Nexans

Oil & Gas

Symbols

Temperature

Admissible ambient temperature for continuous duty operation

Weather

Resistance to severe weather conditions

Impacts

Cable mechanical resistance to impacts

Chemical attacks

Resistance to chemicals.

Fire Performances

Smoke-Corrosivity-Toxicity

Smoke density, gases corrosivity and toxicity

Flexibility

Bending Radius

R = n x outer diameter

Halogen free

Lead Free

Water-tightness

Electro Magnetic Interference

Radiation Resistant

Oil & Gas cables

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Nexans

Introduction

Oil & Gas Introduction

Nexans keep oil and gas flowing

The oil and gas industry is one of the most dynamic sectors in the world economy on which future prosperity for a growing world population depends. Today, 65% of the world's energy is being met by oil and gas with gas set to out-distance oils as the fuel of choice in the next quarter of the century. With only 40 to 60 years of reserves left, producers are coming under terrific pressure to find new oil and gas fields, and to better exploit existing ones.
As the same time, in the wake of oil spills and urged by the Kyoto protocal to lower CO_2 emissions they have to find safer, more reliable, and environmentally-friendly ways of extracting and processing oil and gas product.

Finally, to escape a dinosaure like demise when supplies run out, producers and refineries must move "beyond oil and gas" to new forms of renewable energy. In short, oil and gas companies are expected to provide the world with the energy it needs for sustainable growth , but without negatively impacting the environment or people. The dilemma is at the very heart of the demands it makes on its own suppliers in terms of pollution, innovation, safety, product reliability, and the way one does business.

Issue and dilemmas facing today's oil and gas industry:

- how to achieve sustainable growth in the industry in the face of diminishing supplies and expanding demand
- how to protect the environment and control climate change
- how to safeguard biodiversity and human health concerns
- how to assure positive globalization and equitable development
- how to prospect for new resources while efficiently exploiting existing ones
- how to increase reliability in both the extraction and refining process
- how to make a seamless transition to new renewable forms of fuels:
  sun, wind, water, hydrogen, etc.

To meet the special concerns of oil and gas experts...
Nexans provides special solutions, in the field and on land...
both upstream and downstream

Nexans

1 - Medium Voltage

GENERAL

High voltage cables are according to IEC 60502 standard.

This standard specifies the constructions, dimensions and test requirements of power cables for rated voltage (U) from 3 KV up to and including 30 KV.

Cables described in this book are radial field cables (single-core or three-core).They are provided with a copper screen on each core. The standard rated voltage is limited to 10 KV for PVC insulated cables and to 30 KV for other insulating materials (polyethylene/ethylene-propylene rubber/cross-linked polyethylene). Our standard production for those cables is with cross-linked polyethylene insulation (XLPE). Cables for special conditions of installation and service are not described in this catalogue. Please contact us for such special cables.

STANDARD RATED VOLTAGE

The standard rated voltage of a cable consists of three values Uo - U and Um expressed in kilovolts in the form Uo/U/Um, stated in the description of the cable and according to which the insulation thickness, conditions of voltage tests and cable working voltages are determined.

Uo: is the rated power-frequency 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;

Um: is the maximum value of the "highest system voltage" for which the equipment may be used.

The standard rated voltages Uo/U/(Um) of the cables considered are as follows:

Uo/U/(Um) =	1.8/3(3.6)	KV
	3.6/6(7.2)	KV
	6/10(12)	KV
	8.7/15 (17.5)	KV
	12/20(24)	KV
	18/30(36)	KV

For the above values of Uo, it is assumed that in the system considered earth faults are automatically cleared within an hour and that the overall
operating time with an earthed phase will not exceed 12 hours in a year. If such conditions are not met, a higher value shall be taken for Uo.

