.030
7147318	3x150	14.00	30.2	74.7	88.8	14,690	0.114	0.183	1.335	1.070

PHYSICAL & ELECTRICAL CHARACTERISTICS:

CATEGORY A - CONDUCTOR CLASS 2 - VOLTAGE 6/10 kV

General Cable Code	Section (mm ²)	Diameters				Weight (kg/km)	Reactance (Ω/km)	Capacitance (μF/km)	Bending radius	
		Conductor (mm)	Insulation (mm)	Under armour (mm)	Overall (mm)				During installation (mm)	Under operation (mm)
7148114	1x50	7.9	15.7	23.2	31.4	1,525	0.150	0.225	945	475
7148115	1x70	9.5	17.2	24.8	33.8	1,865	0.142	0.255	1,015	510
7148116	1x95	11.1	18.9	26.4	35.4	2,190	0.134	0.287	1,065	535
7148117	1x120	12.8	20.6	28.0	37.1	2,505	0.128	0.318	1,115	560
7148118	1x150	14.2	22.0	29.5	38.5	2,820	0.124	0.346	1,155	580
7148119	1x185	15.6	23.4	30.9	39.9	3,225	0.119	0.372	1,200	600
7148120	1x240	17.8	25.6	33.1	42.1	3,855	0.114	0.414	1,265	635
7148121	1x300	20.2	28.2	35.7	45.7	4,700	0.111	0.463	1,375	690
7148122	1x400	22.9	30.9	38.4	48.4	5,615	0.107	0.515	1,455	730
7148123	1x500	26.9	34.9	42.4	52.6	6,850	0.102	0.590	1,580	790
7148124	1x630	30.7	38.7	46.2	56.6	8,415	0.098	0.662	1,700	850
7148314	3x50	8.0	15.8	42.5	53.3	5,685	0.112	0.227	1,600	800
7148315	3x70	9.4	17.2	45.6	56.6	6,640	0.106	0.254	1,700	850
7148316	3x95	11.1	18.9	49.4	61.0	7,955	0.101	0.287	1,830	915
7148317	3x120	12.8	20.6	52.4	63.4	8,950	0.097	0.318	1,905	955
7148318	3x150	14.2	22.0	55.6	66.8	10,165	0.094	0.346	2,005	1005
7148319	3x185	15.6	23.4	59.0	70.4	11,640	0.091	0.372	2,115	1060
7148320	3x240	18.0	25.8	64.6	77.7	14,905	0.087	0.418	2,335	1170
7148321	3x300	20.2	28.2	70.2	83.7	17,635	0.085	0.463	2,510	1255

CATEGORY A - CONDUCTOR CLASS 2 - VOLTAGE 12/20 kV

7149114	1x50	7.9	19.9	27.4	35.6	1,815	0.158	0.159	1,070	535
7149115	1x70	9.5	21.4	29.0	38.0	2,170	0.149	0.178	1,140	570
7149116	1x95	11.1	23.1	30.6	39.6	2,505	0.141	0.198	1,190	595
7149117	1x120	12.8	24.8	32.2	41.3	2,835	0.135	0.217	1,240	620
7149118	1x150	14.2	26.2	33.7	42.7	3,160	0.130	0.235	1,285	645
7149119	1x185	15.6	27.6	35.1	45.1	3,700	0.127	0.251	1,355	680
7149120	1x240	17.8	29.8	37.3	47.3	4,350	0.121	0.277	1,420	710
7149121	1x300	20.2	32.4	39.9	50.1	5,120	0.117	0.308	1,505	755
7149122	1x400	22.9	35.1	42.6	53.0	6,075	0.113	0.340	1,595	800
7149123	1x500	26.9	39.1	46.6	57.2	7,345	0.107	0.387	1,720	860
7149124	1x630	30.7	42.9	50.4	61.2	8,945	0.103	0.432	1,840	920
7149314	3x50	7.9	19.9	51.7	62.7	7,170	0.128	0.159	1,885	945
7149315	3x70	9.5	21.4	55.2	66.4	8,270	0.120	0.178	1,995	1,000
7149316	3x95	11.1	23.1	58.9	70.3	9,535	0.113	0.198	2,110	1,055
7149317	3x120	12.8	24.8	62.2	76.1	11,655	0.108	0.217	2,285	1,145

PHYSICAL & ELECTRICAL CHARACTERISTICS:

CATEGORY A - CONDUCTOR CLASS 2 - VOLTAGE 12/20 kV

General Cable Code	Section (mm²)	Diameters				Weight (kg/km)	Reactance (Ω/km)	Capacitance (µF/km)	Bending radius	
		Conductor (mm)	Insulation (mm)	Under armour (mm)	Overall (mm)				During installation (mm)	Under operation (mm)
7149318	3x150	14.2	26.2	65.5	78.8	12,850	0.105	0.235	2,365	1,185
7149319	3x185	15.6	27.6	68.8	82.3	14,460	0.101	0.251	2,470	1,235
7149320	3x240	17.8	29.8	74.0	87.9	17,040	0.097	0.277	2,640	1,320
7149321	3x300	20.2	32.4	80.0	94.1	19,915	0.094	0.308	2,825	1,415

CATEGORY A - CONDUCTOR CLASS 2 - VOLTAGE 18/30 kV

7150114	1x50	7.9	24.9	32.4	41.4	2,290	0.167	0.124	1,245	625
7150115	1x70	9.5	26.4	34.0	43.0	2,580	0.157	0.138	1,290	645
7150116	1x95	11.1	28.1	35.6	45.6	3,055	0.150	0.152	1,370	685
7150117	1x120	12.8	29.8	37.2	47.3	3,400	0.143	0.166	1,420	710
7150118	1x150	14.2	31.2	38.7	48.9	3,760	0.139	0.178	1,470	735
7150119	1x185	15.6	32.6	40.1	50.3	4,190	0.134	0.189	1,510	755
7150120	1x240	17.8	34.8	42.3	52.7	4,885	0.128	0.208	1,585	795
7150121	1x300	20.2	37.4	44.9	55.3	5,650	0.123	0.229	1,660	830
7150122	1x400	22.9	40.1	47.6	58.4	6,660	0.119	0.251	1,755	880
7150123	1x500	26.9	44.1	51.6	62.4	7,925	0.113	0.284	1,875	940
7150124	1x630	30.7	47.9	55.4	66.6	9,600	0.108	0.315	2,000	1,000
7150314	3x50	8.0	25.0	63.2	77.0	10,145	0.140	0.125	2,315	1,160
7150315	3x70	9.5	26.4	66.4	79.7	11,240	0.132	0.138	2,395	1,200
7150316	3x95	11.1	28.1	70.2	83.9	12,730	0.125	0.152	2,520	1,260
7150317	3x120	12.8	29.8	73.9	87.8	14,110	0.119	0.166	2,635	1,320
7150318	3x150	14.2	31.2	77.1	91.2	15,500	0.115	0.178	2,740	1,370



TAPE ARMoured POWER CABLES

BASIC

- 68 ARMIGRON®-F RVFAV / RVFV
- 72 ARMIGRON®-F RVFV
- 74 ARMIGRON®-F3 RVFA3V-K / RVF3V-K

HYDROCARBON RESISTANT

- 78 ARMIGRON®-F RVFAVh / RVFVh

STANDARDS:**CONSTRUCTION:** IEC 60502-1 / ISO 4892.**FIRE PERFORMANCE:** IEC 60332-1-2.**CONSTRUCTION:****1. CONDUCTOR:**Copper class 1 (up to 4 mm²) or class 2 (from 6 mm² onwards) to IEC 60228.**2. INSULATION:**

XLPE Identification by colour.

3. INNER COVERING:

PVC.

4. ARMOUR:

Steel tape for multicore or aluminium for single core.

5. SHEATH:

PVC.

APPLICATIONS:

Flame Retardant characteristic according to standard IEC 60332-1-2.

Good mechanical protection during laying, installation and service.

Resistant to the action of rodents.

Maximum conductor temperature at continuous rating 90 °C.



PHYSICAL & ELECTRICAL CHARACTERISTICS:

General Cable Code	Cross section (mm ²)	Diameters		Weight (kg/km)	Bending radius (mm)	Maximum current rating		Voltage drop	
		Under armour (mm)	Overall (mm)			Air 40 °C (A)	Buried 25 °C (A)	Cos μ = 0.8 (V/A·km)	Cos μ = 1 (V/A·km)
1085109	1x6	6.7	11.43	215	115	46	72	5.598	6.802
1085110	1x10	7.6	12.30	260	125	64	96	3.377	4.042
1085111	1x16	8.5	13.20	325	135	86	125	2.166	2.540
1085112	1x25	10.0	14.70	440	150	120	160	1.412	1.606
1085113	1x35	11.0	15.75	545	160	145	190	1.047	1.157
1085114	1x50	12.3	17.05	685	170	180	230	0.799	0.855
1085115	1x70	14.1	18.80	905	190	230	280	0.583	0.592
1085116	1x95	15.7	20.67	1,180	210	285	335	0.445	0.426
1085117	1x120	17.6	22.55	1,450	225	335	380	0.371	0.338
1085118	1x150	19.6	24.64	1,740	250	385	425	0.317	0.274
1085119	1x185	21.2	26.26	2,115	265	450	480	0.272	0.219
1085120	1x240	23.6	28.91	2,695	290	535	550	0.227	0.167
1085121	1x300	26.2	31.51	3,310	315	615	620	0.197	0.133
1085122	1x400	29.3	34.92	4,185	350	720	705	0.173	0.104
1085123	1x500	33.7	39.60	5,305	400	825	790	0.152	0.081
1085124	1x630	37.9	44.08	6,780	445	950	885	0.136	0.063
1085206	2x1.5	7.3	10.82	205	110	25	36	21.498	26.723
1085207	2x2.5	8.0	11.58	240	120	33	52	13.204	16.365
1085208	2x4	9.0	12.52	285	125	44	67	8.250	10.181
1085209	2x6	10.3	13.86	355	140	58	86	5.534	6.802
1085210	2x10	12.1	15.60	485	160	79	115	3.320	4.042
1085211	2x16	13.9	17.40	640	175	103	150	2.115	2.540
1085212	2x25	16.9	20.62	925	210	138	190	1.368	1.606
1085213	2x35	19.0	22.96	1,200	300	170	230	1.007	1.157
1085214	2x50	21.8	25.64	1,540	260	200	270	0.764	0.855
1085215	2x70	25.3	29.47	2,100	295	255	325	0.552	0.592
1085216	2x95	28.7	32.89	2,740	330	310	385	0.416	0.426
1085217	2x120	32.5	38.35	3,805	385	360	440	0.345	0.338
1085218	2x150	36.9	43.01	4,655	430	415	495	0.294	0.274
1085306	3x1.5	7.7	11.26	225	115	17	28	21.498	26.723
1085307	3x2.5	8.5	12.08	265	125	25	40	13.204	16.365
1085308	3x4	9.5	13.10	340	135	34	52	8.250	10.181
1085309	3x6	11.0	14.55	430	145	44	66	5.534	6.802
1085310	3x10	12.9	16.42	580	165	61	88	3.320	4.042
1085311	3x16	14.8	18.37	790	185	82	115	2.115	2.540
1085312	3x25	18.1	21.84	1,160	220	110	150	1.368	1.606

PHYSICAL & ELECTRICAL CHARACTERISTICS:

General Cable Code	Cross section (mm ²)	Diameters		Weight (kg/km)	Bending radius (mm)	Maximum current rating		Voltage drop	
		Under armour (mm)	Overall (mm)			Air 40 °C (A)	Buried 25 °C (A)	Cos μ = 0.8 (V/A·km)	Cos μ = 1 (V/A·km)
1085313	3x35	20.5	24.57	1,530	250	135	180	1.007	1.157
1085314	3x50	23.4	27.69	2,000	280	165	215	0.764	0.855
1085315	3x70	27.2	31.81	2,740	320	210	260	0.552	0.592
1085316	3x95	31.3	37.34	4,000	375	260	310	0.416	0.426
1085317	3x120	35.3	41.89	4,995	420	300	355	0.345	0.338
1085318	3x150	40.3	47.10	5,950	475	350	400	0.294	0.274
1085319	3x185	43.8	50.88	7,430	510	400	450	0.250	0.219
1085320	3x240	49.1	56.46	9,425	565	475	520	0.207	0.167
1085321	3x300	54.9	62.78	11,695	630	545	590	0.179	0.133
1085406	4x1.5	8.6	12.28	260	125	17	28	21.498	26.723
1085407	4x2.5	9.5	13.20	315	135	25	40	13.204	16.365
1085408	4x4	10.6	14.34	395	145	34	52	8.250	10.181
1085409	4x6	12.3	15.96	510	160	44	66	5.534	6.802
1085410	4x10	14.4	18.06	715	185	61	88	3.320	4.042
1085411	4x16	16.5	20.24	985	205	82	115	2.115	2.540
1085412	4x25	20.2	24.20	1,460	245	110	150	1.368	1.606
1085413	4x35	22.8	27.09	1,920	275	135	180	1.007	1.157
1085414	4x50	26.0	30.56	2,520	310	165	215	0.764	0.855
1085415	4x70	30.7	36.79	3,850	370	210	260	0.552	0.592
1085416	4x95	34.8	41.33	5,050	415	260	310	0.416	0.426
1085417	4x120	39.8	46.59	6,340	470	300	355	0.345	0.338
1085418	4x150	44.8	52.14	7,740	525	350	400	0.294	0.274
1085419	4x185	48.8	56.15	9,395	565	400	450	0.250	0.219
1085420	4x240	54.9	62.78	12,025	630	475	520	0.207	0.167
1085421	4x300	61.2	69.59	14,880	700	545	590	0.179	0.133
1085506	5G1.5	9.4	13.11	290	135	17	28	21.498	26.723
1085507	5G2.5	10.4	14.14	375	145	25	40	13.204	16.365
1085508	5G4	11.7	15.42	470	155	34	52	8.250	10.181
1085509	5G6	13.5	17.24	605	175	44	66	5.534	6.802
1085510	5G10	15.9	19.61	860	200	61	88	3.320	4.042
1085511	5G16	18.4	22.15	1,200	225	82	115	2.115	2.540
1085512	5G25	22.5	26.81	1,785	270	110	150	2.368	1.606
1085513	5G35	25.4	29.97	2,370	300	135	180	1.007	0.250
1085514	5G50	29.0	33.43	3,090	335	165	215	0.764	0.855
1085515	5G70	33.9	39.79	4,630	400	210	260	0.552	0.592
1085516	5G95	38.7	45.06	6,135	455	260	310	0.416	0.426



STANDARDS:**CONSTRUCTION:** IEC 60502-1 / ISO 4892.**FIRE PERFORMANCE:** IEC 60332-1-2.**CONSTRUCTION:****1. CONDUCTOR:**Copper class 1 (up to 4 mm²) or class 2 (from 6 mm² onwards) to IEC 60228.**2. INSULATION:**

XLPE Black, numbered in white.

3. INNER COVERING:

PVC.

4. ARMOUR:

Steel tape.

5. SHEATH:

PVC.

APPLICATIONS:

Flame Retardant characteristic according to standard IEC 60332-1-2.

Good mechanical protection during laying, installation and service.

Resistant to the action of rodents.

Maximum conductor temperature at continuous rating 90 °C.



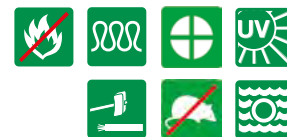
PHYSICAL & ELECTRICAL CHARACTERISTICS:

General Cable Code	Cross section (mm²)	Diameters		Weight (kg/km)	Bending radius (mm)
		Under armour (mm)	Overall (mm)		
2183066	6G1.5	10.5	14.2	350	142
2183067	6G2.5	11.5	15.2	425	152
2183068	6G4	13	16.7	550	167
2183076	7G1.5	10.4	14.1	355	141
2183077	7G2.5	11.4	15.1	435	151
2183078	7G4	12.9	16.6	565	166
2183079	7G6	14.9	18.6	740	186
2183106	10G1.5	13.2	16.9	465	169
2183107	10G2.5	14.6	18.3	590	183
2183108	10G4	16.6	20.3	785	203
2183126	12G15	13.7	17.4	500	174
2183127	12G2.5	15.1	18.8	640	188
2183137	12G4	17.2	20.9	865	209
2183146	14G1.5	14.4	18.1	550	181
2183147	14G2.5	15.9	19.6	710	196
2183148	14G4	18.1	21.9	965	219
2183166	16G1.5	15.2	18.9	605	189
2183167	16G2.5	16.8	20.6	790	206
2183196	19G1.5	16.1	19.8	670	198
2183197	19G2.5	17.8	21.6	885	216
2183246	24G1.5	18.8	22.6	825	226
2183247	24G2.5	20.9	25	1,110	250
2183276	27G1.5	19.3	23.1	880	231
2183177	27G2.5	21.4	25.5	1,190	255
2183306	30G1.5	20	24	960	240
2183307	30G2.5	22.3	26.5	1,300	265
2183376	37G1.5	21.7	25.8	1,120	258
2183377	37G2.5	24.1	28.4	1,530	284
2183446	44G1.5	24.5	28.7	1,320	287
2183486	48G1.5	25	29.1	1,395	291
2183487	48G2.5	27.8	32	1,900	320
2183526	52G1.5	25.8	29.9	1,480	299
2183527	52G2.5	28.7	32.8	2,025	328
2183566	56G1.5	26.6	30.7	1,575	307
2183606	60G1.5	27.5	31.6	1,670	316
2183616	61G1.5	27.4	31.6	1,675	316
2183617	61G2.5	30.5	36.4	2,670	364

STANDARDS:

CONSTRUCTION: IEC 60502-1 / ISO 4892.

FIRE PERFORMANCE: IEC 60332-1-2.



CONSTRUCTION:

1. CONDUCTOR:

Copper class 5 to IEC 60228.

2. INSULATION:

XLPE Identification by colour.

3. INNER COVERING:

PVC.

4. ARMOUR:

Corrugated steel tape for multicore and aluminium for single core.

5. SHEATH:

PVC.

APPLICATIONS:

Flame Retardant characteristic according to standard IEC 60332-1-2.

Good mechanical protection during laying, installation and service.

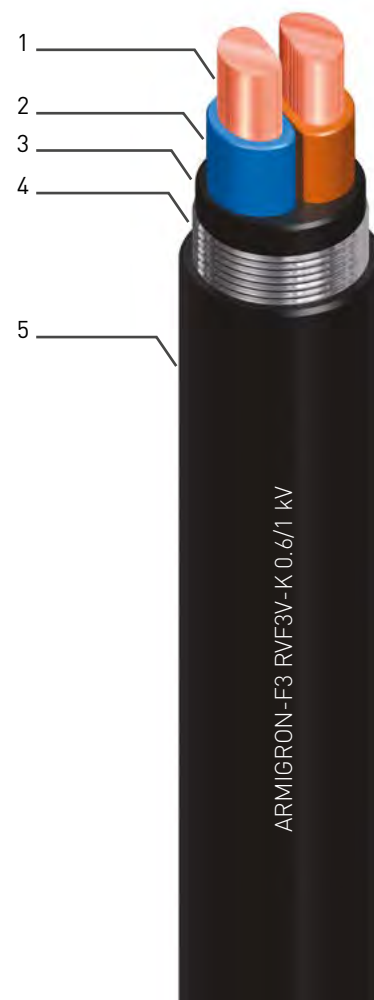
Resistant to the action of rodents.

Excellent handleability during laying and installation.

Improved watertightness.

Flexible sectoral conductor (Sectorflex®) that significantly reduces diameter and weight of the cable.

Maximum conductor temperature at continuous rating 90 °C.



PHYSICAL & ELECTRICAL CHARACTERISTICS:

General Cable Code	Cross section (mm ²)	Diameters		Weight (kg/km)	Bending radius (mm)	Maximum current rating		Voltage drop	
		Under armour (mm)	Overall (mm)			Air 40 °C (A)	Buried 25 °C (A)	Cos μ = 0.8 (V/A·km)	Cos μ = 1 (V/A·km)
1703110	1x10	7.1	12.70	255	130	64	96	3.513	4.218
1703111	1x16	8.1	13.70	320	140	86	125	2.266	2.672
1703112	1x25	9.8	15.35	425	155	120	160	1.499	1.723
1703113	1x35	10.9	16.45	535	165	145	190	1.094	1.224
1703114	1x50	12.5	18.05	690	180	180	230	0.792	0.852

General Cable Code	Cross section (mm ²)	Diameters		Weight (kg/km)	Bending radius (mm)	Maximum current rating		Voltage drop	
		Under armour (mm)	Overall (mm)			Air 40 °C (A)	Buried 25 °C (A)	Cos μ = 0.8 (V/A·km)	Cos μ = 1 (V/A·km)
1703206	2x1.5	7.6	13.15	250	135	25	36	23.607	29.374
1703207	2x2.5	8.4	13.99	290	140	33	52	14.199	17.624
1703208	2x4	9.5	15.05	345	150	44	67	8.839	10.932
1703209	2x6	10.6	16.15	410	165	58	86	5.919	7.288
1703210	2x10	12.5	18.05	550	180	79	115	3.458	4.218
1703211	2x16	14.5	20.05	720	200	103	150	2.218	2.672
1703212	2x25	17.8	23.35	1,005	235	138	190	1.458	1.723
1703213	2x35	20.0	25.55	1,265	260	170	230	1.057	1.224
1703214	2x50	23.4	29.01	1,690	290	200	270	0.759	0.852
1704215	2x70	23.2	28.96	1,960	290	255	325	0.556	0.601
1704216	2x95	25.8	31.76	2,465	320	310	385	0.438	0.455
1704217	2x120	29.2	35.21	3,070	355	360	440	0.358	0.356

PHYSICAL & ELECTRICAL CHARACTERISTICS:

General Cable Code	Cross section (mm ²)	Diameters		Weight (kg/km)	Bending radius (mm)	Maximum current rating		Voltage drop	
		Under armour (mm)	Overall (mm)			Air 40 °C (A)	Buried 25 °C (A)	Cos μ = 0.8 (V/A·km)	Cos μ = 1 (V/A·km)
1704218	2x150	32.2	38.64	3,765	390	415	495	0.302	0.285
1704219	2x185	35.6	42.44	4,550	425	485	555	0.262	0.234
1703308	3x4	10.1	15.67	390	160	34	52	8.839	10.932
1703309	3x6	11.3	16.85	475	170	44	66	5.919	7.288
1703310	3x10	13.3	18.91	645	190	61	88	3.458	4.218
1703311	3x16	15.5	21.07	860	215	82	115	2.218	2.672
1703312	3x25	19.0	24.63	1,230	250	110	150	1.458	1.723
1703313	3x35	21.6	27.24	1,590	275	135	180	1.057	1.224
1703314	3x50	25.2	30.96	2,140	310	165	215	0.759	0.852
1704315	3x70	27.2	33.24	2,590	335	210	260	0.556	0.601
1704316	3x95	30.3	36.54	3,280	365	260	310	0.438	0.455
1703406	4x1.5	8.9	14.52	305	145	17	28	23.607	29.374
1703407	4x2.5	9.9	15.53	365	155	25	40	14.199	17.624
1703408	4x4	11.2	16.82	455	170	34	52	8.839	10.932
1703409	4x6	12.5	18.15	560	185	44	66	5.919	7.288
1703410	4x10	14.8	20.45	780	205	61	88	3.458	4.218
1703411	4x16	17.3	22.87	1,060	230	82	115	2.218	2.672
1703412	4x25	21.3	26.94	1,515	270	110	150	1.458	1.723
1703413	4x35	24.0	29.65	1,970	300	135	180	1.057	1.224
1703414	4x50	28.0	33.79	2,660	340	165	215	0.759	0.852
1704415	4x70	30.1	36.34	3,380	365	210	260	0.556	0.601
1704416	4x95	33.6	39.99	4,295	400	260	310	0.438	0.455
1703508	5x4	12.4	17.97	530	180	34	52	8.839	10.932
1703509	5x6	13.9	19.47	655	195	44	66	5.919	7.288
1703510	5x10	16.5	22.05	925	225	61	88	3.458	4.218
1703511	5x16	19.2	24.77	1,270	250	82	115	2.218	2.672
1703512	5x25	23.8	29.38	1,845	295	110	150	1.458	1.723
1703513	5x35	26.8	32.63	2,420	330	135	180	1.057	1.224
1703514	5x50	31.3	37.26	3,280	375	165	215	0.759	0.852



STANDARDS:

CONSTRUCTION: IEC 60502-1 / UIC 895 OR / ISO 4892.