For installations whose rated voltage U is not mentioned in the standard, the user shall take for Uo the standard voltage which is next higher than that obtained from the formula $U/\sqrt{3}$

CURRENT CARRYING CAPACITIES

The values shown on the tables shall apply to a cable system consisting of:

- either a three-core cable
- or three single-core cables arranged in trefoil formation or side by side

Current-carrying capacities are given for the following cases:

- **unarmoured cables**

  In free air - temperature 30 °C (see page 17) - cables or cable systems are on trays and sheltered from solar radiation and, where there is more than one cable or cable system, with such spacings that there should be no significant proximity effect between them (spacing ≥ 2 Δ with Δ = diameter of one cable).
  For different laying conditions, please contact us.

- **armoured cables**

  Underground - temperature 20 °C (see page 17) - cables or cable systems are buried in parallel 0.80 m deep in a ground having an average thermal resistivity of 1 K.m/W (see page 17) and are spaced so that their respective temperature rises do not influence each other. It may be assumed that the proximity effect is insignificant where cables and cable systems are laid with a spacing of at least one meter apart. For different laying conditions please contact us.

Single-core cables

Nominal conductors Cross section sq.mm	Uo/U (Um) ≤6/10 (12)kV								Uo/U (Um) >6/10 (12)kV and ≤18/30 (36)kV			
	Copper conductors				Aluminium conductors				Copper conductors		Aluminium conductors	
	PVC Insulation		XLPE or EPR Insulation		PVC Insulation		XLPE or EPR Insulation		XLPE or EPR Insulation			
	In free air	Under-ground	In free air	Under-ground	In free air	Under-ground	In free air	Under-ground	In free air	Under-ground	In free air	Under-ground
25	125	135	160	165	96	105	125	125	170	165	130	125
35	150	160	200	195	115	125	150	150	200	195	160	150
50	180	190	235	230	140	150	185	180	245	230	190	180
70	230	235	295	285	175	180	230	220	305	280	235	220
95	280	285	360	340	215	220	280	260	375	335	290	260
120	320	320	420	385	250	250	325	300	425	385	330	300
150	370	360	475	430	285	280	370	335	485	430	375	335
185	425	410	550	485	330	320	425	380	560	490	430	380
240	500	475	650	560	390	370	510	440	660	560	510	440
300	580	540	740	630	455	420	580	500	750	640	590	500
400	670	610	860	720	530	480	680	570	870	720	680	570
500	760	680	990	800	610	540	790	640	1000	810	790	640
630	870	770	1140	910	710	620	920	740	1150	910	930	740

Three-cores cables

Nominal conductors Cross section sq.mm	Uo/U (Um) ≤6/10 (12)kV								Uo/U (Um) >6/10 (12)kV and ≤18/30 (36)kV			
	Copper conductors				Aluminium conductors				Copper conductors		Aluminium conductors	
	PVC Insulation		XLPE or EPR Insulation		PVC Insulation		XLPE or EPR Insulation		XLPE or EPR Insulation			
	In free air	Under-ground	In free air	Under-ground	In free air	Under-ground	In free air	Under-ground	In free air	Under-ground	In free air	Under-ground
25	120	130	155	160	93	100	120	125	160	160	125	125
35	145	160	190	190	115	120	145	150	195	190	150	145
50	175	185	225	225	135	145	175	175	230	225	175	175
70	215	230	280	275	165	180	215	215	280	270	220	210
95	260	275	340	330	205	210	260	255	345	330	265	255
120	300	310	385	370	235	240	300	290	395	370	305	290
150	340	345	445	420	265	270	345	325	450	415	345	320
185	385	390	510	470	300	305	395	365	510	465	395	360
240	450	450	590	540	355	350	465	425	600	540	470	420

CORRECTION FACTORS

Ambient Temperature

The current-carrying capacities shown in the tables-page 16, are given for an ambient temperature of :

- 30 °C for cables in free air
- 20 °C for underground cables

Ambient Temperature	Free air		Underground	
	PVC	EPR & XLPE	PVC	EPR & XLPE
0			1.18	1.13
5			1.14	1.10
10	1.22	1.15	1.10	1.07
15	1.17	1.12	1.05	1.04
20	1.12	1.08	1.00	1.00
25	1.06	1.04	0.95	0.96
30	1.00	1.00	0.89	0.93
35	0.94	0.96	0.84	0.89
40	0.87	0.91	0.77	0.85
45	0.79	0.87	0.71	0.80
50	0.71	0.82	0.63	0.76
55	0.61	0.76	0.55	0.71
60			0.45	0.65
65				0.60
70				0.53
75				0.46
80				0.38

Thermal Resistivity of the ground

For buried cables, the current-carrying capacities shown in the tables-page 16, are given for a soil on which thermal resistivity of the ground is 1 K.m/W. For a different thermal resistivity a correction factor shall be applied to reference currents.

Thermal Resistivity	Three single-core cables in trefoil formation	Three-core cables
0.5	1.25	1.20
0.7	1.14	1.10
0.8	1.06	1.05
1.0	1.00	1.00
1.2	0.93	0.95
1.5	0.85	0.88
2.0	0.75	0.79
2.5	0.68	0.72
3.0	0.62	0.68

SHORT CIRCUIT CURRENTS

Short-circuit currents in conductors

The admissible current density in short-circuit is given by the formula:

$$D = \frac{K}{\sqrt{t}}$$

D: admissible current density in amperes by mm^2 of cross-section

K: coefficient depending on the conductor nature, on the initial temperature θ atoverload moment and on the admissible temperature θc.c. at the end of overload.

t : duration of short-circuit in seconds

Before overload, the maximal temperatures are :

70 °C, for PVC insulated cables 90 °C, for XLPE and EPR insulated cables

Under short-circuit conditions the permissible temperatures on conductors are :

160 °C, for PVC insulated cables 250 °C, for XLPE and EPR insulated cables

Permissible short-circuit current density D

Current density: D in A/sq. mm of cross-sectional area								
	Temperature °C		Copper Conductors			Aluminium Conductors		
Insulation	Initial	Final	t =			t =		
			0.5 s	1 s	2 s	0.5 s	1 s	2 s
PVC	20	160	212	150	106	140	99	70
	30	160	202	143	101	134	95	67
	70	160	163	115	81	107	76	54
XLPE	20	250	256	181	128	170	120	85
and	30	250	249	176	124	164	116	82
EPR	90	250	202	143	101	133	94	66

IEC 60502-2
MV - Unarmoured cables

Applications

For electricity supply in medium voltage installation system.

3.6/6 (7.2) kV
6/10 (12) kV
12/20 (24) kV
18/30 (36) kV

Max core temperature: 90 °C

Design

1. Conductor
Stranded bare copper or stranded aluminium
Class 2

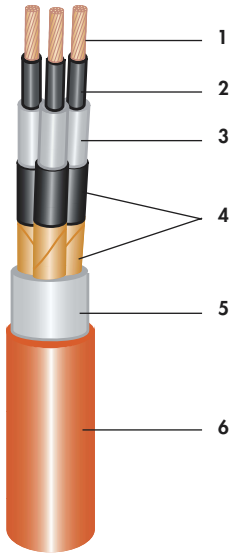
2. Extruded semi-conductor

3. Insulation
XLPE
(cross-linked polyethylene) or
EPR for all rated voltages
(ethylene propylene rubber)

4. Screen
Extruded semi-conductor
Bare copper tape

5. Bedding (optional)

6. Outer sheath
PVC
(polyvinyl chloride)
Colour: red
Other colour on request



Marking

Factory number
IEC 60502-2 MV - Voltage
n x S mm² - year
Other marking on request

Core Identification

Tape: black - blue - brown
Other colour on request

Standards

IEC 60228
IEC 60502-2
IEC 60332.1
Other fire performances and aliphatic hydrocarbons resistant on request.