FIRE PERFORMANCE: IEC 60332-3 (categories A and C) / IEC 60332-1-2.



CONSTRUCTION:

1. CONDUCTOR:

Copper class 1 (up to 4 mm²) or class 2 (from 6 mm² onwards) to IEC 60228.

2. INSULATION:

XLPE Identification by colour.

3. INNER COVERING:

PVC.

4. ARMOUR:

Steel tape for multicore or aluminium for single core.

5. SHEATH:

Hydrocarbon resistant PVC.

APPLICATIONS:

Flame Retardant characteristic according to standard IEC 60332-1-2.

Good mechanical protection during laying, installation and service.

Resistant to the action of rodents.

Fire Retardant (Unfire®) characteristic according to standard IEC 60332-3, categories A or C.

Resistance to hydrocarbons.

Maximum conductor temperature at continuous rating 90 °C.



PHYSICAL & ELECTRICAL CHARACTERISTICS:

CATEGORY A

General Cable Code	Cross section (mm ²)	Diameters		Weight (kg/km)	Bending radius (mm)	Maximum current rating		Voltage drop	
		Under armour (mm)	Overall (mm)			Air 40 °C (A)	Buried 25 °C (A)	Cos μ = 0.8 (V/A·km)	Cos μ = 1 (V/A·km)
1091110	1x10	8.1	13.7	285	140	64	96	3.384	4.042
1091111	1x16	8.9	14.5	350	145	86	125	2.173	2.540
1091112	1x25	10.5	16.1	465	165	120	160	1.417	1.606
1091113	1x35	11.7	17.3	575	175	145	190	1.051	1.157
1091114	1x50	12.8	18.4	710	185	180	230	0.804	0.855
1091115	1x70	14.7	20.3	935	205	230	280	0.587	0.592
1091116	1x95	16.5	22.1	1,200	225	285	335	0.448	0.426
1091118	1x150	20.0	25.6	1,745	260	385	425	0.320	0.274
1091121	1x300	26.9	32.9	3,310	330	615	620	0.200	0.133
1091122	1x400	30.5	36.7	4,155	370	720	705	0.174	0.104
1091123	1x500	34.2	40.6	5,335	410	825	790	0.154	0.081
1091124	1x630	38.0	44.6	6,655	450	950	885	0.137	0.063
1091206	2x1.5	8.4	12.8	255	130	25	36	21.50	26.72
1091207	2x2.5	9.1	13.5	290	135	33	52	13.21	16.37
1091208	2x4	10.0	14.4	350	145	44	67	8.252	10.18
1091209	2x6	11.6	16.0	445	160	58	86	5.536	6.802
1091210	2x10	13.3	17.7	575	180	79	115	3.322	4.042
1091211	2x16	15.2	19.6	765	200	103	150	2.117	2.540
1091212	2x25	18.4	22.8	1,070	230	138	190	1.370	1.606
1091213	2x35	21.2	25.6	1,395	260	170	230	1.009	1.157
1091214	2x50	23.4	28.0	1,750	280	200	270	0.766	0.855
1091215	2x70	27.2	32.0	2,360	320	255	325	0.553	0.592
1091216	2x95	31.3	37.5	3,430	375	310	385	0.417	0.426
1091217	2x120	34.1	40.5	4,115	405	360	440	0.346	0.338
1091218	2x150	38.5	45.1	5,035	455	415	495	0.295	0.274
1091219	2x185	42.7	49.9	6,170	500	485	555	0.251	0.219
1091220	2x240	47.7	55.1	7,745	555	565	635	0.208	0.167
1091221	2x300	52.7	60.3	9,445	605	660	720	0.181	0.133
1091306	3x1.5	8.8	13.2	275	135	17	28	21.50	26.72
1091307	3x2.5	9.6	14.0	325	140	25	40	13.21	16.37
1091308	3x4	10.6	15.0	395	150	34	52	8.252	10.18
1091309	3x6	12.3	16.7	505	170	44	66	5.536	6.802
1091310	3x10	14.1	18.5	675	185	61	88	3.322	4.042
1091311	3x16	16.2	20.6	910	210	82	115	2.117	2.540
1091312	3x25	19.6	24.0	1,300	240	110	150	1.370	1.606
1091313	3x35	22.6	27.0	1,705	270	135	180	1.009	1.157
1091314	3x50	25.0	29.6	2,165	300	165	215	0.766	0.855

PHYSICAL & ELECTRICAL CHARACTERISTICS:

CATEGORY A

General Cable Code	Cross section (mm ²)	Diameters		Weight (kg/km)	Bending radius (mm)	Maximum current rating		Voltage drop	
		Under armour (mm)	Overall (mm)			Air 40 °C (A)	Buried 25 °C (A)	Cos μ = 0.8 (V/A·km)	Cos μ = 1 (V/A·km)
1091315	3x70	29.1	33.9	2,955	340	210	260	0.553	0.592
1091316	3x95	33.7	39.9	4,285	400	260	310	0.417	0.426
1091317	3x120	36.7	43.3	5,195	435	300	355	0.346	0.338
1091318	3x150	41.6	48.6	6,405	490	350	400	0.295	0.274
1091319	3x185	46.2	53.4	7,810	535	400	450	0.251	0.219
1091320	3x240	51.4	58.8	9,835	590	475	520	0.208	0.167
1091321	3x300	56.7	64.5	12,080	645	545	590	0.181	0.133
1091406	4x1.5	9.5	13.9	305	140	17	28	21.50	26.72
1091407	4x2.5	10.4	14.9	365	150	25	40	13.21	16.37
1091408	4x4	11.5	15.9	460	160	34	52	8.252	10.18
1091409	4x6	13.4	17.8	585	180	44	66	5.536	6.802
1091410	4x10	15.5	19.9	800	200	61	88	3.322	4.042
1091411	4x16	17.7	22.1	1,095	225	82	115	2.117	2.540
1091412	4x25	21.6	26.0	1,580	260	110	150	1.370	1.606
1091413	4x35	24.9	29.5	2,095	295	135	180	1.009	1.157
1091414	4x50	27.6	32.4	2,435	325	165	215	0.766	0.855
1091415	4x70	32.7	38.9	4,030	390	210	260	0.553	0.592
1091416	4x95	37.2	43.8	5,295	440	260	310	0.417	0.426
1091417	4x120	41.0	48.0	6,500	480	300	355	0.346	0.338
1091418	4x150	46.1	53.5	7,935	535	350	400	0.295	0.274
1091419	4x185	51.2	58.6	9,660	590	400	450	0.251	0.219
1091420	4x240	57.2	65.0	12,300	650	475	520	0.208	0.167
1091421	4x300	63.0	71.4	15,125	715	545	590	0.181	0.133
1091506	5x1.5	10.4	14.8	345	150	17	28	21.50	26.72
1091507	5x2.5	11.4	15.8	425	160	25	40	13.21	16.37
1091508	5x4	12.6	17.0	525	170	34	52	8.252	10.18
1091509	5x6	14.7	19.1	685	195	44	66	5.536	6.802
1091510	5x10	17.0	21.4	940	215	61	88	3.322	4.042
1091511	5x16	19.5	23.9	1,295	240	82	115	2.117	2.540
1091512	5x25	23.9	28.5	1,900	285	110	150	1.370	1.606
1091513	5x35	27.5	32.3	2,515	325	135	180	1.009	1.157
1091514	5x50	30.8	37.0	3,565	370	165	215	0.766	0.855
1091515	5x70	36.0	42.6	4,840	430	210	260	0.553	0.592
1091516	5x95	41.3	48.3	6,425	485	260	310	0.417	0.426
1091517	5x120	45.3	52.7	7,860	530	300	355	0.346	0.338
1091518	5x150	51.2	58.8	9,610	590	350	400	0.295	0.274

PHYSICAL & ELECTRICAL CHARACTERISTICS:

CATEGORY C

General Cable Code	Cross section (mm ²)	Diameters		Weight (kg/km)	Bending radius (mm)	Maximum current rating		Voltage drop	
		Under armour (mm)	Overall (mm)			Air 40 °C (A)	Buried 25 °C (A)	Cos μ = 0.8 (V/A-km)	Cos μ = 1 (V/A-km)
1086109	1x6	7.2	12.2	215	125	46	72	5.602	6.802
1086110	1x10	8.1	13.1	260	130	64	96	3.381	4.042
1086111	1x16	8.9	13.9	325	140	86	125	2.170	2.540
1086112	1x25	10.5	15.5	440	155	120	160	1.415	1.606
1086113	1x35	11.7	16.7	550	170	145	190	1.049	1.157
1086114	1x50	12.8	17.8	680	180	180	230	0.802	0.855
1086115	1x70	14.7	19.7	900	200	230	280	0.585	0.592
1086116	1x95	16.5	21.6	1,170	220	285	335	0.446	0.426
1086117	1x120	17.9	23.0	1,420	230	335	380	0.373	0.338
1086118	1x150	20.0	25.2	1,715	255	385	425	0.319	0.274
1086119	1x185	22.1	27.3	2,090	275	450	480	0.273	0.219
1086120	1x240	24.5	29.8	2,655	300	535	550	0.228	0.167
1086121	1x300	26.9	32.5	3,270	325	615	620	0.199	0.133
1086122	1x400	30.5	36.4	4,115	365	720	705	0.173	0.104
1086123	1x500	34.2	40.4	5,295	405	825	790	0.153	0.081
1086124	1x630	38.0	44.4	6,620	445	950	885	0.137	0.063
1086206	2x1.5	7.8	11.6	215	120	25	36	21.50	26.72
1086207	2x2.5	8.5	12.3	245	125	33	52	13.21	16.37
1086208	2x4	9.4	13.2	295	135	44	67	8.252	10.18
1086209	2x6	10.8	14.6	365	150	58	86	5.536	6.802
1086210	2x10	12.5	16.3	490	165	79	115	3.322	4.042
1086211	2x16	14.2	18.0	650	180	103	150	2.117	2.540
1086212	2x25	17.4	21.3	935	215	138	190	1.370	1.606
1086213	2x35	19.8	24.0	1,215	240	170	230	1.009	1.157
1086214	2x50	22.1	26.5	1,545	265	200	270	0.766	0.855
1086215	2x70	26.0	30.7	2,125	310	255	325	0.553	0.592
1086216	2x95	29.6	34.7	2,800	350	310	385	0.417	0.426
1086217	2x120	32.8	39.3	3,780	395	360	440	0.346	0.338
1086218	2x150	37.5	44.3	4,675	445	415	495	0.295	0.274
1086219	2x185	41.8	49.1	5,740	495	485	555	0.251	0.219
1086220	2x240	46.9	54.6	7,255	550	565	635	0.208	0.167
1086221	2x300	52.0	60.0	8,895	600	660	720	0.181	0.133
1086306	3x1.5	8.2	12.0	235	120	17	28	21.50	26.72
1086307	3x2.5	9.0	12.8	275	130	25	40	13.21	16.37
1086308	3x4	10.0	13.8	340	140	34	52	8.252	10.18
1086309	3x6	11.5	15.3	435	155	44	66	5.536	6.802
1086310	3x10	13.3	17.1	590	175	61	88	3.322	4.042
1086311	3x16	15.2	19.0	800	190	82	115	2.117	2.540
1086312	3x25	18.6	22.5	1,170	225	110	150	1.370	1.606

PHYSICAL & ELECTRICAL CHARACTERISTICS:

CATEGORY C

General Cable Code	Cross section (mm ²)	Diameters		Weight (kg/km)	Bending radius (mm)	Maximum current rating		Voltage drop	
		Under armour (mm)	Overall (mm)			Air 40 °C (A)	Buried 25 °C (A)	Cos μ = 0.8 (V/A·km)	Cos μ = 1 (V/A·km)
1086313	3x35	21.3	25.5	1,535	255	135	180	1.009	1.157
1086314	3x50	23.7	28.2	1,980	285	165	215	0.766	0.855
1086315	3x70	27.9	32.7	2,730	330	210	260	0.553	0.592
1086316	3x95	32.6	38.9	4,015	390	260	310	0.417	0.426
1086317	3x120	35.7	42.5	4,910	425	300	355	0.346	0.338
1086318	3x150	40.7	47.8	6,060	480	350	400	0.295	0.274
1086319	3x185	45.3	52.8	7,430	530	400	450	0.251	0.219
1086320	3x240	50.6	58.4	9,415	585	475	520	0.208	0.167
1086321	3x300	56.1	64.5	11,630	645	545	590	0.181	0.133
1086406	4x1.5	9.0	12.8	260	130	17	28	21.50	26.72
1086407	4x2.5	9.9	13.7	315	140	25	40	13.21	16.37
1086408	4x4	11.0	14.8	395	150	34	52	8.252	10.18
1086409	4x6	12.6	16.5	510	165	44	66	5.536	6.802
1086410	4x10	14.7	18.5	715	185	61	88	3.322	4.042
1086411	4x16	16.8	20.6	985	210	82	115	2.117	2.540
1086412	4x25	20.6	24.8	1,450	250	110	150	1.370	1.606
1086413	4x35	23.6	28.1	1,915	285	135	180	1.009	1.157
1086414	4x50	26.3	31.1	2,290	310	165	215	0.766	0.855
1086415	4x70	31.4	36.5	3,470	365	210	260	0.553	0.592
1086416	4x95	36.2	43.0	5,045	430	260	310	0.417	0.426
1086417	4x120	40.1	47.2	6,225	475	300	355	0.346	0.338
1086418	4x150	45.2	52.9	7,600	530	350	400	0.295	0.274
1086419	4x185	50.4	58.2	9,305	585	400	450	0.251	0.219
1086420	4x240	56.6	64.9	11,960	650	475	520	0.208	0.167
1086421	4x300	62.5	71.4	14,725	715	545	590	0.181	0.133
1086506	5x1.5	9.8	13.6	295	140	17	28	21.50	26.72
1086507	5x2.5	10.8	14.7	365	150	25	40	13.21	16.37
1086508	5x4	12.1	15.9	465	160	34	52	8.252	10.18
1086509	5x6	13.9	17.8	595	180	44	66	5.536	6.802
1086510	5x10	16.2	20.1	850	205	61	88	3.322	4.042
1086511	5x16	18.6	22.5	1,180	225	82	115	2.117	2.540
1086512	5x25	23.0	27.4	1,770	275	110	150	1.370	1.606
1086513	5x35	26.3	31.0	2,340	310	135	180	1.009	1.157
1086514	5x50	29.7	35.9	3,360	360	165	215	0.766	0.855
1086515	5x70	34.9	41.7	4,610	420	210	260	0.553	0.592
1086516	5x95	40.4	47.5	6,200	475	260	310	0.417	0.426
1086517	5x120	44.4	52.1	7,585	525	300	355	0.346	0.338
1086518	5x150	50.5	58.5	9,295	585	350	400	0.295	0.274



INSTRUMENTATION CABLES

BASIC

- 86 GENINST E02V-K / E02V
- 90 GENINST E0102V-K / E0102V
- 94 GENINST E02VMV-K / E02VMV
- 98 GENINST E0102VMV-K / E0102VMV

HYDROCARBON RESISTANT

- 102 GENINST E02VLVhMVh-K / E02VLVhMVh
- 106 GENINST E0102VLVhMVh-K / E0102VLVhMVh

LOW FIRE HAZARD

- 110 EXZHELLENT® E02Z1-K / E02Z1
- 114 EXZHELLENT® E0102Z1-K / E0102Z1
- 118 EXZHELLENT®-M E02Z1MZ1-K / E02Z1MZ1
- 122 EXZHELLENT®-M E0102Z1MZ1-K / E0102Z1MZ1

FIRE RESISTANT

- 126 GENFIRE® E02Z1-M
- 130 GENFIRE® E0102Z1-M
- 134 GENFIRE®-M E02Z1MZ1-M
- 138 GENFIRE®-M E0102Z1MZ1-M

STANDARDS:

CONSTRUCTION: BS 5308 Part 1 Type 1.
FIRE PERFORMANCE: IEC 60332-1-2.

**CONSTRUCTION:**

- 1. CONDUCTOR:**
Copper class 1 or class 5 to IEC 60228.
- 2. INSULATION:**
Polyethylene Black and blue numbered pairs.
- 3. OVERALL SCREEN:**
Aluminium bonded to polyester tape with drain wire.
- 4. SHEATH:**
PVC.

APPLICATIONS:

Good electromagnetic protection from external influence.
Flame Retardant according to IEC 60332-1-2.
Option class 5 provides extra flexibility.



PHYSICAL & ELECTRICAL CHARACTERISTICS:

CONDUCTOR CLASS 1

Code	Cross section (mm ²)	Diameters		Weight (kg/km)	Bending radius. Operation (mm)	Mutual capacitance (μF/km)	Inductance (mH/km)
		Under screen (mm)	Overall (mm)				
4174013	1x2x0.5	4.1	5.8	55	35	0.063	1.581
4174014	1x2x0.75	4.5	6.2	60	40	0.073	1.466
4174015	1x2x1	4.8	6.5	70	40	0.079	1.404
4174016	1x2x1.5	5.3	7.0	85	45	0.093	1.307
4174023	1x4x0.5	4.9	6.7	70	40	0.045	1.581
4174024	1x4x0.75	5.4	7.1	80	45	0.050	1.466
4174025	1x4x1	5.7	7.5	95	45	0.054	1.404
4174026	1x4x1.5	6.4	8.3	125	50	0.059	1.307
4174053	5x2x0.5	8.5	10.8	160	65	0.052	1.581
4174054	5x2x0.75	9.3	11.6	195	70	0.056	1.466
4174055	5x2x1	9.9	12.4	235	75	0.059	1.404
4174056	5x2x1.5	11.0	13.5	300	85	0.063	1.307
4174103	10x2x0.5	12.1	14.6	265	90	0.052	1.581
4174104	10x2x0.75	13.3	15.8	335	95	0.056	1.466
4174105	10x2x1	14.1	16.6	395	100	0.059	1.404
4174106	10x2x1.5	15.7	18.4	520	110	0.063	1.307
4174153	15x2x0.5	13.7	16.4	365	100	0.052	1.581
4174154	15x2x0.75	15.0	17.7	465	110	0.056	1.466
4174155	15x2x1	16.0	18.7	550	115	0.059	1.404
4174156	15x2x1.5	17.8	20.9	740	125	0.063	1.307
4174203	20x2x0.5	16.1	18.8	470	115	0.052	1.581
4174204	20x2x0.75	17.7	20.4	600	125	0.056	1.466
4174205	20x2x1	18.7	21.9	735	135	0.059	1.404
4174206	20x2x1.5	20.9	24.0	965	145	0.063	1.307
4174303	30x2x0.5	19.7	22.4	665	135	0.052	1.581
4174304	30x2x0.75	21.6	24.3	855	150	0.056	1.466
4174305	30x2x1	22.9	26.1	1,050	160	0.059	1.404
4174306	30x2x1.5	25.6	29.1	1,420	175	0.063	1.307
4174503	50x2x0.5	25.7	28.8	1,080	175	0.052	1.581
4174504	50x2x0.75	28.2	31.3	1,395	190	0.056	1.466
4174505	50x2x1	29.9	34.0	1,760	205	0.059	1.404
4174506	50x2x1.5	33.4	37.5	2,330	225	0.063	1.307

PHYSICAL & ELECTRICAL CHARACTERISTICS:

CONDUCTOR CLASS 5

Code	Cross section (mm ²)	Diameters		Weight (kg/km)	Bending radius. Operation (mm)	Mutual capacitance (μF/km)	Inductance (mH/km)
		Under screen (mm)	Overall (mm)				
4174013	1x2x0.5	4.1	5.8	55	35	0.063	1.581
4174014	1x2x0.75	4.5	6.2	60	40	0.073	1.466
4174015	1x2x1	4.8	6.5	70	40	0.079	1.404
4174016	1x2x1.5	5.3	7.0	85	45	0.093	1.307
4174023	1x4x0.5	4.9	6.7	70	40	0.045	1.581
4174024	1x4x0.75	5.4	7.1	80	45	0.050	1.466
4174025	1x4x1	5.7	7.5	95	45	0.054	1.404
4174026	1x4x1.5	6.4	8.3	125	50	0.059	1.307
4174053	5x2x0.5	8.5	10.8	160	65	0.052	1.581
4174054	5x2x0.75	9.3	11.6	195	70	0.056	1.466
4174055	5x2x1	9.9	12.4	235	75	0.059	1.404
4174056	5x2x1.5	11.0	13.5	300	85	0.063	1.307
4174103	10x2x0.5	12.1	14.6	265	90	0.052	1.581
4174104	10x2x0.75	13.3	15.8	335	95	0.056	1.466
4174105	10x2x1	14.1	16.6	395	100	0.059	1.404
4174106	10x2x1.5	15.7	18.4	520	110	0.063	1.307
4174153	15x2x0.5	13.7	16.4	365	100	0.052	1.581
4174154	15x2x0.75	15.0	17.7	465	110	0.056	1.466
4174155	15x2x1	16.0	18.7	550	115	0.059	1.404
4174156	15x2x1.5	17.8	20.9	740	125	0.063	1.307
4174203	20x2x0.5	16.1	18.8	470	115	0.052	1.581
4174204	20x2x0.75	17.7	20.4	600	125	0.056	1.466
4174205	20x2x1	18.7	21.9	735	135	0.059	1.404
4174206	20x2x1.5	20.9	24.0	965	145	0.063	1.307
4174303	30x2x0.5	19.7	22.4	665	135	0.052	1.581
4174304	30x2x0.75	21.6	24.3	855	150	0.056	1.466
4174305	30x2x1	22.9	26.1	1,050	160	0.059	1.404
4174306	30x2x1.5	25.6	29.1	1,420	175	0.063	1.307
4174503	50x2x0.5	25.7	28.8	1,080	175	0.052	1.581
4174504	50x2x0.75	28.2	31.3	1,395	190	0.056	1.466
4174505	50x2x1	29.9	34.0	1,760	205	0.059	1.404
4174506	50x2x1.5	33.4	37.5	2,330	225	0.063	1.307



STANDARDS:

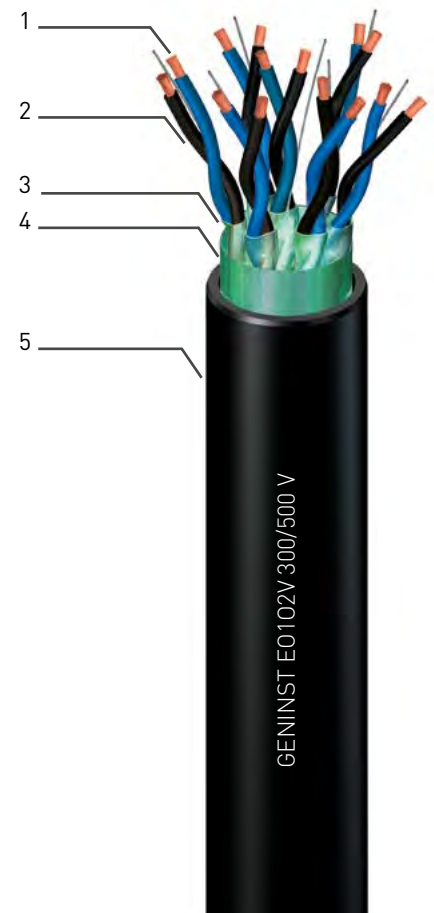
CONSTRUCTION: BS 5308 Part 1 Type 1.
FIRE PERFORMANCE: IEC 60332-1-2.