Flame retardant
IEC 60332.1

Good

-20 °C + 60 °C

EMI

IEC 60502-2 - MV unarmoured cables 3.6/6 (7.2) kV

Cables (mm²)	Outer diameter (mm)		Permissible current rating (A)		Weight (kg/km)
	Min.	Max.	in air at 30°C	underground at 20°C	
1 x 25	16.9	19.0	160	165	535
1 x 35	17.9	20.1	200	195	645
1 x 50	19.0	21.3	235	230	780
1 x 70	20.6	23.0	295	285	995
1 x 95	22.5	25.1	360	340	1 270
1 x 120	23.9	26.6	420	385	1 515
1 x 150	25.3	28.1	475	430	1 795
1 x 185	27.1	30.2	550	485	2 170
1 x 240	29.9	33.2	650	560	2 760
1 x 300	32.6	36.3	740	630	3 390
1 x 400	36.2	40.2	860	720	4 245
1 x 500	40.6	45.1	990	800	5 405
1 x 630	44.9	49.9	1 140	910	6 850
3 x 25	36.5	40.5	155	160	2 235
3 x 35	38.6	42.9	190	190	2 650
3 x 50	41.3	45.9	225	225	3 175
3 x 70	45.2	50.2	280	275	4 025
3 x 95	49.6	55.2	340	330	5 095
3 x 120	52.8	58.8	385	370	6 025
3 x 150	56.2	62.5	445	420	7 080
3 x 185	60.5	67.3	510	470	8 490
3 x 240	66.6	74.1	590	540	10 680
3 x 300	72.7	80.9	680	610	13 035
1 x 25 Al*	16.8	18.9	125	125	385
1 x 35 Al*	17.8	19.9	150	150	435
1 x 50 Al*	18.9	21.1	185	180	495
1 x 70Al*	20.6	23.0	230	220	590
1 x 95 Al*	22.2	24.7	280	260	700
1 x 120 Al*	23.7	26.4	325	300	805
1 x 150 Al*	25.0	27.8	370	335	900
1 x 185 Al*	27.0	30.0	425	380	1 060
1 x 240 Al*	29.5	32.8	510	440	1 270
1 x 300 Al*	32.1	35.8	580	500	1 535
1 x 400 Al*	35.4	39.3	680	570	1 880
1 x 500 Al*	39.9	44.4	790	640	2 375
1 x 630 Al*	44.1	49.1	920	740	2 925
3 x 25 Al*	36.3	40.3	120	125	1 765
3 x 35 Al*	38.4	42.7	145	150	2 000
3 x 50 Al*	41.1	45.7	175	175	2 305
3 x 70 Al*	45.2	50.2	215	215	2 800
3 x 95 Al*	48.9	54.9	260	255	3 330
3 x 120 Al*	52.4	58.3	300	290	3845
3 x 150 Al*	55.5	61.7	345	325	4 315
3 x 185 Al*	60.1	66.8	395	365	5 095
3 x 240 Al*	65.8	73.1	465	425	6 105
3 x 300 Al*	71.6	79.7	530	480	7 330