**CONSTRUCTION:**

- 1. CONDUCTOR:**
Copper class 1 or class 5 to IEC 60228.
- 2. INSULATION:**
Polyethylene Black and blue numbered pairs.
- 3. INDIVIDUAL SCREEN:**
Aluminium bonded to polyester tape with drain wire.
- 4. OVERALL SCREEN:**
Aluminium bonded to polyester tape with drain wire.
- 5. SHEATH:**
PVC.

APPLICATIONS:

Signal protection between pairs.
Good electromagnetic protection from external influence.
Flame Retardant according to IEC 60332-1-2.
Option class 5 provides extra flexibility.



PHYSICAL & ELECTRICAL CHARACTERISTICS:

CONDUCTOR CLASS 1

General Cable Code	Cross section (mm ²)	Diameters			Weight (kg/km)	Bending radius. Operation (mm)	Mutual capacitance (μF/km)	Inductance (mH/km)
		Under individual screen (mm)	Under overall screen (mm)	Overall (mm)				
4175023	2x2x0.5	4.1	7.8	9.7	125	60	0.063	1.581
4175024	2x2x0.75	4.5	8.5	10.4	150	65	0.073	1.466
4175025	2x2x1	4.8	9.0	11.3	180	70	0.079	1.404
4175026	2x2x1.5	5.3	9.9	12.5	220	75	0.093	1.307
4175053	5x2x0.5	4.1	10.6	13.1	230	80	0.063	1.581
4175054	5x2x0.75	4.5	11.5	14.0	270	85	0.073	1.466
4175055	5x2x1	4.8	12.2	14.7	305	90	0.079	1.404
4175056	5x2x1.5	5.3	13.5	16.2	380	100	0.093	1.307
4175103	10x2x0.5	4.1	15.5	18.0	390	110	0.063	1.581
4175104	10x2x0.75	4.5	16.9	19.4	465	120	0.073	1.466
4175105	10x2x1	4.8	17.9	20.6	540	125	0.079	1.404
4175106	10x2x1.5	5.3	19.8	22.9	690	140	0.093	1.307
4175153	15x2x0.5	4.1	18.3	21.0	545	130	0.063	1.581
4175154	15x2x0.75	4.5	19.9	22.6	660	140	0.073	1.466
4175155	15x2x1	4.8	21.0	24.2	780	145	0.079	1.404
4175156	15x2x1.5	5.3	23.3	26.8	990	165	0.093	1.307
4175203	20x2x0.5	4.1	20.7	23.4	695	140	0.063	1.581
4175204	20x2x0.75	4.5	22.5	25.2	845	155	0.073	1.466
4175205	20x2x1	4.8	23.8	27.3	1,025	165	0.079	1.404
4175206	20x2x1.5	5.3	26.4	29.9	1,265	180	0.093	1.307
4175303	30x2x0.5	4.1	24.8	27.9	1,015	170	0.063	1.581
4175304	30x2x0.75	4.5	27.0	30.2	1,235	185	0.073	1.466
4175305	30x2x1	4.8	28.6	32.7	1,500	200	0.079	1.404
4175306	30x2x1.5	5.3	31.7	35.8	1,865	215	0.093	1.307
4175503	50x2x0.5	4.1	32.5	36.6	1,705	220	0.063	1.581
4175504	50x2x0.75	4.5	35.4	39.5	2,070	240	0.073	1.466
4175505	50x2x1	4.8	37.5	42.0	2,430	255	0.079	1.404
4175506	50x2x1.5	5.3	41.5	46.0	3,030	280	0.093	1.307

PHYSICAL & ELECTRICAL CHARACTERISTICS:

CONDUCTOR CLASS 5

General Cable Code	Cross section (mm ²)	Diameters			Weight (kg/km)	Bending radius. Operation (mm)	Mutual capacitance (μF/km)	Inductance (mH/km)
		Under individual screen (mm)	Under overall screen (mm)	Overall (mm)				
4182023	2x2x0.5	4.3	8.2	10.5	145	65	0.063	1.517
4182024	2x2x0.75	4.7	8.9	11.2	165	70	0.072	1.416
4182025	2x2x1	5.0	9.4	11.7	185	70	0.079	1.357
4182026	2x2x1.5	5.5	10.3	12.8	220	80	0.091	1.279
4182053	5x2x0.5	4.3	11.1	13.6	235	85	0.063	1.517
4182054	5x2x0.75	4.7	12.0	14.5	280	90	0.072	1.416
4182055	5x2x1	5.0	12.8	15.3	310	95	0.079	1.357
4182056	5x2x1.5	5.5	14.0	16.7	380	100	0.091	1.279
4182103	10x2x0.5	4.3	16.2	18.9	410	115	0.063	1.517
4182104	10x2x0.75	4.7	17.6	20.4	490	125	0.072	1.416
4182105	10x2x1	5.0	18.7	21.4	550	130	0.079	1.357
4182106	10x2x1.5	5.5	20.5	23.6	685	145	0.091	1.279
4182153	15x2x0.5	4.3	19.1	22.2	585	135	0.063	1.517
4182154	15x2x0.75	4.7	20.8	23.9	705	145	0.072	1.416
4182155	15x2x1	5.0	22.1	25.2	790	155	0.079	1.357
4182156	15x2x1.5	5.5	24.2	27.7	980	170	0.091	1.279
4182203	20x2x0.5	4.3	21.6	24.7	735	150	0.063	1.517
4182204	20x2x0.75	4.7	23.5	26.6	895	160	0.072	1.416
4182205	20x2x1	5.0	24.9	28.4	1,035	175	0.079	1.357
4182206	20x2x1.5	5.5	27.3	30.8	1,250	185	0.091	1.279
4182303	30x2x0.5	4.3	26.0	29.5	1,070	180	0.063	1.517
4182304	30x2x0.75	4.7	28.2	31.8	1,300	195	0.072	1.416
4182305	30x2x1	5.0	30.0	34.1	1,520	205	0.079	1.357
4182306	30x2x1.5	5.5	32.8	36.9	1,840	225	0.091	1.279
4182503	50x2x0.5	4.3	34.0	38.5	1,785	235	0.063	1.517
4182504	50x2x0.75	4.7	37.0	41.5	2,175	250	0.072	1.416
4182505	50x2x1	5.0	39.3	43.8	2,455	265	0.079	1.357
4182506	50x2x1.5	5.5	43.0	47.5	2,980	285	0.091	1.279



STANDARDS:

CONSTRUCTION: BS 5308 Part 1 Type 2.

FIRE PERFORMANCE: IEC 60332-1-2 / IEC 60332-3 (category C).

**CONSTRUCTION:****1. CONDUCTOR:**

Copper class 1 or class 5 to IEC 60228.

2. INSULATION:

Polyethylene Black and blue numbered pairs.

3. OVERALL SCREEN:

Aluminium bonded to polyester tape with drain wire.

4. INNER COVERING:

PVC.

5. ARMOUR:

Galvanised steel wires.

6. SHEATH:

PVC.

APPLICATIONS:

Good electromagnetic protection from external influence.

Flame Retardant according to IEC 60332-1-2.

Fire Retardant (Unfire®) according to IEC 60332-3, category C.

Excellent mechanical protection during laying, installation and service.

Highly recommended in areas with high risk of explosion or fire.

Extra pulling force. Armour can be used to pull the cable.

Option class 5 provides extra flexibility.



PHYSICAL & ELECTRICAL CHARACTERISTICS:

CONDUCTOR CLASS 1

General Cable Code	Cross section (mm ²)	Diameters			Weight (kg/km)	Bending radius. Operation (mm)	Mutual capacitance (µF/km)	Inductance (mH/km)
		Under individual screen (mm)	Under overall screen (mm)	Overall (mm)				
4176013	1x2x0.5	4.1	5.8	10.2	225	105	0.063	1.581
4176014	1x2x0.75	4.5	6.2	10.6	245	110	0.073	1.466
4176015	1x2x1	4.8	6.5	10.9	260	110	0.079	1.404
4176016	1x2x1.5	5.3	7.0	11.6	295	120	0.093	1.307
4176023	1x4x0.5	4.9	6.7	11.1	255	115	0.045	1.581
4176024	1x4x0.75	5.4	7.1	11.5	285	115	0.050	1.466
4176025	1x4x1	5.7	7.5	12.3	320	125	0.054	1.404
4176026	1x4x1.5	6.4	8.3	12.9	365	130	0.059	1.307
4176053	5x2x0.5	8.5	10.8	15.4	450	155	0.052	1.581
4176054	5x2x0.75	9.3	11.6	16.2	510	165	0.056	1.466
4176055	5x2x1	9.9	12.4	17.9	665	180	0.059	1.404
4176056	5x2x1.5	11.0	13.5	19.2	770	195	0.063	1.307
4176094	9x2x0.75	13.3	15.8	21.5	865	215	0.056	1.466
4176103	10x2x0.5	12.1	14.6	20.3	775	205	0.052	1.581
4176104	10x2x0.75	13.3	15.8	21.5	885	215	0.056	1.466
4176105	10x2x1	14.1	16.6	22.5	980	225	0.059	1.404
4176106	10x2x1.5	15.7	18.4	25.2	1,300	255	0.063	1.307
4176153	15x2x0.5	13.7	16.2	21.9	920	220	0.052	1.581
4176154	15x2x0.75	15.0	17.5	23.2	1,060	235	0.056	1.466
4176155	15x2x1	16.0	18.7	25.5	1,350	255	0.059	1.404
4176156	15x2x1.5	17.8	20.9	27.9	1,645	280	0.063	1.307
4176203	20x2x0.5	16.1	18.8	25.4	1,255	255	0.052	1.581
4176204	20x2x0.75	17.7	20.4	27.0	1,450	270	0.056	1.466
4176205	20x2x1	18.7	21.9	28.7	1,665	290	0.059	1.404
4176206	20x2x1.5	20.9	24.0	31.0	2,000	310	0.063	1.307
4176303	30x2x0.5	19.7	22.4	29.2	1,615	295	0.052	1.581
4176304	30x2x0.75	21.6	24.3	31.1	1,875	315	0.056	1.466
4176305	30x2x1	22.9	26.1	33.3	2,175	335	0.059	1.404
4176306	30x2x1.5	25.6	29.1	37.3	2,915	375	0.063	1.307
4176503	50x2x0.5	25.7	28.4	35.6	2,280	360	0.052	1.581
4176504	50x2x0.75	28.2	30.9	38.1	2,685	385	0.056	1.466
4176505	50x2x1	29.9	34.0	42.4	3,545	425	0.059	1.404
4176506	50x2x1.5	33.4	37.5	47.3	4,710	475	0.063	1.307

PHYSICAL & ELECTRICAL CHARACTERISTICS:
CONDUCTOR CLASS 5

General Cable Code	Cross section (mm ²)	Diameters			Weight (kg/km)	Bending radius, Operation (mm)	Mutual capacitance (µF/km)	Inductance (mH/km)
		Under individual screen (mm)	Under overall screen (mm)	Overall (mm)				
4183013	1x2x0.5	4.3	6.0	10.4	230	105	0.063	1.517
4183014	1x2x0.75	4.7	6.4	10.8	250	110	0.072	1.416
4183015	1x2x1	5.0	6.7	11.1	265	115	0.079	1.357
4183016	1x2x1.5	5.5	7.2	11.8	295	120	0.091	1.279
4183023	1x4x0.5	5.2	6.9	11.3	265	115	0.045	1.517
4183024	1x4x0.75	5.7	7.4	11.8	295	120	0.049	1.416
4183025	1x4x1	6.0	7.7	12.6	325	125	0.052	1.357
4183026	1x4x1.5	6.6	8.6	13.2	370	135	0.057	1.279
4183053	5x2x0.5	8.9	11.2	16.0	470	160	0.050	1.517
4183054	5x2x0.75	9.8	12.1	16.9	530	170	0.054	1.416
4183055	5x2x1	10.4	12.9	18.4	685	185	0.056	1.357
4183056	5x2x1.5	11.4	14.0	19.7	780	200	0.060	1.279
4183103	10x2x0.5	12.7	15.2	20.9	800	210	0.050	1.517
4183104	10x2x0.75	13.9	16.4	22.1	910	225	0.054	1.416
4183105	10x2x1	14.8	17.3	23.2	1,005	235	0.056	1.357
4183106	10x2x1.5	16.3	19.0	25.8	1,330	260	0.060	1.279
4183153	15x2x0.5	14.4	17.1	23.7	1,100	240	0.050	1.517
4183154	15x2x0.75	15.7	18.5	25.1	1,260	255	0.054	1.416
4183155	15x2x1	16.8	19.5	26.3	1,380	265	0.056	1.357
4183156	15x2x1.5	18.5	21.6	28.6	1,650	290	0.060	1.279
4183203	20x2x0.5	16.9	19.6	26.4	1,325	265	0.050	1.517
4183204	20x2x0.75	18.5	21.2	28.0	1,520	280	0.054	1.416
4183205	20x2x1	19.7	22.8	29.6	1,715	300	0.056	1.357
4183206	20x2x1.5	21.7	24.8	31.8	2,000	320	0.060	1.279
4183303	30x2x0.5	20.7	23.8	30.8	1,720	310	0.050	1.517
4183304	30x2x0.75	22.6	25.8	32.8	2,005	330	0.054	1.416
4183305	30x2x1	24.1	27.2	34.4	2,245	345	0.056	1.357
4183306	30x2x1.5	26.6	30.1	38.3	2,945	385	0.060	1.279
4183503	50x2x0.5	27.0	30.5	38.7	2,705	390	0.050	1.517
4183504	50x2x0.75	29.5	33.1	41.3	3,160	415	0.054	1.416
4183505	50x2x1	31.5	35.6	44.0	3,630	440	0.056	1.357
4183506	50x2x1.5	34.7	38.8	48.6	4,705	490	0.060	1.279



STANDARDS:

CONSTRUCTION: BS 5308 Part 1 Type 2.

FIRE PERFORMANCE: IEC 60332-1-2 / IEC 60332-3 (category C).



CONSTRUCTION:

1. CONDUCTOR:

Copper class 1 or class 5 to IEC 60228.

2. INSULATION:

Polyethylene Black and blue numbered pairs.

3. INDIVIDUAL SCREEN:

Aluminium bonded to polyester tape with drain wire.

4. OVERALL SCREEN:

Aluminium bonded to polyester tape with drain wire.

5. INNER COVERING:

PVC.

6. ARMOUR:

Galvanised steel wires.

7. SHEATH:

PVC.

APPLICATIONS:

Signal protection between pairs.

Good electromagnetic protection from external influence.

Flame Retardant according to IEC 60332-1-2.

Fire Retardant (Unfire®) according to IEC 60332-3, category C.

Excellent mechanical protection during laying, installation and service.

Highly recommended in areas with high risk of explosion or fire.

Extra pulling force. Armour can be used to pull the cable.

Option class 5 provides extra flexibility.



PHYSICAL & ELECTRICAL CHARACTERISTICS:

CONDUCTOR CLASS 1

General Cable Code	Cross section (mm ²)	Diameters			Weight (kg/km)	Bending radius. Operation (mm)	Mutual capacitance (µF/km)	Inductance (mH/km)
		Under individual screen (mm)	Under overall screen (mm)	Overall (mm)				
4176013	1x2x0.5	4.1	5.8	10.2	225	105	0.063	1.581
4176014	1x2x0.75	4.5	6.2	10.6	245	110	0.073	1.466
4176015	1x2x1	4.8	6.5	10.9	260	110	0.079	1.404
4176016	1x2x1.5	5.3	7.0	11.6	295	120	0.093	1.307
4176023	1x4x0.5	4.9	6.7	11.1	255	115	0.045	1.581
4176024	1x4x0.75	5.4	7.1	11.5	285	115	0.050	1.466
4176025	1x4x1	5.7	7.5	12.3	320	125	0.054	1.404
4176026	1x4x1.5	6.4	8.3	12.9	365	130	0.059	1.307
4176053	5x2x0.5	8.5	10.8	15.4	450	155	0.052	1.581
4176054	5x2x0.75	9.3	11.6	16.2	510	165	0.056	1.466
4176055	5x2x1	9.9	12.4	17.9	665	180	0.059	1.404
4176056	5x2x1.5	11.0	13.5	19.2	770	195	0.063	1.307
4176094	9x2x0.75	13.3	15.8	21.5	865	215	0.056	1.466
4176103	10x2x0.5	12.1	14.6	20.3	775	205	0.052	1.581
4176104	10x2x0.75	13.3	15.8	21.5	885	215	0.056	1.466
4176105	10x2x1	14.1	16.6	22.5	980	225	0.059	1.404
4176106	10x2x1.5	15.7	18.4	25.2	1,300	255	0.063	1.307
4176153	15x2x0.5	13.7	16.2	21.9	920	220	0.052	1.581
4176154	15x2x0.75	15.0	17.5	23.2	1,060	235	0.056	1.466
4176155	15x2x1	16.0	18.7	25.5	1,350	255	0.059	1.404
4176156	15x2x1.5	17.8	20.9	27.9	1,645	280	0.063	1.307
4176203	20x2x0.5	16.1	18.8	25.4	1,255	255	0.052	1.581
4176204	20x2x0.75	17.7	20.4	27.0	1,450	270	0.056	1.466
4176205	20x2x1	18.7	21.9	28.7	1,665	290	0.059	1.404
4176206	20x2x1.5	20.9	24.0	31.0	2,000	310	0.063	1.307
4176303	30x2x0.5	19.7	22.4	29.2	1,615	295	0.052	1.581
4176304	30x2x0.75	21.6	24.3	31.1	1,875	315	0.056	1.466
4176305	30x2x1	22.9	26.1	33.3	2,175	335	0.059	1.404
4176306	30x2x1.5	25.6	29.1	37.3	2,915	375	0.063	1.307
4176503	50x2x0.5	25.7	28.4	35.6	2,280	360	0.052	1.581
4176504	50x2x0.75	28.2	30.9	38.1	2,685	385	0.056	1.466
4176505	50x2x1	29.9	34.0	42.4	3,545	425	0.059	1.404
4176506	50x2x1.5	33.4	37.5	47.3	4,710	475	0.063	1.307

PHYSICAL & ELECTRICAL CHARACTERISTICS:

CONDUCTOR CLASS 5

General Cable Code	Cross section (mm ²)	Diameters			Weight (kg/km)	Bending radius, Operation (mm)	Mutual capacitance (µF/km)	Inductance (mH/km)
		Under individual screen (mm)	Under overall screen (mm)	Overall (mm)				
4183013	1x2x0.5	4.3	6.0	10.4	230	105	0.063	1.517
4183014	1x2x0.75	4.7	6.4	10.8	250	110	0.072	1.416
4183015	1x2x1	5.0	6.7	11.1	265	115	0.079	1.357
4183016	1x2x1.5	5.5	7.2	11.8	295	120	0.091	1.279
4183023	1x4x0.5	5.2	6.9	11.3	265	115	0.045	1.517
4183024	1x4x0.75	5.7	7.4	11.8	295	120	0.049	1.416
4183025	1x4x1	6.0	7.7	12.6	325	125	0.052	1.357
4183026	1x4x1.5	6.6	8.6	13.2	370	135	0.057	1.279
4183053	5x2x0.5	8.9	11.2	16.0	470	160	0.050	1.517
4183054	5x2x0.75	9.8	12.1	16.9	530	170	0.054	1.416
4183055	5x2x1	10.4	12.9	18.4	685	185	0.056	1.357
4183056	5x2x1.5	11.4	14.0	19.7	780	200	0.060	1.279
4183103	10x2x0.5	12.7	15.2	20.9	800	210	0.050	1.517
4183104	10x2x0.75	13.9	16.4	22.1	910	225	0.054	1.416
4183105	10x2x1	14.8	17.3	23.2	1,005	235	0.056	1.357
4183106	10x2x1.5	16.3	19.0	25.8	1,330	260	0.060	1.279
4183153	15x2x0.5	14.4	17.1	23.7	1,100	240	0.050	1.517
4183154	15x2x0.75	15.7	18.5	25.1	1,260	255	0.054	1.416
4183155	15x2x1	16.8	19.5	26.3	1,380	265	0.056	1.357
4183156	15x2x1.5	18.5	21.6	28.6	1,650	290	0.060	1.279
4183203	20x2x0.5	16.9	19.6	26.4	1,325	265	0.050	1.517
4183204	20x2x0.75	18.5	21.2	28.0	1,520	280	0.054	1.416
4183205	20x2x1	19.7	22.8	29.6	1,715	300	0.056	1.357
4183206	20x2x1.5	21.7	24.8	31.8	2,000	320	0.060	1.279
4183303	30x2x0.5	20.7	23.8	30.8	1,720	310	0.050	1.517
4183304	30x2x0.75	22.6	25.8	32.8	2,005	330	0.054	1.416
4183305	30x2x1	24.1	27.2	34.4	2,245	345	0.056	1.357
4183306	30x2x1.5	26.6	30.1	38.3	2,945	385	0.060	1.279
4183503	50x2x0.5	27.0	30.5	38.7	2,705	390	0.050	1.517
4183504	50x2x0.75	29.5	33.1	41.3	3,160	415	0.054	1.416
4183505	50x2x1	31.5	35.6	44.0	3,630	440	0.056	1.357
4183506	50x2x1.5	34.7	38.8	48.6	4,705	490	0.060	1.279



STANDARDS:

CONSTRUCTION: BS 5308 Part 1 Type 3 / UIC 895 OR.

FIRE PERFORMANCE: IEC 60332-1-2 / IEC 60332-3 (category C).



CONSTRUCTION:

1. CONDUCTOR:

Copper class 1 or class 5 to IEC 60228.

2. INSULATION:

Polyethylene Black and blue numbered pairs.

3. OVERALL SCREEN:

Aluminium bonded to polyester tape with drain wire.

4. FIRST INNER COVERING:

PVC.

5. LEAD SHEATH (L)

6. SECOND INNER COVERING:

Hydrocarbon resistant PVC.

7. ARMOUR:

Galvanised steel wires.

8. SHEATH:

Hydrocarbon resistant PVC.

APPLICATIONS:

Good electromagnetic protection from external influence.

Flame Retardant according to IEC 60332-1-2.

Fire Retardant (Unfire®) according to IEC 60332-3, category C.

Excellent mechanical protection during laying, installation and service.

Highly recommended in areas with high risk of explosion or fire.

Extra pulling force. Armour can be used to pull the cable.

Resistance to hydrocarbons.

Lead sheath provides radial watertightness and chemical protection.

Option class 5 provides extra flexibility.



PHYSICAL & ELECTRICAL CHARACTERISTICS:

CONDUCTOR CLASS 1

General Cable Code	Cross section (mm ²)	Diameters			Weight (kg/km)	Bending radius. Operation (mm)	Mutual capacitance (μF/km)	Inductance (mH/km)
		Under individual screen (mm)	Under overall screen (mm)	Overall (mm)				
4178013	1x2x0.5	4.1	9.6	14.2	640	85	0.063	1.581
4178014	1x2x0.75	4.5	10.0	14.6	675	90	0.073	1.466
4178015	1x2x1	4.8	10.3	14.9	705	90	0.079	1.404
4178016	1x2x1.5	5.3	10.8	15.6	765	95	0.093	1.307
4178023	1x4x0.5	4.9	10.5	15.1	715	155	0.045	1.581
4178024	1x4x0.75	5.4	10.9	15.5	760	155	0.050	1.466
4178025	1x4x1	5.7	11.3	16.1	810	165	0.054	1.404
4178026	1x4x1.5	6.4	12.1	18.0	995	180	0.059	1.307
4178053	5x2x0.5	8.5	14.6	20.6	1,190	210	0.052	1.581
4178054	5x2x0.75	9.3	15.4	21.4	1,290	215	0.056	1.466
4178055	5x2x1	9.9	16.6	23.5	1,535	235	0.059	1.404
4178056	5x2x1.5	11.0	17.9	24.8	1,770	250	0.063	1.307
4178103	10x2x0.5	12.1	18.8	25.7	1,750	260	0.052	1.581
4178104	10x2x0.75	13.3	20.0	26.9	1,930	270	0.056	1.466
4178105	10x2x1	14.1	21.0	28.1	2,135	285	0.059	1.404
4178106	10x2x1.5	15.7	23.0	30.3	2,530	305	0.063	1.307
4178153	15x2x0.5	13.7	20.6	27.7	2,075	280	0.052	1.581
4178154	15x2x0.75	15.0	21.9	29.0	2,285	290	0.056	1.466
4178155	15x2x1	16.0	23.3	30.5	2,590	305	0.059	1.404
4178156	15x2x1.5	17.8	26.1	34.4	3,335	345	0.063	1.307
4178203	20x2x0.5	16.1	23.4	30.5	2,505	305	0.052	1.581
4178204	20x2x0.75	17.7	25.0	32.0	2,780	320	0.056	1.466
4178205	20x2x1	18.7	27.1	35.3	3,440	355	0.059	1.404
4178206	20x2x1.5	20.9	29.4	37.9	4,015	380	0.063	1.307
4178303	30x2x0.5	19.7	27.2	34.5	3,150	345	0.052	1.581
4178304	30x2x0.75	21.6	29.1	36.4	3,515	365	0.056	1.466
4178305	30x2x1	22.9	31.5	39.9	4,325	400	0.059	1.404
4178306	30x2x1.5	25.6	35.3	45.2	5,715	455	0.063	1.307
4178503	50x2x0.5	25.7	34.2	42.7	4,655	430	0.052	1.581
4178504	50x2x0.75	28.2	36.7	45.2	5,250	455	0.056	1.466
4178505	50x2x1	29.9	40.4	50.5	6,870	505	0.059	1.404
4178506	50x2x1.5	33.4	44.7	55.2	8,340	555	0.063	1.307

PHYSICAL & ELECTRICAL CHARACTERISTICS:

CONDUCTOR CLASS 5

General Cable Code	Cross section (mm ²)	Diameters			Weight (kg/km)	Bending radius. Operation (mm)	Mutual capacitance (µF/km)	Inductance (mH/km)
		Under individual screen (mm)	Under overall screen (mm)	Overall (mm)				
4185013	1x2x0.5	4.3	9.8	14.4	660	90	0.063	1.517
4185014	1x2x0.75	4.7	10.2	14.8	695	90	0.072	1.416
4185015	1x2x1	5.0	10.5	15.1	725	95	0.079	1.357
4185016	1x2x1.5	5.5	11.0	15.8	785	95	0.091	1.279
4185023	1x4x0.5	5.2	10.7	15.3	735	155	0.045	1.517
4185024	1x4x0.75	5.7	11.2	15.8	785	160	0.049	1.416
4185025	1x4x1	6.0	11.5	16.4	830	165	0.052	1.357
4185026	1x4x1.5	6.6	12.4	18.2	1,020	185	0.057	1.279
4185053	5x2x0.5	8.9	15.0	21.0	1,225	210	0.050	1.517
4185054	5x2x0.75	9.8	15.9	21.8	1,330	220	0.054	1.416
4185055	5x2x1	10.4	17.1	24.0	1,585	240	0.056	1.357
4185056	5x2x1.5	11.4	18.4	25.2	1,810	255	0.060	1.279
4185103	10x2x0.5	12.7	19.6	26.7	1,905	270	0.050	1.517
4185104	10x2x0.75	13.9	20.8	27.9	2,075	280	0.054	1.416
4185105	10x2x1	14.8	21.7	28.8	2,215	290	0.056	1.357
4185106	10x2x1.5	16.3	23.6	30.9	2,570	310	0.060	1.279
4185153	15x2x0.5	14.4	21.7	28.8	2,255	290	0.050	1.517
4185154	15x2x0.75	15.7	23.1	30.1	2,470	305	0.054	1.416
4185155	15x2x1	16.8	24.1	31.3	2,660	315	0.056	1.357
4185156	15x2x1.5	18.5	26.8	35.0	3,390	350	0.060	1.279
4185203	20x2x0.5	16.9	24.2	31.5	2,595	315	0.050	1.517
4185204	20x2x0.75	18.5	25.8	33.1	2,875	335	0.054	1.416
4185205	20x2x1	19.7	28.0	36.3	3,540	365	0.056	1.357
4185206	20x2x1.5	21.7	30.2	38.7	4,075	390	0.060	1.279
4185303	30x2x0.5	19.7	28.2	36.7	3,600	370	0.052	1.581
4185304	30x2x0.75	21.6	30.1	38.6	4,005	390	0.056	1.466
4185305	30x2x1	24.1	32.6	41.1	4,465	415	0.056	1.357
4185306	30x2x1.5	26.6	36.3	46.1	5,840	465	0.060	1.279
4185503	50x2x0.5	27.0	36.7	46.6	5,630	470	0.050	1.517
4185504	50x2x0.75	29.5	39.3	49.1	6,280	495	0.054	1.416
4185505	50x2x1	31.5	42.0	52.0	7,090	520	0.056	1.357
4185506	50x2x1.5	34.7	46.0	56.4	8,490	565	0.060	1.279



STANDARDS:

CONSTRUCTION: BS 5308 Part 1 Type 3 / UIC 895 OR.

FIRE PERFORMANCE: IEC 60332-1-2 / IEC 60332-3 (category C).



CONSTRUCTION:

- | | |
|---|--|
| <p>1. CONDUCTOR:
Copper class 1 or class 5 to IEC 60228.</p> <p>2. INSULATION:
Polyethylene Black and blue numbered pairs.</p> <p>3. INDIVIDUAL SCREEN:
Aluminium bonded to polyester tape with drain wire.</p> <p>4. OVERALL SCREEN:
Aluminium bonded to polyester tape with drain wire.</p> | <p>5. FIRST INNER COVERING:
PVC.</p> <p>6. LEAD SHEATH</p> <p>7. SECOND INNER COVERING:
Hydrocarbon resistant PVC.</p> <p>8. ARMOUR:
Galvanised steel wires.</p> <p>9. SHEATH:
Hydrocarbon resistant PVC.</p> |
|---|--|

APPLICATIONS:

Signal protection between pairs.
Good electromagnetic protection from external influence.
Flame Retardant according to IEC 60332-1-2.
Fire Retardant (Unfire®) according to IEC 60332-3, category C.
Excellent mechanical protection during laying, installation and service.
Highly recommended in areas with high risk of explosion or fire.
Extra pulling force. Armour can be used to pull the cable.
Resistance to hydrocarbons.
Lead sheath provides radial watertightness and chemical protection.
Option class 5 provides extra flexibility.



PHYSICAL & ELECTRICAL CHARACTERISTICS:

CONDUCTOR CLASS 1

Code	Cross section (mm ²)	Diameter			Overall (mm)	Weight (kg/km)	Bending radius. Operation (mm)	Mutual capacitance (µF/km)	Inductance (mH/km)
		Under individual screen (mm)	Under overall screen (mm)	Under armour (mm)					
4179023	2x2x0.5	4.1	7.8	13.5	19.3	1,055	195	0.063	1.581
4179024	2x2x0.75	4.5	8.5	14.2	20.0	1,120	200	0.073	1.466
4179025	2x2x1	4.8	9.0	15.1	21.1	1,225	210	0.079	1.404
4179026	2x2x1.5	5.3	9.9	16.6	23.5	1,500	235	0.093	1.307
4179053	5x2x0.5	4.1	10.6	16.9	22.8	1,440	230	0.063	1.581
4179054	5x2x0.75	4.5	11.5	17.8	23.8	1,555	240	0.073	1.466
4179055	5x2x1	4.8	12.2	19.1	25.9	1,885	260	0.079	1.404
4179056	5x2x1.5	5.3	13.5	20.6	27.7	2,110	280	0.093	1.307
4179103	10x2x0.5	4.1	15.5	22.4	29.3	2,245	295	0.063	1.581
4179104	10x2x0.75	4.5	16.9	23.8	30.7	2,455	310	0.073	1.466
4179105	10x2x1	4.8	17.9	25.2	32.4	2,745	325	0.079	1.404
4179106	10x2x1.5	5.3	19.8	28.3	36.7	3,605	370	0.093	1.307
4179153	15x2x0.5	4.1	18.3	25.6	32.8	2,795	330	0.063	1.581
4179154	15x2x0.75	4.5	19.9	27.2	34.5	3,060	345	0.073	1.466
4179155	15x2x1	4.8	21.0	29.6	38.0	3,840	380	0.079	1.404
4179156	15x2x1.5	5.3	23.3	32.4	41.1	4,505	415	0.093	1.307
4179203	20x2x0.5	4.1	20.7	28.6	36.8	3,540	370	0.063	1.581
4179204	20x2x0.75	4.5	22.5	30.4	38.6	3,890	390	0.073	1.466
4179205	20x2x1	4.8	23.8	32.9	41.7	4,575	420	0.079	1.404
4179206	20x2x1.5	5.3	26.4	36.1	46.1	5,665	465	0.093	1.307
4179303	30x2x0.5	4.1	24.8	33.3	41.7	4,485	420	0.063	1.581
4179304	30x2x0.75	4.5	27.0	35.6	43.9	4,940	440	0.073	1.466
4179305	30x2x1	4.8	28.6	38.9	49.1	6,275	495	0.079	1.404
4179306	30x2x1.5	5.3	31.7	42.4	52.8	7,415	530	0.093	1.307
4179503	50x2x0.5	4.1	32.5	43.0	53.0	7,140	530	0.063	1.581
4179504	50x2x0.75	4.5	35.4	45.9	55.9	7,880	560	0.073	1.466
4179505	50x2x1	4.8	37.5	49.2	60.0	9,110	600	0.079	1.404
4179506	50x2x1.5	5.3	41.5	53.6	64.8	10,745	650	0.093	1.307

PHYSICAL & ELECTRICAL CHARACTERISTICS:

CONDUCTOR CLASS 5

Code	Cross section (mm ²)	Diameter			Overall (mm)	Weight (kg/km)	Bending radius. Operation (mm)	Mutual capacitance (µF/km)	Inductance (mH/km)
		Under individual screen (mm)	Under overall screen (mm)	Under armour (mm)					
4186023	2x2x0.5	4.3	8.2	14.3	20.2	1,130	205	0.063	1.517
4186024	2x2x0.75	4.7	8.9	15.0	20.9	1,205	210	0.072	1.416
4186025	2x2x1	5.0	9.4	15.5	21.5	1,260	215	0.079	1.357
4186026	2x2x1.5	5.5	10.3	17.0	23.9	1,535	240	0.091	1.279
4186053	5x2x0.5	4.3	11.1	17.8	24.6	1,640	250	0.063	1.517
4186054	5x2x0.75	4.7	12.0	18.7	25.6	1,770	260	0.072	1.416
4186055	5x2x1	5.0	12.8	19.7	26.5	1,945	265	0.079	1.357
4186056	5x2x1.5	5.5	14.0	21.1	28.1	2,155	285	0.091	1.279
4186103	10x2x0.5	4.3	16.2	23.5	30.8	2,465	310	0.063	1.517
4186104	10x2x0.75	4.7	17.6	24.9	32.2	2,685	325	0.072	1.416
4186105	10x2x1	5.0	18.7	26.0	33.3	2,840	335	0.079	1.357
4186106	10x2x1.5	5.5	20.5	29.0	37.5	3,675	375	0.091	1.279
4186153	15x2x0.5	4.3	19.1	27.4	35.7	3,315	360	0.063	1.517
4186154	15x2x0.75	4.7	20.8	29.1	37.4	3,625	375	0.072	1.416
4186155	15x2x1	5.0	22.1	30.6	39.0	3,975	390	0.079	1.357
4186156	15x2x1.5	5.5	24.2	33.3	41.9	4,585	420	0.091	1.279
4186203	20x2x0.5	4.3	21.6	30.1	38.7	3,865	390	0.063	1.517
4186204	20x2x0.75	4.7	23.5	32.0	40.6	4,235	410	0.072	1.416
4186205	20x2x1	5.0	24.9	34.0	42.8	4,725	430	0.079	1.357
4186206	20x2x1.5	5.5	27.3	37.0	47.0	5,765	470	0.091	1.279
4186303	30x2x0.5	4.3	26.0	35.1	43.9	4,865	440	0.063	1.517
4186304	30x2x0.75	4.7	28.2	37.4	46.1	5,375	465	0.072	1.416
4186305	30x2x1	5.0	30.0	40.3	50.5	6,485	505	0.079	1.357
4186306	30x2x1.5	5.5	32.8	43.5	53.9	7,535	540	0.091	1.279
4186503	50x2x0.5	4.3	34.0	45.1	55.7	7,700	560	0.063	1.517
4186504	50x2x0.75	4.7	37.0	48.1	58.7	8,525	590	0.072	1.416
4186505	50x2x1	5.0	39.3	51.0	61.8	9,385	620	0.079	1.357
4186506	50x2x1.5	5.5	43.0	55.1	66.3	10,940	665	0.091	1.279



STANDARDS:

CONSTRUCTION: BS 5308 Part 1 Type 1 / CSA C22.2 No. 0.3-01.

FIRE PERFORMANCE: IEC 60332-1-2 / IEC 60332-3 (categories A and C) / IEC 60754 / IEC 61034.



CONSTRUCTION:

1. CONDUCTOR:

Copper class 1 or class 5 to IEC 60228.

2. INSULATION:

Polyethylene Black and blue pair with numbered cores.

3. OVERALL SCREEN:

Aluminium bonded to polyester tape with drain wire.

4. SHEATH:

Halogen-free thermoplastic polyolefin.

APPLICATIONS:

Good electromagnetic protection from external influence.

Flame Retardant according to IEC 60332-1-2.

Fire Retardant (Unfire®) according to IEC 60332-3, categories A and C.

Halogen-free according to IEC 60754-1.

Low acidity and corrosivity of the combustion gases according to IEC 60754-2.

Reduced darkness of fumes generated during combustion according to IEC 61034.

Option class 5 provides extra flexibility.

Able to work at very low temperatures (-45 °C).



PHYSICAL & ELECTRICAL CHARACTERISTICS:

CONDUCTOR CLASS 1

Code	Cross section (mm ²)	Diameters		Weight (kg/km)	Bending radius. Operation (mm)	Mutual capacitance (μF/km)	Inductance (mH/km)
		Under screen (mm)	Overall (mm)				
4164013	1x2x0.5	4.1	7.2	75	45	0.063	1.581
4164014	1x2x0.75	4.5	7.6	90	50	0.073	1.466
4164015	1x2x1	4.8	7.9	95	50	0.079	1.404
4164016	1x2x1.5	5.3	8.4	115	50	0.093	1.307
4164023	1x4x0.5	4.9	8.1	95	85	0.045	1.581
4164024	1x4x0.75	5.4	8.5	110	85	0.050	1.466
4164025	1x4x1	5.7	8.9	125	90	0.054	1.404
4164026	1x4x1.5	6.4	9.5	150	95	0.059	1.307
4164053	5x2x0.5	8.5	11.6	185	70	0.052	1.581
4164054	5x2x0.75	9.3	12.4	220	75	0.056	1.466
4164055	5x2x1	9.9	13.0	255	80	0.059	1.404
4164056	5x2x1.5	11.0	14.1	320	85	0.063	1.307
4164103	10x2x0.5	12.1	15.2	290	95	0.052	1.581
4164104	10x2x0.75	13.3	16.4	360	100	0.056	1.466
4164105	10x2x1	14.1	17.2	420	105	0.059	1.404
4164106	10x2x1.5	15.7	18.8	540	115	0.063	1.307
4164153	15x2x0.5	13.7	16.8	385	105	0.052	1.581
4164154	15x2x0.75	15.0	18.1	480	110	0.056	1.466
4164155	15x2x1	16.0	19.1	570	115	0.059	1.404
4164156	15x2x1.5	17.8	20.9	745	125	0.063	1.307
4164203	20x2x0.5	16.1	19.2	490	115	0.052	1.581
4164204	20x2x0.75	17.7	20.8	620	125	0.056	1.466
4164205	20x2x1	18.7	21.9	735	135	0.059	1.404
4164206	20x2x1.5	20.9	24.0	965	145	0.063	1.307
4164303	30x2x0.5	19.7	22.8	690	140	0.052	1.581
4164304	30x2x0.75	21.6	24.7	880	150	0.056	1.466
4164305	30x2x1	22.9	26.1	1,055	160	0.059	1.404
4164306	30x2x1.5	25.6	29.1	1,425	175	0.063	1.307
4164406	40x2x1.5	28.7	32.6	1,865	200	0.063	1.307
4164503	50x2x0.5	25.7	28.8	1,080	175	0.052	1.581
4164504	50x2x0.75	28.2	31.3	1,395	190	0.056	1.466
4164505	50x2x1	29.9	34.0	1,765	205	0.059	1.404
4164506	50x2x1.5	33.4	37.5	2,335	225	0.063	1.307

PHYSICAL & ELECTRICAL CHARACTERISTICS:
CONDUCTOR CLASS 5

Code	Cross section (mm ²)	Diameters		Weight (kg/km)	Bending radius. Operation (mm)	Mutual capacitance (µF/km)	Inductance (mH/km)
		Under screen (mm)	Overall (mm)				
4169013	1x2x0.5	4.3	7.4	80	45	0.063	1.517
4169014	1x2x0.75	4.7	7.8	90	50	0.072	1.416
4169015	1x2x1	5.0	8.1	100	50	0.079	1.357
4169016	1x2x1.5	5.5	8.6	115	55	0.091	1.279
4169023	1x4x0.5	5.2	8.3	100	85	0.045	1.517
4169024	1x4x0.75	5.7	8.8	115	90	0.049	1.416
4169025	1x4x1	6.0	9.2	125	95	0.052	1.357
4169026	1x4x1.5	6.6	9.8	150	100	0.057	1.279
4169053	5x2x0.5	8.9	12.0	190	75	0.050	1.517
4169054	5x2x0.75	9.8	12.9	230	80	0.054	1.416
4169055	5x2x1	10.4	13.5	260	85	0.056	1.357
4169056	5x2x1.5	11.4	14.6	320	90	0.060	1.279
4169103	10x2x0.5	12.7	15.8	300	95	0.050	1.517
4169104	10x2x0.75	13.9	17.0	370	105	0.054	1.416
4169105	10x2x1	14.8	17.9	425	110	0.056	1.357
4169106	10x2x1.5	16.3	19.4	530	120	0.060	1.279
4169153	15x2x0.5	14.4	17.5	395	105	0.050	1.517
4169154	15x2x0.75	15.7	18.9	495	115	0.054	1.416
4169155	15x2x1	16.8	19.9	575	120	0.056	1.357
4169156	15x2x1.5	18.5	21.6	725	130	0.060	1.279
4169203	20x2x0.5	16.9	20.0	505	120	0.050	1.517
4169204	20x2x0.75	18.5	21.6	635	130	0.054	1.416
4169205	20x2x1	19.7	22.8	745	140	0.056	1.357
4169206	20x2x1.5	21.7	24.8	945	150	0.060	1.279
4169303	30x2x0.5	20.7	23.8	710	145	0.050	1.517
4169304	30x2x0.75	22.6	25.8	905	155	0.054	1.416
4169305	30x2x1	24.1	27.2	1,060	165	0.056	1.357
4169306	30x2x1.5	26.6	30.1	1,390	180	0.060	1.279
4169503	50x2x0.5	27.0	30.5	1,140	185	0.050	1.517
4169504	50x2x0.75	29.5	33.1	1,465	200	0.054	1.416
4169505	50x2x1	31.5	35.6	1,780	215	0.056	1.357
4169506	50x2x1.5	34.7	38.8	2,275	235	0.060	1.279



STANDARDS:

CONSTRUCTION: BS 5308 Part 1 Type 1 / CSA C22.2 No. 0.3-01.

FIRE PERFORMANCE: IEC 60332-1-2 / IEC 60332-3 (categories A and C) / IEC 60754 / IEC 61034.



CONSTRUCTION:

1. CONDUCTOR:

Copper class 1 or class 5 to IEC 60228.

2. INSULATION:

Polyethylene Black and blue numbered pairs.

3. INDIVIDUAL SCREEN:

Aluminium bonded to polyester tape with drain wire.

4. OVERALL SCREEN:

Aluminium bonded to polyester tape with drain wire.

5. SHEATH:

Halogen-free thermoplastic polyolefin.

APPLICATIONS:

Signal protection between pairs.

Good electromagnetic protection from external influence.

Flame Retardant according to IEC 60332-1-2.

Fire Retardant (Unfire®) according to IEC 60332-3, categories A and C.

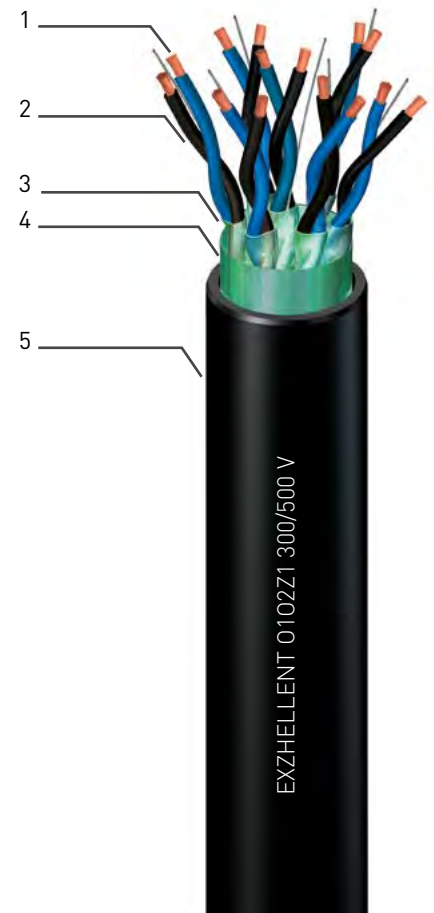
Halogen-free according to IEC 60754-1.

Low acidity and corrosivity of the combustion gases according to IEC 60754-2.

Reduced darkness of fumes generated during combustion according to IEC 61034.

Option class 5 provides extra flexibility.

Able to work at very low temperatures (-45 °C).