Product on request

IEC 60502-2 - MV unarmoured cables 6/10 (12) kV

Cables (mm²)	Outer diameter		Permissible current rating (A)		Weight (kg/km)
	Min.	Max.	in air at 30°C	underground at 20°C	
1 x 25	18.7	20.9	160	165	590
1 x 35	19.7	22.0	200	195	710
1 x 50	20.8	23.2	235	230	845
1 x 70	22.4	25.0	295	285	1 070
1 x 95	24.3	27.0	360	340	1 335
1 x 120	25.7	28.6	420	385	1 585
1 x 150	27.0	30.1	475	430	1 870
1 x 185	29.1	32.4	550	485	2 260
1 x 240	31.7	35.2	650	560	2 845
1 x 300	33.8	37.6	740	630	3 440
1 x 400	37.1	41.3	860	720	4 295
1 x 500	41.0	45.6	990	800	5 435
1 x 630	45.3	50.4	1 140	910	6 850
3 x 25	40.6	45.1	155	160	2 605
3 x 35	41.4	46.0	190	190	2 930
3 x 50	46.8	52.1	225	225	3 760
3 x 70	47.5	52.9	280	275	4 320
3 x 95	54.5	60.6	340	330	5 705
3 x 120	55.1	61.3	385	370	6 370
3 x 150	60.3	67.0	445	420	7 610
3 x 185	64.7	71.9	510	470	9 055
3 x 240	70.4	78.3	590	540	11 235
3 x 300	75.6	84.0	680	610	13 495
1 x 25 Al*	18.6	20.8	125	125	435
1 x 35 Al*	19.6	21.9	150	150	500
1 x 50 Al*	20.7	23.1	185	180	560
1 x 70 Al*	22.4	25.0	230	220	665
1 x 95 Al*	24.0	26.7	280	260	765
1 x 120 Al*	25.5	28.3	325	300	875
1 x 150 Al*	26.8	29.8	370	335	970
1 x 185 Al*	28.9	32.2	425	380	1 150
1 x 240 Al*	31.3	34.8	510	440	1 355
1 x 300 Al*	33.3	37.1	580	500	1 585
1 x 400 Al*	36.4	40.4	680	570	1 930
1 x 500 Al*	40.3	44.8	790	640	2 400
1 x 630 Al*	44.5	49.5	920	740	2 925
3 x 25 Al*	40.4	44.9	120	125	2 125
3 x 35 Al*	42.8	47.6	145	150	2 405
3 x 50 Al*	45.4	50.5	175	175	2 725
3 x 70 Al*	49.3	54.8	215	215	3 240
3 x 95 Al*	51.2	56.9	260	255	3 645
3 x 120 Al*	54.6	60.7	300	290	4 180
3 x 150 Al*	59.6	66.3	345	325	4 840
3 x 185 Al*	64.2	71.4	395	365	5 655
3 x 240 Al*	69.5	77.3	465	425	6 655
3 x 300 Al*	74.5	82.8	530	480	7 785

Product on request

IEC 60502-2 - MV unarmoured cables 12/20 (24) kV

Cables (mm²)	Outer diameter		Permissible current rating (A)		Weight (kg/km)
	Min.	Max.	in air at 30°C	underground at 20°C	
1 x 25	23.7	26.4	170	160	790
1 x 35	23.9	26.6	200	195	870
1 x 50	25.0	27.8	245	230	1 010
1 x 70	26.6	29.5	305	280	1 245
1 x 95	28.6	31.8	375	335	1 550
1 x 120	30.0	33.4	425	385	1 810
1 x 150	31.6	35.1	485	430	2 115
1 x 185	33.4	37.2	560	490	2 505
1 x 240	36.0	40.0	660	560	3 110
1 x 300	38.3	42.6	750	640	3 740
1 x 400	41.5	46.1	870	720	4 600
1 x 500	45.5	50.6	1 000	810	5 775
1 x 630	49.6	55.2	1 150	910	7 210
3 x 25	52.4	58.3	160	160	3 830
3 x 35	52.8	58.8	195	190	4 100
3 x 50	55.5	61.7	230	225	4 700
3 x 70	59.2	65.8	280	270	5 645
3 x 95	63.5	70.6	345	330	6 830
3 x 120	66.8	74.3	395	370	7 865
3 x 150	70.1	77.9	450	415	9 010
3 x 185	74.7	83.1	510	465	10 585
3 x 240	80.2	89.2	600	540	12 850
3 x 300	85.4	94.9	685	600	15 210
1 x 25 Al*	23.6	26.3	130	125	630
1 x 35 Al*	23.8	26.5	160	150	655
1x 50 Al*	24.9	27.7	190	180	725
1 x 70 Al*	26.6	29.5	235	220	840
1 x 95 Al*	28.3	31.5	290	260	995
1 x 120 Al*	29.8	33.1	330	300	1 095
1 x 150 Al*	31.3	34.8	375	335	1 230
1 x 185 Al*	33.2	37.0	430	380	1 390
1 x 240 Al*	35.6	39.6	510	440	1 620
1 x 300 Al*	37.8	42.1	590	500	1 885
1 x 400 Al*	40.7	45.2	680	570	2 230
1 x 500 Al*	44.8	49.8	790	640	2 735
1 x 630 Al*	48.8	54.3	920	740	3 285
3 x 25 Al*	52.1	58.0	125	125	3 345
3 x 35 Al*	52.6	58.5	150	145	3 440
3 x 50 Al*	55.3	61.5	175	175	3 825
3 x 70 Al*	59.2	65.8	220	210	4 420
3 x 95 Al*	62.9	70.0	265	255	5 050
3 x 120 Al*	66.3	73.8	305	290	5 665
3 x 150 Al*	69.5	77.3	345	320	6 225
3 x 185 Al*	74.3	82.6	395	360	7 180
3 x 240 Al*	79.3	88.2	470	420	8 250
3 x 300 Al*	84.3	93.7	535	465	9 480