PHYSICAL & ELECTRICAL CHARACTERISTICS:

CONDUCTOR CLASS 1

General Cable Code	Cross section (mm ²)	Diameters			Weight (kg/km)	Bending radius. Operation (mm)	Mutual capacitance (μF/km)	Inductance (mH/km)
		Under individual screen (mm)	Under overall screen (mm)	Overall (mm)				
4165023	2x2x0.5	4.1	7.8	10.9	160	65	0.063	1.581
4165024	2x2x0.75	4.5	8.5	11.6	180	70	0.073	1.466
4165025	2x2x1	4.8	9.0	12.1	200	75	0.079	1.404
4165026	2x2x1.5	5.3	9.9	13.1	240	80	0.093	1.307
4165053	5x2x0.5	4.1	10.6	13.7	250	85	0.063	1.581
4165054	5x2x0.75	4.5	11.5	14.6	295	90	0.073	1.466
4165055	5x2x1	4.8	12.2	15.3	330	95	0.079	1.404
4165056	5x2x1.5	5.3	13.5	16.6	400	100	0.093	1.307
4165103	10x2x0.5	4.1	15.5	18.6	415	115	0.063	1.581
4165104	10x2x0.75	4.5	16.9	20.0	495	120	0.073	1.466
4165105	10x2x1	4.8	17.9	21.0	565	130	0.079	1.404
4165106	10x2x1.5	5.3	19.8	22.9	690	140	0.093	1.307
4165153	15x2x0.5	4.1	18.3	21.4	570	130	0.063	1.581
4165154	15x2x0.75	4.5	19.9	23.0	685	140	0.073	1.466
4165155	15x2x1	4.8	21.0	24.2	785	145	0.079	1.404
4165156	15x2x1.5	5.3	23.3	26.8	995	165	0.093	1.307
4165203	20x2x0.5	4.1	20.7	23.8	720	145	0.063	1.581
4165204	20x2x0.75	4.5	22.5	25.6	870	155	0.073	1.466
4165205	20x2x1	4.8	23.8	27.3	1,025	165	0.079	1.404
4165206	20x2x1.5	5.3	26.4	29.9	1,270	180	0.093	1.307
4165303	30x2x0.5	4.1	24.8	27.9	1,015	170	0.063	1.581
4165304	30x2x0.75	4.5	27.0	30.2	1,235	185	0.073	1.466
4165305	30x2x1	4.8	28.6	32.7	1,505	200	0.079	1.404
4165306	30x2x1.5	5.3	31.7	35.8	1,870	215	0.093	1.307
4165503	50x2x0.5	4.1	32.5	36.6	1,705	220	0.063	1.581
4165504	50x2x0.75	4.5	35.4	39.5	2,075	240	0.073	1.466
4165505	50x2x1	4.8	37.5	42.0	2,435	255	0.079	1.404
4165506	50x2x1.5	5.3	41.5	46.0	3,035	280	0.093	1.307

PHYSICAL & ELECTRICAL CHARACTERISTICS:

CONDUCTOR CLASS 5

General Cable Code	Cross section (mm ²)	Diameters			Weight (kg/km)	Bending radius. Operation (mm)	Mutual capacitance (µF/km)	Inductance (mH/km)
		Under individual screen (mm)	Under overall screen (mm)	Overall (mm)				
4170023	2x2x0.5	4.3	8.2	11.3	165	70	0.063	1.517
4170024	2x2x0.75	4.7	8.9	12.0	190	75	0.072	1.416
4170025	2x2x1	5.0	9.4	12.5	210	75	0.079	1.357
4170026	2x2x1.5	5.5	10.3	13.4	240	80	0.091	1.279
4170053	5x2x0.5	4.3	11.1	14.2	255	85	0.063	1.517
4170054	5x2x0.75	4.7	12.0	15.1	305	95	0.072	1.416
4170055	5x2x1	5.0	12.8	15.9	335	95	0.079	1.357
4170056	5x2x1.5	5.5	14.0	17.1	400	105	0.091	1.279
4170103	10x2x0.5	4.3	16.2	19.3	430	120	0.063	1.517
4170104	10x2x0.75	4.7	17.6	20.8	510	125	0.072	1.416
4170105	10x2x1	5.0	18.7	21.8	570	135	0.079	1.357
4170106	10x2x1.5	5.5	20.5	23.6	685	145	0.091	1.279
4170153	15x2x0.5	4.3	19.1	22.2	585	135	0.063	1.517
4170154	15x2x0.75	4.7	20.8	23.9	705	145	0.072	1.416
4170155	15x2x1	5.0	22.1	25.2	795	155	0.079	1.357
4170156	15x2x1.5	5.5	24.2	27.7	985	170	0.091	1.279
4170203	20x2x0.5	4.3	21.6	24.7	740	150	0.063	1.517
4170204	20x2x0.75	4.7	23.5	26.6	895	160	0.072	1.416
4170205	20x2x1	5.0	24.9	28.4	1,040	175	0.079	1.357
4170206	20x2x1.5	5.5	27.3	30.8	1,255	185	0.091	1.279
4170303	30x2x0.5	4.3	26.0	29.5	1,070	180	0.063	1.517
4170304	30x2x0.75	4.7	28.2	31.8	1,305	195	0.072	1.416
4170305	30x2x1	5.0	30.0	34.1	1,525	205	0.079	1.357
4170306	30x2x1.5	5.5	32.8	36.9	1,840	225	0.091	1.279
4170503	50x2x0.5	4.3	34.0	38.5	1,790	235	0.063	1.517
4170504	50x2x0.75	4.7	37.0	41.5	2,180	250	0.072	1.416
4170505	50x2x1	5.0	39.3	43.8	2,460	265	0.079	1.357
4170506	50x2x1.5	5.5	43.0	47.5	2,990	285	0.091	1.279



STANDARDS:

CONSTRUCTION: BS 5308 Part 1 Type 2 / CSA C22.2 No. 0.3-01.

FIRE PERFORMANCE: IEC 60332-1-2 / IEC 60332-3 (categories A and C) / IEC 60754 / IEC 61034.



CONSTRUCTION:

1. CONDUCTOR:

Copper class 1 or class 5 to IEC 60228.

2. INSULATION:

Polyethylene Black and blue pair with numbered cores.

3. OVERALL SCREEN:

Aluminium bonded to polyester tape with drain wire.

4. INNER COVERING:

Halogen-free thermoplastic polyolefin.

5. ARMOUR:

Galvanised steel wires.

6. SHEATH:

Halogen-free thermoplastic polyolefin.

APPLICATIONS:

Good electromagnetic protection from external influence.

Flame Retardant according to IEC 60332-1-2.

Fire Retardant (Unfire®) according to IEC 60332-3, categories A and C.

Halogen-free according to IEC 60754-1.

Low acidity and corrosivity of the combustion gases according to IEC 60754-2.

Reduced darkness of fumes generated during combustion according to IEC 61034.

Excellent mechanical protection during laying, installation and service.

Highly recommended in areas with high risk of explosion or fire.

Extra pulling force. Armour can be used to pull the cable.

Option class 5 provides extra flexibility.

Able to work at very low temperatures (-45 °C).



PHYSICAL & ELECTRICAL CHARACTERISTICS:

CONDUCTOR CLASS 1

General Cable Code	Cross section (mm ²)	Diameters			Weight (kg/km)	Bending radius. Operation (mm)	Mutual capacitance (μF/km)	Inductance (mH/km)
		Under individual screen (mm)	Under overall screen (mm)	Overall (mm)				
4166013	1x2x0.5	4.1	5.8	10.2	220	105	0.063	1.581
4166014	1x2x0.75	4.5	6.2	10.6	240	110	0.073	1.466
4166015	1x2x1	4.8	6.5	10.9	255	110	0.079	1.404
4166016	1x2x1.5	5.3	7.0	11.6	290	120	0.093	1.307
4166023	1x4x0.5	4.9	6.7	11.1	250	115	0.045	1.581
4166024	1x4x0.75	5.4	7.1	11.5	280	115	0.050	1.466
4166025	1x4x1	5.7	7.5	12.1	305	125	0.054	1.404
4166026	1x4x1.5	6.4	8.3	12.9	355	130	0.059	1.307
4166053	5x2x0.5	8.5	10.8	15.4	440	155	0.052	1.581
4166054	5x2x0.75	9.3	11.6	16.2	500	165	0.056	1.466
4166055	5x2x1	9.9	12.4	17.9	655	180	0.059	1.404
4166056	5x2x1.5	11.0	13.5	19.2	755	195	0.063	1.307
4166103	10x2x0.5	12.1	14.6	20.3	765	205	0.052	1.581
4166104	10x2x0.75	13.3	15.8	21.5	870	215	0.056	1.466
4166105	10x2x1	14.1	16.6	22.5	965	225	0.059	1.404
4166106	10x2x1.5	15.7	18.4	25.2	1,285	255	0.063	1.307
4166153	15x2x0.5	13.7	16.4	22.1	915	225	0.052	1.581
4166154	15x2x0.75	15.0	17.7	23.4	1,055	235	0.056	1.466
4166155	15x2x1	16.0	18.7	25.5	1,330	255	0.059	1.404
4166156	15x2x1.5	17.8	20.9	27.9	1,620	280	0.063	1.307
4166203	20x2x0.5	16.1	18.8	25.4	1,240	255	0.052	1.581
4166204	20x2x0.75	17.7	20.4	27.0	1,430	270	0.056	1.466
4166205	20x2x1	18.7	21.9	28.7	1,640	290	0.059	1.404
4166206	20x2x1.5	20.9	24.0	31.2	1,990	315	0.063	1.307
4166303	30x2x0.5	19.7	22.4	29.2	1,595	295	0.052	1.581
4166304	30x2x0.75	21.6	24.3	31.1	1,850	315	0.056	1.466
4166305	30x2x1	22.9	26.1	33.3	2,145	335	0.059	1.404
4166306	30x2x1.5	25.6	29.1	37.3	2,880	375	0.063	1.307
4166503	50x2x0.5	25.7	28.8	36.0	2,295	360	0.052	1.581
4166504	50x2x0.75	28.2	31.3	38.5	2,705	385	0.056	1.466
4166505	50x2x1	29.9	34.0	42.4	3,500	425	0.059	1.404
4166506	50x2x1.5	33.4	37.5	47.3	4,655	475	0.063	1.307

PHYSICAL & ELECTRICAL CHARACTERISTICS:

CONDUCTOR CLASS 5

General Cable Code	Cross section (mm ²)	Diameters			Weight (kg/km)	Bending radius. Operation (mm)	Mutual capacitance (µF/km)	Inductance (mH/km)
		Under individual screen (mm)	Under overall screen (mm)	Overall (mm)				
4171013	1x2x0.5	4.3	6.0	10.4	225	105	0.063	1.517
4171014	1x2x0.75	4.7	6.4	10.8	245	110	0.072	1.416
4171015	1x2x1	5.0	6.7	11.1	260	115	0.079	1.357
4171016	1x2x1.5	5.5	7.2	11.8	290	120	0.091	1.279
4171023	1x4x0.5	5.2	6.9	11.3	260	115	0.045	1.517
4171024	1x4x0.75	5.7	7.4	11.8	290	120	0.049	1.416
4171025	1x4x1	6.0	7.7	12.4	315	125	0.052	1.357
4171026	1x4x1.5	6.6	8.6	13.2	365	135	0.057	1.279
4171053	5x2x0.5	8.9	11.2	16.0	465	160	0.050	1.517
4171054	5x2x0.75	9.8	12.1	16.9	525	170	0.054	1.416
4171055	5x2x1	10.4	12.9	18.4	675	185	0.056	1.357
4171056	5x2x1.5	11.4	14.0	19.7	765	200	0.060	1.279
4171103	10x2x0.5	12.7	15.2	20.9	785	210	0.050	1.517
4171104	10x2x0.75	13.9	16.4	22.1	895	225	0.054	1.416
4171105	10x2x1	14.8	17.3	23.2	985	235	0.056	1.357
4171106	10x2x1.5	16.3	19.0	25.8	1,310	260	0.060	1.279
4171153	15x2x0.5	14.4	17.1	23.7	1,080	240	0.050	1.517
4171154	15x2x0.75	15.7	18.5	25.1	1,240	255	0.054	1.416
4171155	15x2x1	16.8	19.5	26.3	1,360	265	0.056	1.357
4171156	15x2x1.5	18.5	21.6	28.6	1,630	290	0.060	1.279
4171203	20x2x0.5	16.9	19.6	26.4	1,305	265	0.050	1.517
4171204	20x2x0.75	18.5	21.2	28.0	1,500	280	0.054	1.416
4171205	20x2x1	19.7	22.8	29.6	1,690	300	0.056	1.357
4171206	20x2x1.5	21.7	24.8	32.0	1,990	320	0.060	1.279
4171303	30x2x0.5	20.7	23.8	30.8	1,695	310	0.050	1.517
4171304	30x2x0.75	22.6	25.8	32.8	1,975	330	0.054	1.416
4171305	30x2x1	24.1	27.2	34.4	2,215	345	0.056	1.357
4171306	30x2x1.5	26.6	30.1	38.3	2,910	385	0.060	1.279
4171503	50x2x0.5	27.0	30.5	38.7	2,665	390	0.050	1.517
4171504	50x2x0.75	29.5	33.1	41.3	3,120	415	0.054	1.416
4171505	50x2x1	31.5	35.6	44.0	3,580	440	0.056	1.357
4171506	50x2x1.5	34.7	38.8	48.6	4,650	490	0.060	1.279



EXZHELLENT[®]-M

E0102Z1MZ1-K / E0102Z1MZ1 Halogen-free Armoured Individual + Overall Screened Instrumentation 300/500 V

STANDARDS:

CONSTRUCTION: BS 5308 Part 1 Type 2 / CSA C22.2 No. 0.3-01.

FIRE PERFORMANCE: IEC 60332-1-2 / IEC 60332-3 (categories A and C) / IEC 60754 / IEC 61034.



CONSTRUCTION:

1. CONDUCTOR:

Copper class 1 or class 5 to IEC 60228.

2. INSULATION:

Polyethylene Black and blue numbered pairs.

3. INDIVIDUAL SCREEN:

Aluminium bonded to polyester tape with drain wire.

4. OVERALL SCREEN:

Aluminium bonded to polyester tape with drain wire.

5. INNER COVERING:

Halogen-free thermoplastic polyolefin.

6. ARMOUR:

Galvanised steel wires.

7. SHEATH:

Halogen-free thermoplastic polyolefin.

APPLICATIONS:

Signal protection between pairs.

Good electromagnetic protection from external influence.

Flame Retardant according to IEC 60332-1-2.

Fire Retardant (Unfire[®]) according to IEC 60332-3, categories A and C.

Halogen-free according to IEC 60754-1.

Low acidity and corrosivity of the combustion gases according to IEC 60754-2.

Reduced darkness of fumes generated during combustion according to IEC 61034.

Excellent mechanical protection during laying, installation and service.

Highly recommended in areas with high risk of explosion or fire.

Extra pulling force. Armour can be used to pull the cable.

Option class 5 provides extra flexibility.

Able to work at very low temperatures (-45 °C).



PHYSICAL & ELECTRICAL CHARACTERISTICS:

CONDUCTOR CLASS 1

Code	Cross section (mm ²)	Diameters				Weight (kg/km)	Bending radius. Operation (mm)	Mutual capacitance (µF/km)	Inductance (mH/km)
		Under individual screen (mm)	Under overall screen (mm)	Under armour (mm)	Overall (mm)				
4167023	2x2x0.5	4.1	7.8	9.7	14.3	360	145	0.063	1.581
4167024	2x2x0.75	4.5	8.5	10.4	15.0	400	150	0.073	1.466
4167025	2x2x1	4.8	9.0	11.3	16.1	450	165	0.079	1.404
4167026	2x2x1.5	5.3	9.9	12.4	18.2	615	185	0.093	1.307
4167053	5x2x0.5	4.1	10.6	13.1	18.6	650	190	0.063	1.581
4167054	5x2x0.75	4.5	11.5	14.0	19.5	730	195	0.073	1.466
4167055	5x2x1	4.8	12.2	14.7	20.4	790	205	0.079	1.404
4167056	5x2x1.5	5.3	13.5	16.2	22.8	1,030	230	0.093	1.307
4167103	10x2x0.5	4.1	15.5	18.0	23.9	1,005	240	0.063	1.581
4167104	10x2x0.75	4.5	16.9	19.4	25.3	1,120	255	0.073	1.466
4167105	10x2x1	4.8	17.9	20.6	27.4	1,390	275	0.079	1.404
4167106	10x2x1.5	5.3	19.8	22.9	29.9	1,655	300	0.093	1.307
4167153	15x2x0.5	4.1	18.3	21.0	27.6	1,400	280	0.063	1.581
4167154	15x2x0.75	4.5	19.9	22.6	29.2	1,575	295	0.073	1.466
4167155	15x2x1	4.8	21.0	24.2	31.2	1,790	315	0.079	1.404
4167156	15x2x1.5	5.3	23.3	26.8	34.8	2,335	350	0.093	1.307
4167203	20x2x0.5	4.1	20.7	23.4	30.2	1,665	305	0.063	1.581
4167204	20x2x0.75	4.5	22.5	25.2	32.0	1,880	320	0.073	1.466
4167205	20x2x1	4.8	23.8	27.3	35.3	2,395	355	0.079	1.404
4167206	20x2x1.5	5.3	26.4	29.9	38.1	2,785	385	0.093	1.307
4167303	30x2x0.5	4.1	24.8	27.9	34.9	2,175	350	0.063	1.581
4167304	30x2x0.75	4.5	27.0	30.2	37.2	2,480	375	0.073	1.466
4167305	30x2x1	4.8	28.6	32.7	41.1	3,175	415	0.079	1.404
4167306	30x2x1.5	5.3	31.7	35.8	45.6	4,085	460	0.093	1.307
4167503	50x2x0.5	4.1	32.5	36.6	45.0	3,545	450	0.063	1.581
4167504	50x2x0.75	4.5	35.4	39.5	47.9	4,075	480	0.073	1.466
4167505	50x2x1	4.8	37.5	42.0	52.0	5,030	520	0.079	1.404
4167506	50x2x1.5	5.3	41.5	46.0	56.4	5,945	565	0.093	1.307

PHYSICAL & ELECTRICAL CHARACTERISTICS:

CONDUCTOR CLASS 5

Code	Cross section (mm²)	Diameters				Weight (kg/km)	Bending radius. Operation (mm)	Mutual capacitance (µF/km)	Inductance (mH/km)
		Under individual screen (mm)	Under overall screen (mm)	Under armour (mm)	Overall (mm)				
4172023	2x2x0.5	4.3	8.2	10.5	15.3	400	155	0.063	1.517
4172024	2x2x0.75	4.7	8.9	11.2	16.0	435	160	0.072	1.416
4172025	2x2x1	5.0	9.4	11.7	16.5	465	165	0.079	1.357
4172026	2x2x1.5	5.5	10.3	12.8	18.5	630	185	0.091	1.279
4172053	5x2x0.5	4.3	11.1	13.6	19.3	690	195	0.063	1.517
4172054	5x2x0.75	4.7	12.0	14.5	20.2	760	205	0.072	1.416
4172055	5x2x1	5.0	12.8	15.3	21.0	815	210	0.079	1.357
4172056	5x2x1.5	5.5	14.0	16.7	23.3	1,045	235	0.091	1.279
4172103	10x2x0.5	4.3	16.2	18.9	25.7	1,190	260	0.063	1.517
4172104	10x2x0.75	4.7	17.6	20.3	27.2	1,335	275	0.072	1.416
4172105	10x2x1	5.0	18.7	21.4	28.2	1,435	285	0.079	1.357
4172106	10x2x1.5	5.5	20.5	23.6	30.6	1,670	310	0.091	1.279
4172153	15x2x0.5	4.3	19.1	22.2	29.0	1,495	290	0.063	1.517
4172154	15x2x0.75	4.7	20.8	23.9	30.7	1,695	310	0.072	1.416
4172155	15x2x1	5.0	22.1	25.2	32.2	1,840	325	0.079	1.357
4172156	15x2x1.5	5.5	24.2	27.7	35.7	2,360	360	0.091	1.279
4172203	20x2x0.5	4.3	21.6	24.7	31.7	1,770	320	0.063	1.517
4172204	20x2x0.75	4.7	23.5	26.6	33.6	2,010	340	0.072	1.416
4172205	20x2x1	5.0	24.9	28.4	36.4	2,445	365	0.079	1.357
4172206	20x2x1.5	5.5	27.3	30.8	39.0	2,805	390	0.091	1.279
4172303	30x2x0.5	4.3	26.0	29.5	37.7	2,560	380	0.063	1.517
4172304	30x2x0.75	4.7	28.2	31.8	40.0	2,895	400	0.072	1.416
4172305	30x2x1	5.0	30.0	34.1	42.5	3,260	425	0.079	1.357
4172306	30x2x1.5	5.5	32.8	36.9	46.7	4,115	470	0.091	1.279
4172503	50x2x0.5	4.3	34.0	38.5	48.3	4,160	485	0.063	1.517
4172504	50x2x0.75	4.7	37.0	41.5	51.3	4,705	515	0.072	1.416
4172505	50x2x1	5.0	39.3	43.8	53.8	5,160	540	0.079	1.357
4172506	50x2x1.5	5.5	43.0	47.5	57.9	5,960	580	0.091	1.279



STANDARDS:

CONSTRUCTION: BS 5308 Part 1 Type 1 / CSA C22.2 No. 0.3-01.
FIRE PERFORMANCE: IEC 60331 / IEC 60332-1-2 / IEC 60332-3
(categories A and C) IEC 60754 / IEC 61034.



CONSTRUCTION:

- 1. CONDUCTOR:**
Copper class 1 or class 5 to IEC 60228.
- 2. MICA TAPE (-M)**
- 3. INSULATION:**
Polyethylene Black and blue numbered pairs.
- 4. OVERALL SCREEN:**
Aluminium bonded to polyester tape with drain wire.
- 5. SHEATH:**
Halogen-free thermoplastic polyolefin.

APPLICATIONS:

Good electromagnetic protection from external influence.
Fire Resistant according to IEC 60331.
Flame Retardant according to IEC 60332-1-2.
Fire Retardant (Unfire®) according to IEC 60332-3, categories A and C.
Halogen-free according to IEC 60754-1.
Low acidity and corrosivity of the combustion gases according to IEC 60754-2.
Reduced darkness of fumes generated during combustion according to IEC 61034.
Option class 5 provides extra flexibility.
Able to work at very low temperatures (-45 °C).



PHYSICAL & ELECTRICAL CHARACTERISTICS:

CONDUCTOR CLASS 1

Code	Cross section (mm ²)	Diameters		Weight (kg/km)	Bending radius. Operation (mm)	Mutual capacitance (µF/km)	Inductance (mH/km)
		Under screen (mm)	Overall (mm)				
4200013	1x2x0.5	5.2	8.3	95	50	0.050	1.804
4200014	1x2x0.75	5.4	8.5	105	55	0.059	1.634
4200015	1x2x1	5.6	8.6	110	55	0.064	1.563
4200016	1x2x1.5	6.2	9.3	130	60	0.074	1.451
4200023	1x4x0.5	6.3	9.4	120	95	0.038	1.804
4200024	1x4x0.75	6.5	9.6	130	100	0.043	1.634
4200025	1x4x1	7.1	10.2	150	105	0.045	1.509
4200026	1x4x1.5	7.5	10.6	175	110	0.051	1.451
4200053	5x2x0.5	10.8	13.9	240	85	0.045	1.804
4200054	5x2x0.75	11.2	14.3	270	90	0.050	1.634
4200055	5x2x1	11.7	14.9	305	90	0.052	1.563
4200056	5x2x1.5	13.3	16.4	375	100	0.054	1.417
4200103	10x2x0.5	15.4	18.5	380	115	0.045	1.804
4200104	10x2x0.75	15.9	19.0	435	115	0.050	1.634
4200105	10x2x1	16.7	19.8	500	120	0.052	1.563
4200106	10x2x1.5	18.3	21.5	625	130	0.056	1.451
4200153	15x2x0.5	17.4	20.6	505	125	0.045	1.804
4200154	15x2x0.75	18.0	21.1	585	130	0.050	1.634
4200155	15x2x1	19.8	22.9	690	140	0.050	1.509
4200156	15x2x1.5	21.5	24.6	850	150	0.054	1.417
4200203	20x2x0.5	20.5	23.6	650	145	0.045	1.804
4200204	20x2x0.75	21.2	24.3	755	150	0.050	1.634
4200205	20x2x1	22.3	25.4	880	155	0.052	1.563
4200206	20x2x1.5	24.4	27.5	1,120	165	0.056	1.451
4200303	30x2x0.5	25.1	28.2	925	170	0.045	1.804
4200304	30x2x0.75	25.9	29.0	1,075	175	0.050	1.634
4200305	30x2x1	27.3	30.4	1,260	185	0.052	1.563
4200306	30x2x1.5	29.9	33.4	1,650	200	0.056	1.451
4200503	50x2x0.5	32.7	35.9	1,460	215	0.045	1.804
4200504	50x2x0.75	35.2	38.3	1,760	230	0.048	1.577
4200505	50x2x1	35.6	39.7	2,110	240	0.052	1.563
4200506	50x2x1.5	39.0	43.1	2,710	260	0.056	1.451

PHYSICAL & ELECTRICAL CHARACTERISTICS:

CONDUCTOR CLASS 5

Code	Cross section (mm²)	Diameters		Weight (kg/km)	Bending radius. Operation (mm)	Mutual capacitance (µF/km)	Inductance (mH/km)
		Under screen (mm)	Overall (mm)				
4205013	1x2x0.5	5.2	8.3	95	50	0.051	1.692
4205014	1x2x0.75	5.6	8.7	105	55	0.059	1.577
4205015	1x2x1	5.9	9.0	115	55	0.064	1.509
4205016	1x2x1.5	6.4	9.5	130	60	0.072	1.417
4205023	1x4x0.5	6.3	9.4	115	95	0.039	1.692
4205024	1x4x0.75	6.7	9.9	135	100	0.042	1.577
4205025	1x4x1	7.1	10.2	150	105	0.045	1.509
4205026	1x4x1.5	7.7	10.8	170	110	0.049	1.417
4205053	5x2x0.5	10.8	13.9	235	85	0.045	1.692
4205054	5x2x0.75	11.6	14.7	280	90	0.048	1.577
4205055	5x2x1	12.2	15.4	310	95	0.050	1.509
4205056	5x2x1.5	13.3	16.4	375	100	0.054	1.417
4205103	10x2x0.5	15.3	18.5	375	115	0.045	1.692
4205104	10x2x0.75	16.5	19.7	450	120	0.048	1.577
4205105	10x2x1	17.4	20.6	510	125	0.050	1.509
4205106	10x2x1.5	18.9	22.1	620	135	0.054	1.417
4205153	15x2x0.5	17.4	20.5	495	125	0.045	1.692
4205154	15x2x0.75	18.7	21.9	600	135	0.048	1.577
4205155	15x2x1	19.8	22.9	690	140	0.050	1.509
4205156	15x2x1.5	21.5	24.6	850	150	0.054	1.417
4205203	20x2x0.5	20.4	23.5	635	145	0.045	1.692
4205204	20x2x0.75	22.0	25.1	775	155	0.048	1.577
4205205	20x2x1	23.2	26.3	890	160	0.050	1.509
4205206	20x2x1.5	25.2	28.3	1,105	170	0.054	1.417
4205303	30x2x0.5	25.0	28.1	900	170	0.045	1.692
4205304	30x2x0.75	27.0	30.1	1,105	180	0.048	1.577
4205305	30x2x1	28.4	31.5	1,275	190	0.050	1.509
4205306	30x2x1.5	30.9	34.4	1,625	210	0.054	1.417
4205503	50x2x0.5	32.6	36.1	1,455	220	0.045	1.692
4205504	50x2x0.75	35.2	38.7	1,800	235	0.048	1.577
4205505	50x2x1	37.1	41.2	2,140	250	0.050	1.509
4205506	50x2x1.5	40.3	44.4	2,665	270	0.054	1.417



STANDARDS:

CONSTRUCTION: BS 5308 Part 1 Type 1 / CSA C22.2 No. 0.3-01.
FIRE PERFORMANCE: IEC 60331 / IEC 60332-1-2 / IEC 60332-3
(categories A and C) / IEC 60754 / IEC 61034.

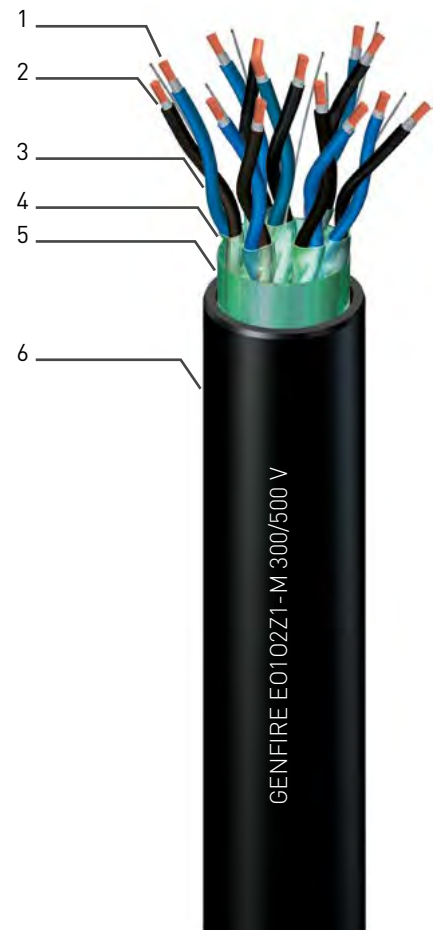


CONSTRUCTION:

- 1. CONDUCTOR:**
Copper class 1 or class 5 to IEC 60228.
- 2. MICA TAPE**
- 3. INSULATION:**
Polyethylene Black and blue numbered pairs.
- 4. INDIVIDUAL SCREEN:**
Aluminium bonded to polyester tape with drain wire.
- 5. OVERALL SCREEN:**
Aluminium bonded to polyester tape with drain wire.
- 6. SHEATH:**
Halogen-free thermoplastic polyolefin.

APPLICATIONS:

Signal protection between pairs.
Good electromagnetic protection from external influence.
Fire Resistant according to IEC 60331.
Flame Retardant according to IEC 60332-1-2.
Fire Retardant (Unfire®) according to IEC 60332-3, categories A and C.
Halogen-free according to IEC 60754-1.
Low acidity and corrosivity of the combustion gases according to IEC 60754-2.
Reduced darkness of fumes generated during combustion according to IEC 61034.
Option class 5 provides extra flexibility.
Able to work at very low temperatures (-45 °C).



PHYSICAL & ELECTRICAL CHARACTERISTICS:

CONDUCTOR CLASS 1

General Cable Code	Cross section (mm ²)	Diameters			Weight (kg/km)	Bending radius. Operation (mm)	Mutual capacitance (µF/km)	Inductance (mH/km)
		Under individual screen (mm)	Under overall screen (mm)	Overall (mm)				
4201023	2x2x0.5	5.2	9.8	12.9	205	80	0.050	1.804
4201024	2x2x0.75	5.4	10.1	13.2	220	80	0.059	1.634
4201025	2x2x1	5.6	10.5	13.7	240	85	0.064	1.563
4201026	2x2x1.5	6.2	11.5	14.6	280	90	0.074	1.451
4201053	5x2x0.5	5.2	13.2	16.4	320	100	0.050	1.804
4201054	5x2x0.75	5.4	13.7	16.8	350	105	0.059	1.634
4201055	5x2x1	5.6	14.3	17.4	385	105	0.064	1.563
4201056	5x2x1.5	6.2	15.6	18.7	465	115	0.074	1.451
4201103	10x2x0.5	5.2	19.4	22.5	530	135	0.050	1.804
4201104	10x2x0.75	5.4	20.0	23.1	585	140	0.059	1.634
4201105	10x2x1	5.6	21.0	24.1	660	145	0.064	1.563
4201106	10x2x1.5	6.2	22.9	26.0	800	160	0.074	1.451
4201153	15x2x0.5	5.2	22.9	26.0	730	160	0.050	1.804
4201154	15x2x0.75	5.4	23.6	26.7	810	160	0.059	1.634
4201155	15x2x1	5.6	24.7	27.9	915	170	0.064	1.563
4201156	15x2x1.5	6.2	27.0	30.5	1,150	185	0.074	1.451
4201203	20x2x0.5	5.2	25.9	29.0	925	175	0.050	1.804
4201204	20x2x0.75	5.4	26.7	29.8	1,030	180	0.059	1.634
4201205	20x2x1	5.6	28.0	31.5	1,195	190	0.064	1.563
4201206	20x2x1.5	6.2	30.5	34.1	1,465	205	0.074	1.451
4201303	30x2x0.5	5.2	31.1	34.2	1,305	205	0.050	1.804
4201304	30x2x0.75	5.4	32.1	35.2	1,465	215	0.059	1.634
4201305	30x2x1	5.6	33.6	37.7	1,755	230	0.064	1.563
4201306	30x2x1.5	6.2	36.7	40.8	2,160	245	0.074	1.451
4201503	50x2x0.5	5.2	40.8	44.9	2,200	270	0.050	1.804
4201504	50x2x0.75	5.4	42.0	46.1	2,465	280	0.059	1.634
4201505	50x2x1	5.6	44.1	48.6	2,845	295	0.064	1.563
4201506	50x2x1.5	6.2	48.1	52.6	3,510	320	0.074	1.451

PHYSICAL & ELECTRICAL CHARACTERISTICS:
CONDUCTOR CLASS 5

General Cable Code	Cross section (mm ²)	Diameters			Weight (kg/km)	Bending radius. Operation (mm)	Mutual capacitance (µF/km)	Inductance (mH/km)
		Under individual screen (mm)	Under overall screen (mm)	Overall (mm)				
4206023	2x2x0.5	5.2	9.7	12.8	205	80	0.051	1.692
4206024	2x2x0.75	5.6	10.4	13.6	225	85	0.059	1.577
4206025	2x2x1	5.9	11.0	14.1	250	85	0.064	1.509
4206026	2x2x1.5	6.4	11.9	15.0	285	90	0.072	1.417
4206053	5x2x0.5	5.2	13.2	16.3	315	100	0.051	1.692
4206054	5x2x0.75	5.6	14.2	17.3	360	105	0.059	1.577
4206055	5x2x1	5.9	14.9	18.0	395	110	0.064	1.509
4206056	5x2x1.5	6.4	16.1	19.2	465	115	0.072	1.417
4206103	10x2x0.5	5.2	19.3	22.5	525	135	0.051	1.692
4206104	10x2x0.75	5.6	20.8	23.9	605	145	0.059	1.577
4206105	10x2x1	5.9	21.8	25.0	675	150	0.064	1.509
4206106	10x2x1.5	6.4	23.6	26.7	795	160	0.072	1.417
4206153	15x2x0.5	5.2	22.8	25.9	715	160	0.051	1.692
4206154	15x2x0.75	5.6	24.5	27.6	830	170	0.059	1.577
4206155	15x2x1	5.9	25.8	28.9	940	175	0.064	1.509
4206156	15x2x1.5	6.4	27.9	31.4	1,140	190	0.072	1.417
4206203	20x2x0.5	5.2	25.8	28.9	905	175	0.051	1.692
4206204	20x2x0.75	5.6	27.7	30.8	1,055	185	0.059	1.577
4206205	20x2x1	5.9	29.1	32.6	1,225	200	0.064	1.509
4206206	20x2x1.5	6.4	31.5	35.0	1,455	210	0.072	1.417
4206303	30x2x0.5	5.2	31.0	34.5	1,315	210	0.051	1.692
4206304	30x2x0.75	5.6	33.3	36.8	1,540	225	0.059	1.577
4206305	30x2x1	5.9	35.0	39.1	1,800	235	0.064	1.509
4206306	30x2x1.5	6.4	37.8	42.0	2,140	255	0.072	1.417
4206503	50x2x0.5	5.2	40.6	45.1	2,200	275	0.051	1.692
4206504	50x2x0.75	5.6	43.6	48.1	2,570	290	0.059	1.577
4206505	50x2x1	5.9	45.9	50.4	2,915	305	0.064	1.509
4206506	50x2x1.5	6.4	49.6	54.1	3,475	325	0.072	1.417



GENFIRE®-M

E02Z1MZ1-M Fire Resistant Armoured Overall Screened Instrumentation
300/500 V

STANDARDS:

CONSTRUCTION: BS 5308 Part 1 Type 2 / CSA C22.2 No. 0.3-01.
FIRE PERFORMANCE: IEC 60331 / IEC 60332-1-2 / IEC 60332-3 (categories A and C) / IEC 60754 / IEC 61034.



CONSTRUCTION:

- | | |
|---|--|
| <p>1. CONDUCTOR:
Copper class 1 or class 5 to IEC 60228.</p> <p>2. MICA TAPE (-M)</p> <p>3. INSULATION:
Polyethylene Black and blue numbered pairs.</p> <p>4. OVERALL SCREEN:
Aluminium bonded to polyester tape with drain wire.</p> | <p>5. INNER COVERING:
Halogen-free thermoplastic polyolefin.</p> <p>6. ARMOUR:
Galvanised steel wires.</p> <p>7. SHEATH:
Halogen-free thermoplastic polyolefin.</p> |
|---|--|

APPLICATIONS:

Good electromagnetic protection from external influence.
Fire Resistant according to IEC 60331.
Flame Retardant according to IEC 60332-1-2.
Fire Retardant (Unfire®) according to IEC 60332-3, categories A and C.
Halogen-free according to IEC 60754-1.
Low acidity and corrosivity of the combustion gases according to IEC 60754-2.
Reduced darkness of fumes generated during combustion according to IEC 61034.
Excellent mechanical protection during laying, installation and service.
Highly recommended in areas with high risk of explosion or fire.
Extra pulling force. Armour can be used to pull the cable.
Option class 5 provides extra flexibility.
Able to work at very low temperatures (-45 °C).



PHYSICAL & ELECTRICAL CHARACTERISTICS:

CONDUCTOR CLASS 1

General Cable Code	Cross section (mm²)	Diameters			Weight (kg/km)	Bending radius. Operation (mm)	Mutual capacitance (µF/km)	Inductance (mH/km)
		Under individual screen (mm)	Under overall screen (mm)	Overall (mm)				
4202013	1x2x0.5	5.2	6.9	11.3	260	115	0.050	1.804
4202014	1x2x0.75	5.4	7.1	11.5	275	115	0.059	1.634
4202015	1x2x1	5.6	7.4	11.8	290	120	0.064	1.563
4202016	1x2x1.5	6.2	7.9	12.5	320	125	0.074	1.451
4202023	1x4x0.5	6.3	8.0	12.4	305	125	0.038	1.804
4202024	1x4x0.75	6.5	8.2	12.6	320	130	0.043	1.634
4202025	1x4x1	6.8	8.5	13.1	345	135	0.046	1.563
4202026	1x4x1.5	7.5	9.4	14.0	400	140	0.051	1.451
4202053	5x2x0.5	10.8	13.1	17.7	545	180	0.045	1.804
4202054	5x2x0.75	11.2	13.5	18.1	585	185	0.050	1.634
4202055	5x2x1	11.7	14.3	19.8	755	200	0.052	1.563
4202056	5x2x1.5	12.9	15.4	21.1	870	215	0.056	1.451
4202103	10x2x0.5	15.4	17.9	23.6	955	240	0.045	1.804
4202104	10x2x0.75	15.9	18.4	24.1	1,025	245	0.050	1.634
4202105	10x2x1	16.7	19.2	25.1	1,125	255	0.052	1.563
4202106	10x2x1.5	18.3	21.1	27.9	1,470	280	0.056	1.451
4202153	15x2x0.5	17.4	20.2	25.9	1,155	260	0.045	1.804
4202154	15x2x0.75	18.0	20.7	26.4	1,250	265	0.050	1.634
4202155	15x2x1	18.9	21.7	28.5	1,545	285	0.052	1.563
4202156	15x2x1.5	20.8	23.9	30.9	1,865	310	0.056	1.451
4202203	20x2x0.5	20.5	23.2	29.8	1,565	300	0.045	1.804
4202204	20x2x0.75	21.2	23.9	30.5	1,705	305	0.050	1.634
4202205	20x2x1	22.3	25.4	32.2	1,915	325	0.052	1.563
4202206	20x2x1.5	24.4	27.5	34.7	2,275	350	0.056	1.451
4202303	30x2x0.5	25.1	27.8	34.6	2,035	350	0.045	1.804
4202304	30x2x0.75	25.9	28.6	35.4	2,210	355	0.050	1.634
4202305	30x2x1	27.3	30.4	37.6	2,525	380	0.052	1.563
4202306	30x2x1.5	29.9	33.4	41.6	3,335	420	0.056	1.451
4202503	50x2x0.5	32.7	35.9	43.1	2,950	435	0.045	1.804
4202504	50x2x0.75	33.8	36.9	44.1	3,250	445	0.050	1.634
4202505	50x2x1	35.6	39.7	48.1	4,110	485	0.052	1.563
4202506	50x2x1.5	39.0	43.1	52.9	5,335	530	0.056	1.451

PHYSICAL & ELECTRICAL CHARACTERISTICS:
CONDUCTOR CLASS 5

General Cable Code	Cross section [mm ²]	Diameters			Weight [kg/km]	Bending radius. Operation [mm]	Mutual capacitance [μF/km]	Inductance [mH/km]
		Under individual screen [mm]	Under overall screen [mm]	Overall [mm]				
4207013	1x2x0.5	5.2	6.9	11.3	260	115	0.051	1.692
4207014	1x2x0.75	5.6	7.3	11.7	275	120	0.059	1.577
4207015	1x2x1	5.9	7.6	12.0	290	120	0.064	1.509
4207016	1x2x1.5	6.4	8.1	12.7	325	130	0.072	1.417
4207023	1x4x0.5	6.3	8.0	12.4	305	125	0.039	1.692
4207024	1x4x0.75	6.7	8.4	12.9	330	130	0.042	1.577
4207025	1x4x1	7.1	8.8	13.4	355	135	0.045	1.509
4207026	1x4x1.5	7.7	9.6	14.2	405	145	0.049	1.417
4207053	5x2x0.5	10.8	13.1	17.9	550	180	0.045	1.692
4207054	5x2x0.75	11.6	13.9	18.7	610	190	0.048	1.577
4207055	5x2x1	12.2	14.8	20.3	775	205	0.050	1.509
4207056	5x2x1.5	13.3	15.8	21.5	885	215	0.054	1.417
4207103	10x2x0.5	15.3	17.9	23.6	945	240	0.045	1.692
4207104	10x2x0.75	16.5	19.1	24.8	1,050	250	0.048	1.577
4207105	10x2x1	17.4	20.0	25.9	1,160	260	0.050	1.509
4207106	10x2x1.5	18.9	21.7	28.5	1,485	285	0.054	1.417
4207153	15x2x0.5	17.4	20.1	26.7	1,305	270	0.045	1.692
4207154	15x2x0.75	18.7	21.4	28.1	1,450	280	0.048	1.577
4207155	15x2x1	19.8	22.5	29.3	1,595	295	0.050	1.509
4207156	15x2x1.5	21.5	24.6	31.6	1,875	320	0.054	1.417
4207203	20x2x0.5	20.4	23.1	29.9	1,560	300	0.045	1.692
4207204	20x2x0.75	22.0	24.7	31.5	1,765	315	0.048	1.577
4207205	20x2x1	23.2	26.3	33.1	1,965	335	0.050	1.509
4207206	20x2x1.5	25.2	28.3	35.5	2,300	355	0.054	1.417
4207303	30x2x0.5	25.0	28.1	35.1	2,060	355	0.045	1.692
4207304	30x2x0.75	27.0	30.1	37.1	2,350	375	0.048	1.577
4207305	30x2x1	28.4	31.5	38.7	2,600	390	0.050	1.509
4207306	30x2x1.5	30.9	34.4	42.6	3,340	430	0.054	1.417
4207503	50x2x0.5	32.6	36.1	44.3	3,265	445	0.045	1.692
4207504	50x2x0.75	35.2	38.7	46.9	3,740	470	0.048	1.577
4207505	50x2x1	37.1	41.2	49.6	4,205	500	0.050	1.509
4207506	50x2x1.5	40.3	44.4	54.2	5,385	545	0.054	1.417



GENFIRE®-M

E0102Z1MZ1-M Fire Resistant Armoured Individual
+ Overall Screened Instrumentation
300/500 V

STANDARDS:

CONSTRUCTION: BS 5308 Part 1 Type 2 / CSA C22.2 No. 0.3-01.

FIRE PERFORMANCE: IEC 60331 / IEC 60332-1-2 / IEC 60332-3
(categories A and C) / IEC 60754 / IEC 61034.



CONSTRUCTION:

- | | |
|---|---|
| <p>1. CONDUCTOR:
Copper class 1 or class 5 to IEC 60228.</p> <p>2. MICA TAPE</p> <p>3. INSULATION:
Polyethylene Black and blue numbered pairs.</p> <p>4. INDIVIDUAL SCREEN:
Aluminium bonded to polyester tape with drain wire.</p> | <p>5. OVERALL SCREEN:
Aluminium bonded to polyester tape with drain wire.</p> <p>6. INNER COVERING:
Halogen-free thermoplastic polyolefin.</p> <p>7. ARMOUR:
Galvanised steel wires.</p> <p>8. SHEATH:
Halogen-free thermoplastic polyolefin.</p> |
|---|---|

APPLICATIONS:

Signal protection between pairs.
Good electromagnetic protection from external influence.
Fire Resistant according to IEC 60331.
Flame Retardant according to IEC 60332-1-2.
Fire Retardant (Unfire®) according to IEC 60332-3, categories A and C.
Halogen-free according to IEC 60754-1.
Low acidity and corrosivity of the combustion gases according to IEC 60754-2.
Reduced darkness of fumes generated during combustion according to IEC 61034.
Excellent mechanical protection during laying, installation and service.
Highly recommended in areas with high risk of explosion or fire.
Extra pulling force. Armour can be used to pull the cable.
Option class 5 provides extra flexibility.
Able to work at very low temperatures (-45 °C).