Product on request

IEC 60502-2 - MV unarmoured cables 18/30 (36) kV

Cables (mm²)	Outer diameter		Permissible current rating (A)		Weight (kg/km)
	Min.	Max.	in air at 30°C	underground at 20°C	
1 x 25	31.2	34.7	170	165	1 185
1 x 35	29.0	32.3	200	195	1 135
1 x 50	30.3	33.7	245	230	1 305
1 x 70	31.9	35.4	305	280	1 550
1 x 95	33.9	37.7	375	335	1 875
1 x 120	35.3	39.2	425	385	2 150
1 x 150	36.8	41.0	485	430	2 475
1 x 185	38.7	43.1	560	490	2 880
1 x 240	41.3	45.9	660	560	3 515
1 x 300	43.6	48.5	750	640	4 175
1 x 400	46.7	52.0	870	720	5 070
1 x 500	50.8	56.6	1 000	810	6 270
3 x 25	69.2	77.0	160	160	6 070
3 x 35	64.6	71.8	195	190	5 620
3 x 50	67.2	74.8	230	225	6 285
3 x 70	71.0	78.9	280	270	7 320
3 x 95	75.4	83.8	345	330	8 625
3 x 120	78.6	87.4	395	370	9 740
3 x 150	81.9	91.1	450	415	10 965
3 x 185	86.2	95.9	510	465	12 610
3 x 240	91.9	102.2	600	540	15 050
3 x 300	97.2	108.1	685	600	17 565
1 x 25 Al*	31.0	34.6	130	125	1 010
1 x 35 Al*	28.9	32.2	160	150	910
1 x 50 Al*	30.2	33.6	190	180	1 000
1 x 70 Al*	31.9	35.4	235	220	1 125
1 x 95 Al*	33.6	37.4	290	260	1 280
1 x 120 Al*	35.1	39.0	330	300	1 410
1 x 150 Al*	36.6	40.7	375	335	1 545
1 x 185 Al*	38.5	42.8	430	380	1 740
1 x 240 Al*	40.9	45.5	510	440	1 990
1 x 300 Al*	43.1	48.0	590	500	2 285
1 x 400 Al*	46.0	51.1	680	570	2 655
1 x 500 Al*	50.1	55.7	790	640	3 190
3 x 25 Al*	69.0	76.7	125	125	5 580
3 x 35 Al*	64.4	71.6	150	145	4 960
3 x 50 Al*	67.0	74.6	175	175	5 405
3 x 70 Al*	71.0	78.9	220	210	6 095
3 x 95 Al*	74.7	83.1	265	255	6 825
3 x 120 Al*	78.2	87.0	305	290	7 530
3 x 150 Al*	81.2	90.4	345	320	8 165
3 x 185 Al*	85.8	95.5	395	360	9 190
3 x 240 Al*	91.0	101.3	470	420	10 430
3 x 300 Al*	96.0	106.8	535	465	11 810

Product on request

• Minimum bending radius
=1 core: 11 x outer diameter[1]
= 3 cores: 8 x outer diameter[1]

[1] to be doubled during laying operations
Al*= stranded aluminium core

IEC 60502-2
MV - Armoured (GSTA) cables

Applications

For electricity supply in medium voltage installation system.