PHYSICAL & ELECTRICAL CHARACTERISTICS:

CONDUCTOR CLASS 1

General Cable Code	Cross section (mm ²)	Diameters				Weight (kg/km)	Bending radius. Operation (mm)	Mutual capacitance (µF/km)	Inductance (mH/km)
		Under individual screen (mm)	Under overall screen (mm)	Under armour (mm)	Overall (mm)				
4203023	2x2x0.5	5.2	9.8	11.7	16.3	440	165	0.050	1.804
4203024	2x2x0.75	5.4	10.1	12.0	16.6	455	170	0.059	1.634
4203025	2x2x1	5.6	10.5	12.9	17.7	515	180	0.064	1.563
4203026	2x2x1.5	6.2	11.5	14.0	19.7	695	200	0.074	1.451
4203053	5x2x0.5	5.2	13.2	15.7	21.3	800	215	0.050	1.804
4203054	5x2x0.75	5.4	13.7	16.2	21.7	840	220	0.059	1.634
4203055	5x2x1	5.6	14.3	16.8	22.5	905	225	0.064	1.563
4203056	5x2x1.5	6.2	15.6	18.3	24.9	1,165	250	0.074	1.451
4203103	10x2x0.5	5.2	19.4	21.9	27.8	1,235	280	0.050	1.804
4203104	10x2x0.75	5.4	20.0	22.5	28.4	1,315	285	0.059	1.634
4203105	10x2x1	5.6	21.0	23.7	30.5	1,605	305	0.064	1.563
4203106	10x2x1.5	6.2	22.9	26.0	33.0	1,875	330	0.074	1.451
4203153	15x2x0.5	5.2	22.9	25.6	32.2	1,740	325	0.050	1.804
4203154	15x2x0.75	5.4	23.6	26.3	32.9	1,845	330	0.059	1.634
4203155	15x2x1	5.6	24.7	27.8	34.9	2,070	350	0.064	1.563
4203156	15x2x1.5	6.2	27.0	30.5	38.5	2,655	385	0.074	1.451
4203203	20x2x0.5	5.2	25.9	28.6	35.4	2,055	355	0.050	1.804
4203204	20x2x0.75	5.4	26.7	29.4	36.2	2,205	365	0.059	1.634
4203205	20x2x1	5.6	28.0	31.5	39.5	2,760	395	0.064	1.563
4203206	20x2x1.5	6.2	30.5	34.1	42.3	3,180	425	0.074	1.451
4203303	30x2x0.5	5.2	31.1	34.2	41.2	2,715	415	0.050	1.804
4203304	30x2x0.75	5.4	32.1	35.2	42.2	2,915	425	0.059	1.634
4203305	30x2x1	5.6	33.6	37.7	46.1	3,660	465	0.064	1.563
4203306	30x2x1.5	6.2	36.7	40.8	50.6	4,675	510	0.074	1.451
4203503	50x2x0.5	5.2	40.8	44.9	53.3	4,455	535	0.050	1.804
4203504	50x2x0.75	5.4	42.0	46.1	54.5	4,785	545	0.059	1.634
4203505	50x2x1	5.6	44.1	48.6	58.6	5,840	590	0.064	1.563
4203506	50x2x1.5	6.2	48.1	52.6	63.0	6,790	630	0.074	1.451

PHYSICAL & ELECTRICAL CHARACTERISTICS:
CONDUCTOR CLASS 5

General Cable Code	Cross section (mm ²)	Diameters				Weight (kg/km)	Bending radius. Operation (mm)	Mutual capacitance (µF/km)	Inductance (mH/km)
		Under individual screen (mm)	Under overall screen (mm)	Under armour (mm)	Overall (mm)				
4208023	2x2x0.5	5.2	9.7	12.0	16.8	465	170	0.051	1.692
4208024	2x2x0.75	5.6	10.4	12.7	17.6	500	175	0.059	1.577
4208025	2x2x1	5.9	11.0	13.3	18.1	530	185	0.064	1.509
4208026	2x2x1.5	6.4	11.9	14.4	20.1	700	205	0.072	1.417
4208053	5x2x0.5	5.2	13.2	15.7	21.4	805	215	0.051	1.692
4208054	5x2x0.75	5.6	14.2	16.7	22.4	875	225	0.059	1.577
4208055	5x2x1	5.9	14.9	17.4	23.1	935	235	0.064	1.509
4208056	5x2x1.5	6.4	16.1	18.8	25.4	1,185	255	0.072	1.417
4208103	10x2x0.5	5.2	19.3	22.1	28.9	1,410	290	0.051	1.692
4208104	10x2x0.75	5.6	20.8	23.5	30.3	1,550	305	0.059	1.577
4208105	10x2x1	5.9	21.8	24.5	31.4	1,665	315	0.064	1.509
4208106	10x2x1.5	6.4	23.6	26.7	33.7	1,910	340	0.072	1.417
4208153	15x2x0.5	5.2	22.8	25.9	32.7	1,775	330	0.051	1.692
4208154	15x2x0.75	5.6	24.5	27.6	34.4	1,955	345	0.059	1.577
4208155	15x2x1	5.9	25.8	28.9	35.9	2,135	360	0.064	1.509
4208156	15x2x1.5	6.4	27.9	31.4	39.4	2,705	395	0.072	1.417
4208203	20x2x0.5	5.2	25.8	28.9	35.9	2,105	360	0.051	1.692
4208204	20x2x0.75	5.6	27.7	30.8	37.8	2,325	380	0.059	1.577
4208205	20x2x1	5.9	29.1	32.6	40.6	2,855	410	0.064	1.509
4208206	20x2x1.5	6.4	31.5	35.0	43.2	3,205	435	0.072	1.417
4208303	30x2x0.5	5.2	31.0	34.5	42.7	3,035	430	0.051	1.692
4208304	30x2x0.75	5.6	33.3	36.8	45.0	3,380	450	0.059	1.577
4208305	30x2x1	5.9	35.0	39.1	47.5	3,770	475	0.064	1.509
4208306	30x2x1.5	6.4	37.8	42.0	51.8	4,710	520	0.072	1.417
4208503	50x2x0.5	5.2	40.6	45.1	54.9	4,970	550	0.051	1.692
4208504	50x2x0.75	5.6	43.6	48.1	57.9	5,495	580	0.059	1.577
4208505	50x2x1	5.9	45.9	50.4	60.4	6,015	605	0.064	1.509
4208506	50x2x1.5	6.4	49.6	54.1	64.5	6,855	645	0.072	1.417



TECHNICAL INFORMATION

- 144 INSTALLATION GUIDE
- 164 PERFORMANCE OF CABLES IN THE EVENT OF FIRE
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- 170 SCREENING IN INSTRUMENTATION CABLES

INSTALLATION GUIDE

This manual provides installation methods commonly encountered in naval and offshore applications and should be used in conjunction with the engineer's installation specifications and all applicable codes. These methods are recommended for all types of power, control and instrumentation cables.

This manual is intended for use by the design engineer and the installer in the field and is not a text on power system design or electrical circuit analysis. The information provided is concise and should be adequate for the majority of installations. If you require additional information, please contact General Cable at info@generalcable.es.

In this document are described the rules and procedures to take into account during handling of electrical cables, with especial attention given to the characteristics of the cable to assure adequate transportation, laying and connection.

The laying procedure is delicate and the cables must be handled and installed properly to avoid damages. Significant damages may be caused by improper handling of cables, which either are detected when voltage is applied or will cause a reduction of cable quality, with resulting reduction of cable life.

PRE-INSTALLATION

To ensure safety during cable installation and reliability once the cable is installed, you should confirm the following prior to installation:

- The cable selected is proper for your application
- The cable has not been damaged in transit or storage

Review all applicable project, regional and specific rules, regulations and codes to verify that the cable selected is appropriate for the installation job. In case of classification / certification bodies, also consult them.

Any existing cable damage must be identified and any further damage prevented from occurring. This is done through proper cable inspection, handling and storage.

TRANSPORTATION

The cable drums shall always be transported in up-right position and never laying on its flanges. They shall be properly fix in order to avoid uncontrolled displacements and eventual falls on their sides.

CABLE HANDLING

YES

NO

Cradle both reel flanges between forks.



Do not lift by top flange. Cable or reel will be damaged.

Reels can be hoisted with a shaft extended through both flanges.



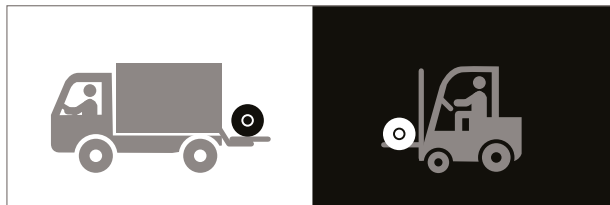
Use a spreader bar to prevent bending the reel flanges and mashing the cable.

Place spacers under the bottom flange and between reels to create a space to insert the forks.



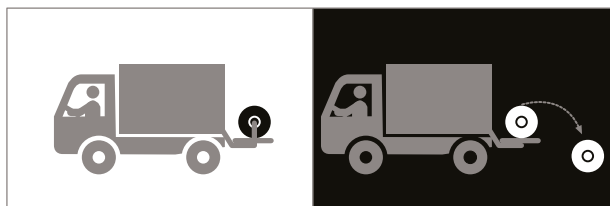
Upended heavy reels will often arrive damaged. Refuse or receive subject to inspection for hidden damage.

Lower reels from truck using hydraulic gate, hoist or fork lift. LOWER CAREFULLY.



Never allow forks to touch cable surface or reel wrap.

Always load with flanges on edge and chock and block securely.



Never drop reels.

CABLE STORAGE

Cables should be stored on hard surfaces so that reel flanges can not sink. Small reels may weigh several hundred kilos while large reels can exceed several tons.

As much as possible, outside storage shall be avoided, especially if the storage period is long, as it could result on wood deterioration and later problems with transportation, elevation and manipulation of the drums. Cable without UV protection may also deteriorate being outdoors.

Frequently rolling shall be avoided and in any case, the original way of rolling of the cable in the drums must be followed in order to avoid opening of the spires and cable touching the floor.

Impact damage can be prevented by the following precautions:

- Aligning reels flange to flange
- Using guards across flanges when different reel sizes are stored together
- Maintaining adequate aisles and barricades to prevent equipment from hitting the cable

Seal the ends of all cable stored outdoors, and re-seal both ends when a length is cut from the reel. That will prevent ingress of water or other substances into the cable.

CABLE INSPECTION

Inspect every reel of cable for damage before accepting the shipment. Be particularly alert for cable damage if:

- A reel is laying flat on its flange side
- Several reels are stacked on top of each other
- Other freight is stacked on top of a reel
- Nails have been driven into reel flanges to secure shipping blocks
- A reel flange is damaged
- A cable covering has been removed, or is stained or damaged
- A cable end seal has been removed or is damaged
- A reel has been dropped (hidden damage likely)

PRE-INSTALLATION CHECKLIST

CODE REVIEW

- Review all applicable project, regional and national codes relating to cable installation
- Consult project inspection authority

CABLE INSPECTION

- Check for shipping damage before accepting shipment. Record any damage on the way bill
- Confirm that the cable specified was received
- Verify that the cable end seals are intact

CABLE HANDLING

- Remove nails and staples from reel flanges
- Calculate and comply with recommended bending radii
- Use swivels

CABLE STORAGE

- Provide firm support for reels
- Protect cable from mechanical damage and from liquid spills
- Check cable end seals periodically
- Advise all splicers, installers and handlers of all special instructions

INSTALLATION

A high percentage of cable failures are due to mechanical damage, which typically occurs during transportation, handling and installation.

In fact, most cables are subjected to more mechanical stress during installation than they ever experience in actual operation. Needless to say, handling and installing the cable according to the manufacturer's recommendations is extremely important.

When cables are installed, the following factors must be considered:

- Conductor configuration
- Way or cable tray fill
- Physical limitations of cables
- Installation equipment
- Ambient temperature and conditions
- Requirements for securing and supporting the cables

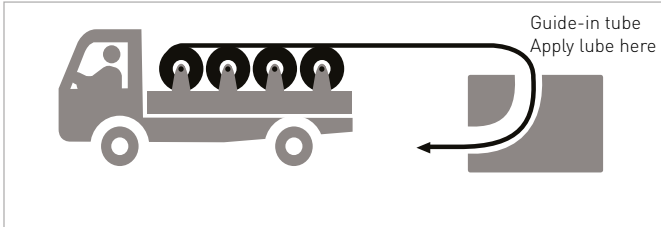
EQUIPMENT

The proper use of appropriate equipment is crucial to a successful cable installation. The equipment recommended for a variety of installations is listed in the following list and the appropriate equipment should be selected for particular installation requirements:

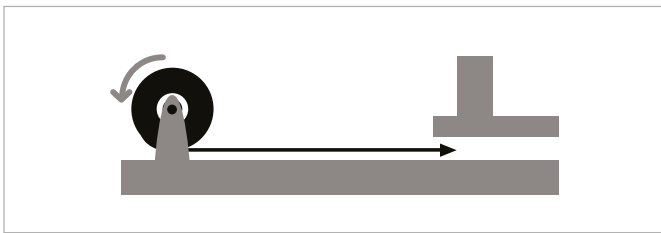
- Dynamometer
- Basket grip pullers
- Cable cutter
- Cable end seals
- Cable pulling lubricant
- Cable tray bend sheaves
- Cable tray rollers
- Capstan-type puller
- Diameter tape
- Duct cleaning mandrels
- Electric safety blankets and clamps
- Floodlights
- Gang rollers
- Gloves
- Tester
- Measuring tape
- Personal Protection Equipment
- Pulling rope
- Pump
- Reel arbour
- Reel brakes
- Reel jacks
- Several wire rope slings of various lengths
- Swivels
- Signals
- ... / ...

FEED-IN SETUPS

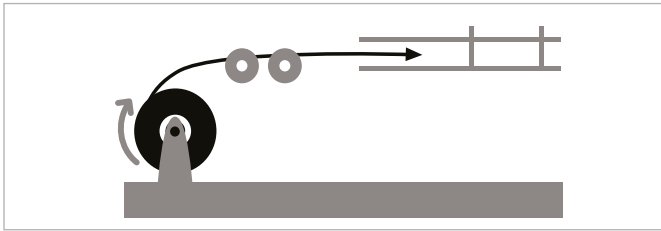
The following diagrams illustrate various cable feed-in setups:



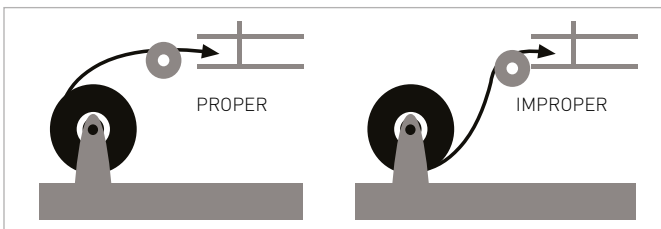
Reels on truck.



Setup for duct close to floor.

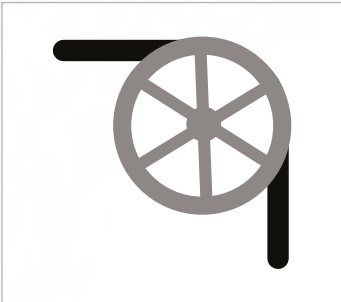


Setup for overhead, into tray.



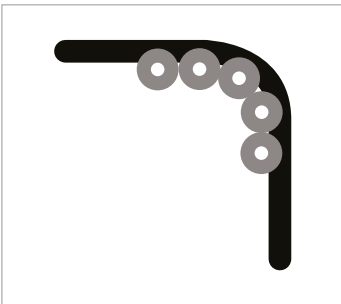
The feed-in setup should unreel the cable with a natural curvature, as opposed to a reverse "S" curvature.

Single sheave



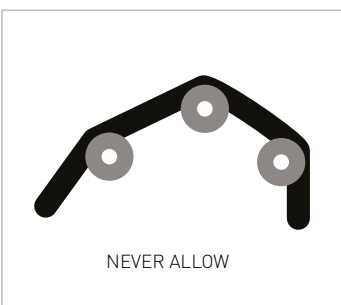
Single sheave should only be used for guiding cables. Arrange multiple blocks to maintain bending radii whenever cable changes direction or elevation.

Sheave assembly



For pulling around bends, use conveyor sheave assemblies of the appropriate radius series.

The pulleys must be positioned to ensure that the effective curvature is smooth and changes direction or elevation evenly at each pulley. Never allow a polygon curvature to occur as shown:



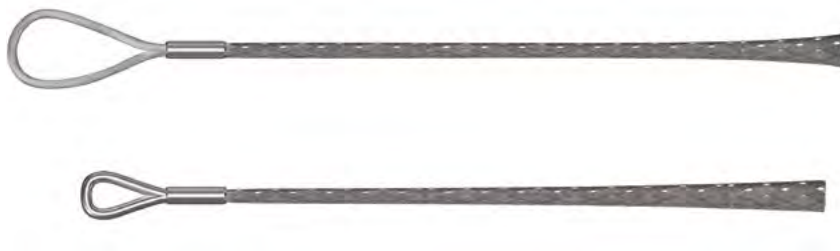
PULLING LOADS

Cables shall be so installed that the tensile stress applied to them either by reason of their own weight or for any other reason is minimised.

The mechanical strength of conductors shall be sufficient for the installation and working conditions and the cross sectional area of the conductor shall not be less than 0.5 mm^2 . This is particularly important for cables of small cross-section and for cables on vertical runs, or in vertical pipes. These cables shall be suitably supported.

Cables must be pulled with a system that enables the control of the pulling speed and the pulling load and if possible it shall be equipped with an automatic mechanical switch that will act in case the pulling load is over the previously established limit.

The best option is to lay the cable applying the load to the cable through a sleeve connected to the cable conductor. This sleeve includes a ring to fix the steel cable from the pulling equipment. Maximum loads to avoid cable damages are defined as 5 kg/mm^2 for Copper conductors and 3 kg/mm^2 for Aluminium conductors.



Cable pulling may use pulling sleeves made of a steel wire braid with an end ring, in such a way that after introduction of the cable in its interior, it will be radically compressed proportionally to the cable load.

This method is less advisable as a certain cable length is damaged and must be removed, due to the radial pressure.

In case of manual laying of cable it is important to distribute the load along the length, using a number of people in accordance with the cable length and numbers of rolls.

If the cable contains a galvanized steel wire armour the load may be applied to the armour. In any case it should be as uniform as possible avoiding sudden efforts.

In very special cases where a significant length of cable is suspended (i.e. vertical length) it may be required a steel rope to which the cable is tied every 1 to 2 meters.

SUPPORTING ROLLS, AND CABLE FIXING

It is very important to use aligning rolls to facilitate a smooth slippage of the cable and avoid its eventual contact with other elements that may damage it. The base must be sufficiently wide and safe to guarantee the stability of the drum during the unrolling of cable. The drum must be placed a minimum of 10 cm above the floor.

The use of adequate rolls makes the slipping of the cable easier and reduces the pulling load. They must roll easily and include an appropriate basis to avoid its turning and a guide through which the cable passes.



The distance between the rolls must be in accordance with the cable weight and flexibility characteristics, avoiding excessive distances between them, causing significant undulations on the cable.

Regarding supports and fixing, with the exception of cables for portable appliances, and those installed in pipes, conduits, trunkings or special casings, cables shall be fixed by means of clips, saddles or straps of suitable material which, if ignited, shall not contribute to any spread of flame along the cables or insulated wire. The material shall have a surface area sufficiently large and be shaped such that the cables remain tight without their coverings being damaged.

The distances between supports shall be chosen according to the type of cable and the probability of vibration. It shall not exceed 400 mm for horizontal cable run where the cables are laid on cable supports in the form of tray plates, separate support brackets or hanger ladders. The spacing between the fixing points may be up to 900 mm, provided that there are supports with maximum spacing as specified above. This exemption shall not apply to cable runs along weather decks, when the cable run is arranged so that the cables can be subjected to forces by water washing over the deck.

Cables with Class 5 conductors may require additional support to prevent sagging.

The supports and the corresponding accessories shall be robust and shall be of corrosion resistant material or suitably treated before erection to resist corrosion.

When cables are fixed by means of non-metallic clips or straps, and are not laid on top of horizontal cable trays or cable supports, suitable metal cable clips or saddles shall be added at regular distances not greater than 1 m in order to prevent the release of cables during a fire.

Cable clips or straps used to support cable for use in high fire risk areas and safety escape routes shall be metallic unless for single core cables where clips shall be non-magnetic.

INSTALLATION TEMPERATURE

Low temperatures are cause of concern when installing cable. Cable should not be installed when temperatures are less than the cold bend temperature rating of the cable product plus 15 °C (i.e., when installing a cable with a cold bend temperature rating of -25 °C, the minimum recommended installation temperature is -10 °C).

The cold bend temperature ratings are indicated on the catalogue spec. sheets and could be different depending on the sheathing and insulating compounds.

Prior to performing a low temperature installation, it's recommended to store the cable during 24 h at a minimum temperature of 13 °C.

The cable should be pulled more slowly and trained in place the same day it is removed from storage. Do not impact, drop, kink or bend cable sharply in low temperatures.

BENDING RADIUS

The internal bending radius for the installation of cables shall be as recommended by the manufacturer to the type of cable chosen and shall not be less than the values given in the following table:

Bending radii for cables rated up to 1.8/3 kV

Cable construction Insulation	Cable construction Covering	Overall diameter of cable (D)	Minimum internal radius of bend
Thermoplastic or thermosetting with circular copper conductors	Unarmoured or unbraided	≤ 25 mm	4D*
		≥ 25 mm	6D
	Metal braid screened or armoured	Any	6D
	Metal wire armoured Metal tape armoured or metal-sheathed	Any	6D
	Composite polyester / metal laminated tape screened units or overall tape screening	Any	8D
Thermoplastic or thermosetting with sector shaped copper conductors	Any	Any	8D

* 6D for defined circuit integrity.

Bending radii for cables rated at 3.6/6 kV (7.2) and above



























Insulation	Overall diameter of cable (D)	Minimum internal radius of bend
Single core cable	Any	12D
3 core cables	Any	9D

COLOUR IDENTIFICATION

Power cables up to and including 1.8/3 kV

The cores of multi-core cables shall be identified by the colours given in Table 1. This table indicate the colours of the cores, according to the number of cores, as well as, in the case of cables with four or five cores, the order of rotation of those colours.

Table 1. Cables with and without green-and-yellow core

Number of cores	Colours of cores Protective	Colours of cores Live			
2					
3					
3 (2+E)					
4					
4 (3+E)					
5					
5 (4+E)					

- The bi-colour combination green-and-yellow for the protective conductor
- The colour blue for the neutral conductor










Multiconductor control cables with more than 5 conductors for rated voltages 250 V and 0.6/1 kV

- Black insulation with white printed numbered cores

MV power cables, higher than 1.3/3 kV

3 conductors			
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Instrumentation cables 150/250 V

PAIR			
TRIPLE			
TWO PAIRS (Overall screen)	 	 	Two pair cables overall screened are laid up with diametrically opposite cores. 1 2 2 1

SPECIAL PRECAUTIONS FOR SINGLE CORE CABLES FOR A.C. WIRING

A.C. wiring shall be carried out, as far as possible, in twin or multicore cables. When, however, it is necessary to use single core cables for circuits rated in excess of 20 A, the following precautions shall be observed:

- a) The cables should either be non-armoured or they should be armoured with non-magnetic material. In order to avoid current loops, the metallic screen should be earthed at one point only. The free end of the metallic screen shall be sufficiently insulated to protect against high voltages induced by short circuit currents.
- b) Conductors belonging to the same circuit shall be contained within the same pipe, conduit or trunking, or the clamps, which fix them, shall include all the phases, unless they are made of non-magnetic material.
- c) When installing two, three or four single core cables forming respectively single phase circuits, three phase circuits or three phase and neutral circuits, the cables shall as far as possible be in contact with one another. In every case, the distance measured between the external covering of two adjacent cables shall not be greater than one cable diameter [De].
- d) When single core cables having a current rating greater than 250 A must be installed near steel bulkhead, the clearance between the cables and the bulkhead shall be at least 50 mm, unless the cables belonging to the same a.c. circuit are installed in trefoil formation.
- e) Magnetic material shall not be used between single core cables of a group. Where cables pass through steel plates, all the conductors of the same circuit shall pass through a plate or gland, so made that there is no magnetic material between

the cables, and the clearance between the cables and the magnetic material shall be not less than 50 mm, unless the cables belonging to the same circuit are installed in trefoil formation.

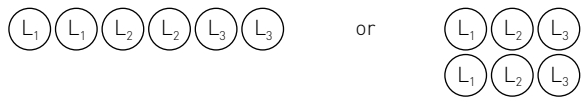
f) In order to try to equalise the impedance of three phase circuits (of considering length, or consisting of single core cables of a conductor cross-section of 185 mm² or larger), a transposition of the phases shall be effected at intervals not exceeding 15 m. The above precautions are, however, not necessary when the cables are installed in trefoil formation.

g) In circuits involving several single core cables in parallel, per phase, all cables shall follow the same route and have the same cross-sectional area.

Further, the cables pertaining to the same phase shall be as far as practicable alterned with those of the other phase so that unequal division of the current is avoided. For instance, in case of two cables per phase, the correct dispositions are as follows:



Whereas the following dispositions are unacceptable:



CABLE TYPE SELECTION

POWER AND CONTROL CABLES

In the voltage designation of cables $U_0 / U / (U_m)$:

U_0 is the rated power voltage between conductor and earth or metallic screen for which the cable is designed

U is the rated power frequency voltage between conductors for which the cable is designed

(U_m) is the maximum value of the highest system voltage which may be sustained under normal operating conditions

U_m is chosen to be equal to or greater than the highest voltage of the three-phase system. Where cables are permitted for use on circuits where the nominal system voltage exceeds the rated voltage of the cables, the nominal system voltage shall not exceed the maximum system voltage (U_m) of the cable.

The choice of standard cables of appropriate voltage designations for particular systems depends upon the system voltage and the system earthing arrangements.

The rated voltage of any cable shall not be lower than the nominal voltage of the circuit for which it is used.

To facilitate the choice of the cable, the values of U recommended for cables to be used in three phase system, are listed in the next table in which system are divided into the following three categories:

Category A

This category comprises those systems in which any phase conductor that comes in contact with earth or an earth conductor is automatically disconnected from the system.

Category B

This category comprises those systems that, under fault conditions are operated for a short time, not exceeding 8 hours on any single occasion, with one phase earthed.

For example, for a 13.8 kV system of Category A or B, the cable should have a rated voltage not less than 8.7/15 kV.

Category C

This category comprises all systems that do not fall into Categories A and B.

The nominal system voltages from 1.8/3 kV to 8.7/15 kV shown in table 1 are generally in accordance with Series 1 in IEC 60038. For nominal system voltages intermediate between these standard voltages and also between 0.6/1 kV and 1.8/3 kV, the cables should be selected with a rated voltage not less than the next higher standard value.

For example: A first earth fault with one phase earthed causes a $\sqrt{3}$ higher voltage between the phases and earth during the fault. If the duration of this earth fault exceeds the times given for Category B, then according to Table 1, for a 6 kV system, the cable is to have a rated voltage not less than 6/10 kV.

System voltage		System Category	Minimum rated voltage of cable U_0/U	
Nominal voltage U (kV)	Maximum sustained voltage U_m (kV)		Unscreened (kV)	Single-core or screened (kV)
up to 0.25	0.3	A, B or C	0.15 / 0.25	-
1.0	1.2	A, B or C	0.6 / 1	0.6 / 1
3.0	3.6	A or B	1.8 / 3.0	1.8 / 3.3
3.0	3.6	C	-	3.6 / 6.0
6.0	7.2	A or B	-	3.6 / 6.0
6.0	7.2	C	-	6.0 / 10
10.0	12.0	A or B	-	6.0 / 10
10.0	12.0	C	-	8.7 / 15
15.0	17.5	A or B	-	8.7 / 15

Control cables are generally rated at 0.6/1 kV.

INSTRUMENTATION CABLES

The common maximum rated voltage (U) for instrumentation cables is 250 V.

In some instances for conductor sizes 1.5 mm² and larger, or when circuits are to be supplied from a low impedance source, 0.6/1 kV rated cables are specified for use as instrumentation cables.

CROSS SECTION AREA OF CONDUCTORS AND CURRENT CARRYING CAPACITIES

CROSS SECTION AREAS OF CONDUCTORS

The cross section area of each conductor shall be selected to be large enough to comply with the following conditions:

- The highest load to be carried by the cable according the installation
- The corrected current rating and the highest current to be carried by the cable
- The voltage drop in the circuit according the regulatory body
- The cross section area shall be able to accommodate the mechanical and thermal effects of a short circuit current

The cross section area for the earth continuity conductors* shall comply the following table:

Arrangement of earth conductor	Cross section Q of associated current carrying conductor (one phase or pole) (mm ²)	Minimum cross-section of earth conductor
1. i) Insulated earth conductor in cable for fixed installation ii) Copper braid of cable for fixed installation iii) Separate, insulated earth conductor for fixed installation in pipes in dry accommodation spaces, when carried in the same pipe as the supply cable iv) Separate, insulated earth conductor when installed inside enclosures or behind covers or panels, including earth conductor for hinged doors	Q ≤ 16	Q
	Q > 16	50 % of the current-carrying conductor, but not less than 16 mm ²
2. Uninsulated earth conductor in cable for fixed installation, armour or copper braid and in metal-to-metal contact with this	Q ≤ 2.5	1 mm ²
	2.5 < Q ≤ 6	1.5 mm ²
	Q > 6	Not permitted
3. Separately installed earth conductor for fixed installation other than specified in iii) and iv)	Q < 2.5	Same as current-carrying conductor subject to min. 1.5 mm ² for stranded earthing connection or 2.5 mm ² for unstranded earthing connection
	2.5 < Q ≤ 120	50 % of the current-carrying conductor, but not less than 4 mm ²
	Q > 120	70 mm ²
4. Insulated earth conductor in flexible cable	Q ≤ 16	Same as current-carrying conductor
	Q > 16	50 % of the current-carrying conductor, but minimum 16 mm ²

* The term protective conductor is accepted as an alternative term for earth continuity conductor

CURRENT CARRYING CAPACITIES

The procedure for cable selection employs rating factors to adjust the current carrying capacities for different ambient temperatures, for the mutual heating effects of grouping with other cables, methods of installation and short circuit time duty. Guidance on the use of these methods are given in IEC 60364-5-52 for low voltage cables and IEC 60502-2 for medium voltage cables.

FIRE PERFORMANCE

All cables or insulated wiring shall meet the requirements for flame spread as given in: IEC 60332-1 and IEC 60332-3-22.

NOTE - 1: It cannot be assumed that, because a cable or an insulated wire meets the requirements of IEC 60332-1, a bunch of similar cables or insulated wires will behave in a similar manner. The flame spread performance of bunched cables is assessed by the requirements of IEC 60332-3. This performance requirement (i.e. for cables mounted vertically in a touching formation) has been chosen to best reflect the installation conditions generally observed on onshore installations. Experience has shown that the test for the flame spread of cables installed vertically is adequate for horizontal installations, all other parameters being generally the same.

For systems required to maintain electrical circuit integrity under fire conditions, e.g. for fire alarm, fire detection, fire extinguishing services, remote stopping and similar control circuits, the cables shall meet the requirements of IEC 60331-21.

Requirements for smoke emission and acid gas evolution shall be considered, and where applicable the cables evaluated in accordance with the following test methods, cables shall meet the requirements specified in the individual product standard: IEC 61034-2 Part 2, IEC 60754-1 Part 1 and IEC 60754-2 Part 2

FLEXIBILITY FOR AN EASY INSTALLATION

When rules and regulations of local, regional, project or certification body permits the use of class 5 multi-strand flexible Cu conductors according IEC 60228, cables with cross section area higher than 50 mm² can be made with Sectorflex® technology.

This technology provides the cable with more handeable properties:

- More flexibility
- More compact, smaller diameter, lighter weight
- More cable per drum / coil
- Same section and transport capacity as circular section
- Use of conventional terminations and accessories



Sectorflex®

More compact, smaller diameter, lighter weight



Use of conventional terminations and accessories

HYDROCARBON, OIL AND MUD RESISTANCE PROPERTIES

For specific oil production facilities, and according to the classification and certification bodies for each project, Oil and Mud resistant cables could be required. These cables provides the electric installation (cable) with enhanced behaviour in specific locations where oil and Mud's are present.



PERFORMANCE OF CABLES IN THE EVENT OF FIRE

During the last years the safety requirements for low and medium voltage cables have significantly increased. This has been derived from the investigations of fires with high number of victims, such the ones at London Underground or at Dusseldorf airport. Two main risks have been identified in relation with cables: fire spread along the cable and noxious effects of the fumes and gases generated by the cable combustion. It has also been identified the need for some services to keep running in the event of fire, such alarm, way guidance or firefighting systems.

To respond to these challenges, the cable industry has developed a new generation of cable types that significantly reduce the risks related to fire.

FIRE SPREAD

FLAME RETARDANT (IEC 60332-1-2)

The first level of protection against fire spread is the flame retardant characteristic, that prevents the cable from being the origin of a fire caused by a minor incident or an external source of heat which can accidentally come into contact with the cable. The test according to IEC 60332-1-2 consists in a standardized flame in contact with the sheath of the cable for an established period of time. Once this time has elapsed, the flame should not have spread along the cable for a determined distance, in spite of the fact that the cable is positioned in vertical position.



IEC 60332-1



IEC 60332-3



IEC 60332-3

FIRE RETARDANT (IEC 60332-3)

A fire unrelated to the cable can affect a conduit (being worst if it is in vertical position allowing air circulation creating the so-called chimney effect). If the decomposition temperature of the organic materials is reached, an exothermic combustion (with the contribution of energy) of the cables takes place with the consequent spread of the fire.

The insulation and sheath compounds can be formulated to make this exothermic reaction difficult (by the addition of inhibitors). To simulate this situation, the test consists in the application of a high power gas burner to a bunch of cables arranged to reproduce a vertical conduit with forced air. Under those conditions, the fire shall not spread more than 2.5 meters in a time established in the standard.

Based in the amount of combustible material per meter of bunch of exposed cable to the fire action, the standard defines five different categories, being the most common ones used in onshore cables Category A (IEC 60332-3-22) and Category C (IEC 60332-3-24).

All low voltage and medium voltage cables for onshore installations offered by General Cable have these characteristics as a standard feature, being the fire retardant identified by the Unfire® brand.

NOXIOUS EFFECTS

When the cables are affected by fire, and depending on the constituent materials, they can release gases potentially noxious for the human health or corrosives affecting the operation and state of conservation of the electronic and computer components in the vicinity. They can also release dark smoke which, due to its opacity, makes it very difficult to see the escape routes from the premises.

To minimize those effects, it is required to eliminate harmful halogen components from the materials used (IEC 60754-1) and guarantee that the acidity and corrosivity of the gases evolved during combustion are kept to a minimum (IEC 60754-2). The opacity of the smoke emissions is reduced to very low levels, providing light transmittance levels up to 90% according to IEC 61034-2.

General Cable has developed the cable series Exzhellent® that is especially designed for high safety installations with high risk of fire and possibility of human or equipment damage. They are flame and fire retardant, halogen-free (so they also have reduced acidity and corrosivity of the gases evolved during combustion) and the fumes are practically transparent.



IEC 60754



IEC 61034



IEC 60331

FIRE RESISTANCE

Cables used in safety circuits and systems which need to provide service under fire conditions, such detection and alarm, way guidance and fire fighting, must be designed to withstand harsh fire conditions. IEC 60331 standard includes tests to establish that the cable is capable to continue operation of systems in defined fire conditions.

IEC tests expose cable to a gas burner that provides a constant temperature attack (at least 830 °C) for a determined period of time (90 or 120 minutes are recommended depending on the part of the standard applied). It is also optional to apply a shock-producing device to simulate debris falling during the fire.

General Cable has developed the cable series Genfire® that is especially designed to provide service under the harshest fire conditions, having also enhanced properties in the event of fire: they are flame and fire retardant, halogen-free (so they also have reduced acidity and corrosivity of the gases evolved during combustion) and the fumes are practically translucent.

ENVIRONMENTAL CHARACTERISTICS

Since the introduction of plastics into cable design, these materials were intended to provide electrical insulation of the conductors and mechanical protection of the cable. These two functions have remained over time, but plastics have evolved to provide other characteristics to cables depending on functionality or where these cables needed to be used: extreme temperatures, flexibility, chemical protection, oil and hydrocarbon resistance, safety in the event of fire and many others.

Onshore cables need to satisfy specific requirements due to the harsh industrial environment where they have to work. Among these requirements, two of them have relevant impact: the resistance of materials to mineral oils and hydrocarbons, substances that are often present in this type of industry, and resistance of materials to extremely low temperatures.

OIL AND HYDROCARBON RESISTANCE

There are many substances that are absorbed by plastic materials, causing degradation and swelling. This phenomenon may induce cable failure, either electrical or mechanical. To prevent that, plastic materials must be formulated to have intrinsic resistance to absorption or reaction against mineral oils and hydrocarbons. Therefore the prolonged action of these substances does not substantially alter the dimensional and mechanical characteristics of the cable components.

The requirements that materials must comply are defined under standard UIC 895 OR, which details three categories:

- I. Materials that do not have any protection against both mineral oil and hydrocarbons.
- II. Materials that have protection against mineral oil but not against hydrocarbons
- III. Materials that have protection against both mineral oil and hydrocarbons.

MINERAL OIL RESISTANCE

For mineral oil resistance, test pieces of the materials of category II and III are immersed in oil for 70 hours at 100 °C. The oil number 2 (IRM 902) has the following characteristics according to ISO 1817:

- Aniline point: 93 ± 3 °C
- Cinematic viscosity: $(20 \pm 2) 10^{-6}$ m²/s
- Flash point: > 240 °C

After the immersion, the test pieces must comply with the following conditions in respect of the initial state of the material:

- Less than 20 % variation in volume (according to proceedings under Recommendation ISO/R 1817 – Gravimetric method)
- Less than 30 % variation in tensile strength
- Less than 40 % variation in elongation at break

HYDROCARBON RESISTANCE

Test pieces of materials of category III are immersed in hydrocarbon for 168 hours at 70 °C. The hydrocarbon (IRM 903) complies with the following characteristics according to ISO 1817:

- Maximum viscosity at 20 °C: 20 cst
- Boiling point between 180 and 400 °C
- Inflammability point ≥ 80 °C
- Aniline point: 69.5 ± 1 °C
- No traces of mineral acids
- Percentage of sulfur between 0.4 and 1 %

After the immersion, the test pieces must comply with the following conditions in respect of the initial state of the material:

- Less than 20 % variation in volume (according to proceedings under Recommendation ISO/R 1817-Gravimetric method)
- Less than 30 % variation in tensile strength
- Less than 40 % variation in elongation at break

General Cable has developed PVC compounds that are mineral oil and hydrocarbon resistant. These compounds are applied in many cables of the Armigron® series, being identified in the cable description by the letters "Vh", indicating PVC resistant to hydrocarbons.



EXTREME LOW TEMPERATURE

Most of the materials used in cables are suitable for operation at low temperatures, such -15 °C or even lower in special cases (some standards specify -25 °C). Occasionally, cables must endure extreme low temperatures due to the environment where they have to work, having values between -40 and -55 °C. In this case, there are two risks that may cause material break with relative ease: impact on the sheath or cable bending.

To test material quality against both aspects, the most commonly accepted international standard is CSA C22.2.

CABLE BENDING

There are two test methods that may be applied to the cable. In method no. 1, the piece of cable and the mandrel are placed in a chamber capable of maintaining the required test temperature and large enough to carry out the bending operation. After the specified period has elapsed, the test piece is bent around a mandrel for a specified number of turns in a time period between 15 and 30 seconds.

In method no. 2, the test piece and the mandrel are also placed in the chamber for a specified period of time and temperature. After that, it shall be wrapped one turn around the cable, straightened, wrapped one turn around the mandrel in the opposite direction, straightened, wrapped one turn around the mandrel in the original direction, and straightened.

The evaluation after applying one of these two methods includes visual inspection of the underlying components after cutting open the test piece, looking for cracks, breaks in braids or tapes, etc. If required, a dielectric test is carried out applying a voltage between the insulated conductor(s) and the grounded water electrode while the test piece and mandrel are immersed in water.

IMPACT AT LOW TEMPERATURE

Ten test pieces of 13 cm of cable are placed in the refrigerator chamber at the specified temperature for 4 hours. After this period, all specimens shall be subjected to the impact of a flat hammer head of 25 mm of diameter and 1,36 kg of weight, falling freely from a height of 915 mm, ensuring that the test pieces are hit squarely. The sheath and insulation of each test piece shall be examined for cracks and ruptures.

General Cable has developed the cable series Exzhellent® and Genfire® using especial Low Fire Hazard compounds that provide excellent performance at very low temperatures, complying with the most demanding conditions at -45 °C.

SCREENING IN INSTRUMENTATION CABLES

Instrumentation cables have to be designed in order to protect the signals that are transmitted through them and to protect the environment against the radiation they can generate. Any significant disturbance may cause failure of the equipment or control system, with sometimes unknown and potentially dangerous consequences. Possible interference may come from two factors: cross-talk from other cable elements (pairs, triples, quads) or external electromagnetic interference from outside the cable.

CROSSTALK

Crosstalk comes mostly from the capacitance unbalance between cable elements (pairs, triples, quads), being the mutual inductance negligible at low frequencies. Capacitance unbalance is the difference between the capacitance of one conductor against the sheath and all the other conductors, and the capacitance of its mate(s) similarly measured. Capacitance values are normally kept as low as economically possible by using low permittivity insulations.

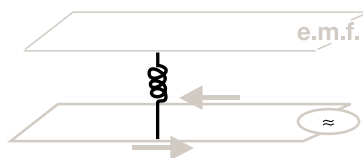
One solution to reduce capacitance unbalance is to make different lay lengths for each cable element, but this makes manufacture rather complicated. To avoid this, individual screening of pairs, triples and quads is a good and simple solution to the problem.

Standard individual screening consists of a laminated tape of aluminum bonded to polyester, with a 0.008 mm minimum thickness of aluminum and 0.010 mm minimum thickness of polyester. This tape is applied over the pair, triples or quad with the metallic side down in electrical contact with one or more tinned annealed copper wires (drain wire). The tape is applied with a minimum overlap of 25 % to guarantee the total coverage of the cabling element up to high frequencies.

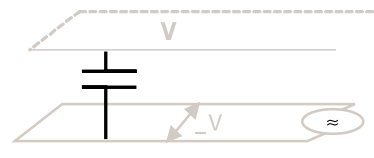
There are other ways of individual screening, such braiding or helically applied copper wires, but economical reasons make them unusual.

EXTERNAL INTERFERENCE

Any electrical circuit creates an electrical field (because of the voltage) and a magnetic field (because of the electrical current on the conductor). A close circuit will be under the action of these two fields, which will induce voltages and currents.



Inductive coupling
The circuit current induces an electromotive force on a contiguous circuit.



Capacitive coupling
The circuit voltage induces voltage on a contiguous circuit.

Differentiation has to be made between low frequency (LF) range up to 10 kHz and high frequency (HF) range.

LF RANGE

Screening with a metallic folding (tape, braiding or continuous metallic jacket) of good electrical conductivity reduces these effects, almost completely in the case of the capacitive coupling but only partially in the case of the inductive coupling. Therefore, magnetic interference becomes the most important issue that needs to be tackled when looking at external interference in LF range.

Different types of screen will have different levels of weakening of the magnetic interference. The most relevant characteristic is the reduction factor achieved by each screen type. Lower is the reduction factor, stronger is the protection effect against magnetic interference.

$$r = \frac{R_s}{\sqrt{(R_s + R_e)^2 + w^2 (L_s + L_e)^2}}$$

where

- r Reduction factor
- R_s DC resistance of screen (Ω/km)
- R_e DC resistance of earth loop (Ω/km)
- w Angular frequency (Hz)
- L_s Screen inductance (H / km)
- L_e Inductance of the earth loop (H / km)

From the formula, it is obvious that low dc resistance combined with high inductances will achieve lower reduction factors and, therefore, more efficient screening effects. Typical values for screening designs and materials are:

Material	R
Plastic laminated aluminium foil	> 0.9
Braid of copper wires	0.7 - 0.9
Very dense copper braid	
Copper wires combined with armour	0.3 - 0.7
Copper wire with armour of soft magnetic material	< 0.3

HF RANGE

It is more difficult to differentiate electrical and magnetic interferences when assessing HF disturbance. At frequencies over 10 kHz, magnetic interference is weakened by absorption in the screening material, where an eddy current sets in and creates an opposing field. The electric field component is attenuated by reflection.

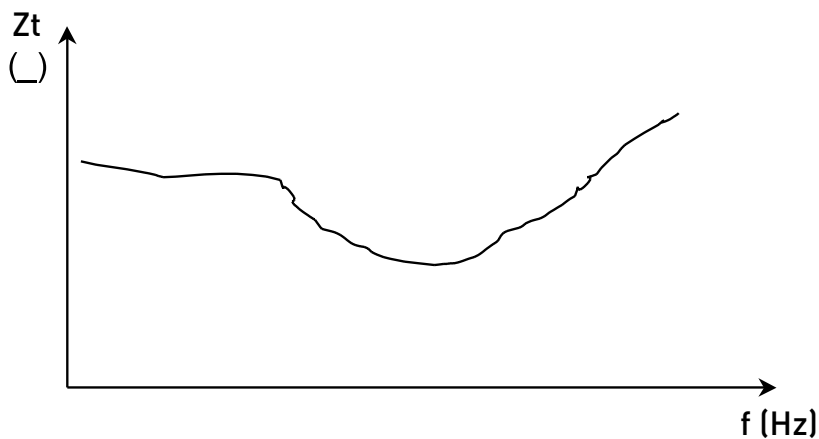
Transfer impedance is the best parameter to assess how good a screen performs (or how energy is transferred through the screen). It is defined as the ratio between the induced interference voltage in the disturbed system and the current that circulates in the disturbing system. The lower is the value of the transfer impedance, the higher is the screening effect.

$$Z_t = \frac{V_i}{I}$$

where

- Z_t Transfer impedance
- V_i Induced interference voltage in the disturbed system
- I Current in the disturbing system

The transfer impedance varies with the frequency, being its variation driven by a typical curve depending on screen design and material:



Screening designs and materials have different effects, being a generic classification from lower to higher screening performance as follows:

- Plastic laminated aluminium foil
- Copper braid
- Copper tapes
- Copper tape longitudinally welded





FRANCE

Tel: +33 (0) 160 573 000
info@generalcable-fr.com

MAROCCO

Tel: +212 522 865 300
info@generalcable-ma.com

ROMANIA

Tel: +40 311 011 405
info@generalcable.ro

UNITED KINGDOM

Tel: +44 (0) 122 433 98 80
sales@nswcable.co.uk

GERMANY

Tel: +49 473 182 10 00
info@nsw.com

NORWAY

Tel: +47 649 559 00
firmapost@generalcable.no

SPAIN

Tel: +34 932 279 700
info@generalcable.es

ITALY

Tel: +39 026 604 94 94
info@generalcable-it.com

PORTUGAL

Tel: +351 219 678 500
info@generalcable.pt

UNITED ARAB EMIRATES

Tel: +971 264 346 66
ogp@generalcable.es