3.6/6 (7.2) kV
6/10 (12) kV
12/20 (24) kV
18/30 (36) kV

Max core temperature: 90 °C

Design

1. Conductor
Stranded bare copper or stranded aluminium
Class 2

2. Extruded semi-conductor

3. Insulation
XLPE
(cross-linked polyethylene) or EPR for all rated voltages
(ethylene propylene rubber)

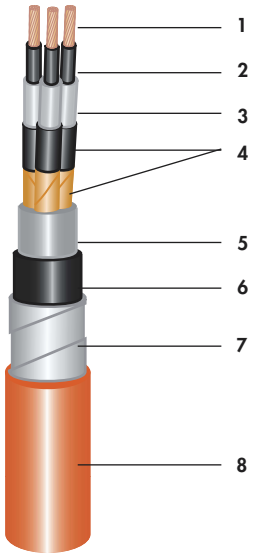
4. Screen
Extruded semi-conductor
Bare copper tape

5. Bedding (optional)

6. Inner sheath
PVC
(polyvinyl chloride)

7. Armour
Galvanized steel tape (GSTA)
Aluminium tape for single core (ATA)

8. Outer sheath
PVC
(polyvinyl chloride)
Colour: red
Other colour on request



Marking

Factory number
IEC 60502-2 MV GSTA - Voltage
n x S mm^2 - year
Other marking on request

Core Identification

Tape: black - blue - brown
Other colour on request

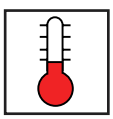
Standards

IEC 60228
IEC 60502-2
IEC 60332.1
Other fire performances and aliphatic hydrocarbons resistant on request.

Flame retardant
IEC 60332.1

Good

Good


-20 °C + 60 °C

IEC 60502-2 - MV armoured (GSTA) cables 3.6/6 (7.2) kV

Cables (mm²)	Inner Sheath Diameter	Outer diameter		Permissible current rating (A)		Weight (kg/km)
		Min.	Max.	in air at 30°C	underground at 20°C	
1 x 25	16.2	21.9	24.4	160	165	780
1 x 35	17.2	22.9	25.5	200	195	890
1 x 50	18.3	24.0	26.7	235	230	1 035
1 x 70	19.9	25.6	28.4	295	285	1 270
1 x 95	21.8	27.4	30.5	360	340	1 565
1 x 120	23.2	29.0	32.3	420	385	1 850
1 x 150	24.6	30.4	33.8	475	430	2 135
1 x 185	26.5	32.4	36.1	550	485	2 550
1 x 240	29.1	35.2	39.1	650	560	3 170
1 x 300	31.7	37.9	42.2	740	630	3 835
1 x 400	35.1	41.5	46.1	860	720	4 735
1 x 500	39.6	46.1	51.2	990	800	5 975
1 x 630	43.8	50.4	56.0	1 140	910	7 470
3 x 25	35.4	41.6	46.2	155	160	3 145
3 x 35	37.8	44.1	49.1	190	190	3 655
3 x 50	40.3	46.7	52.0	225	225	4 245
3 x 70	44.1	50.7	56.4	280	275	5 190
3 x 95	48.4	55.1	61.3	340	330	6 370
3 x 120	51.7	58.7	65.3	385	370	7 450
3 x 150	55.1	62.2	69.2	445	420	8 620
3 x 185	59.3	66.5	74.0	510	470	10 145
3 x 240	65.4	72.9	81.1	590	540	12 535
3 x 300	69.2	76.9	85.6	680	610	14 825
1 x 25 Al*	16.1	21.8	24.3	125	125	610
1 x 35 Al*	17.1	22.8	25.4	150	150	675
1 x 50 Al*	18.2	23.9	26.6	185	180	750
1 x 70 Al*	19.9	25.6	28.4	230	220	870
1 x 95 Al*	21.5	27.1	30.2	280	260	1 005
1 x 120 Al*	23.0	28.8	32.0	325	300	1 135
1 x 150 Al*	24.3	30.1	33.5	370	335	1 235
1 x 185 Al*	26.3	32.2	35.9	425	380	1 435
1 x 240 Al*	28.7	34.8	38.8	510	440	1 680
1 x 300 Al*	31.2	37.4	41.6	580	500	1 975
1 x 400 Al*	34.3	40.7	45.2	680	570	2 360
1 x 500 Al*	38.9	45.4	50.5	790	640	2 935
1 x 630 Al*	43.0	49.6	55.2	920	740	3 540
3 x 25 Al*	35.2	41.4	46.0	120	125	2 665
3 x 35 Al*	37.6	43.9	48.8	145	150	3 000
3 x 50 Al*	40.1	46.6	51.8	175	175	3 370
3 x 70 Al*	44.1	50.7	56.4	215	215	3 965
3 x 95 Al*	47.7	54.4	60.5	260	255	4 595
3 x 120 Al*	51.3	58.3	64.9	300	290	5 260
3 x 150 Al*	54.4	61.5	68.5	345	325	5 835
3 x 185 Al*	58.9	66.2	73.6	395	365	6 740
3 x 240 Al*	64.5	72.0	80.1	465	425	7 935
3 x 300 Al*	70.3	78.1	86.9	530	480	9 365

Product on request

IEC 60502-2 - MV armoured (GSTA) cables 6/10 (12) kV

Cables (mm²)	Inner Sheath Diameter	Outer diameter		Permissible current rating (A)		Weight (kg/km)
		Min.	Max.	in air at 30°C	underground at 20°C	
1 x 25	18.0	23.7	26.4	160	165	850
1 x 35	19.0	24.7	27.5	200	195	975
1 x 50	20.1	25.8	28.7	235	230	1 125
1 x 70	21.7	27.3	30.4	295	285	1 360
1 x 95	23.6	29.4	32.7	360	340	1 680
1 x 120	25.0	30.8	34.2	420	385	1 945
1 x 150	26.4	32.3	36.0	475	430	2 260
1 x 185	28.3	34.2	38.0	550	485	2 660
1 x 240	30.7	36.8	40.9	650	560	3 280
1 x 300	32.9	39.1	43.5	740	630	3 920
1 x 400	36.1	42.4	47.2	860	720	4 820
1 x 500	40.0	46.5	51.7	990	800	6 005
1 x 630	44.2	50.8	56.5	1 140	910	7 505
3 x 25	39.6	46.1	51.2	155	160	3 655
3 x 35	41.9	48.3	53.7	190	190	4 140
3 x 50	44.6	51.4	57.1	225	225	4 795
3 x 70	48.4	55.2	61.4	280	275	5 790
3 x 95	52.6	59.6	66.3	340	330	7 005
3 x 120	56.0	63.1	70.2	385	370	8 090
3 x 150	59.1	66.3	73.8	445	420	9 255
3 x 185	63.6	71.0	78.9	510	470	10 850
3 x 240	69.2	76.8	85.5	590	540	13 225
3 x 300	74.3	82.2	91.5	680	610	15 665
1 x 25 Al*	17.9	23.6	26.3	125	125	695
1 x 35 Al*	18.9	24.6	27.4	150	150	760
1 x 50 Al*	20.0	25.7	28.6	185	180	840
1 x 70 Al*	21.7	27.3	30.4	230	220	955
1 x 95 Al*	23.3	29.1	32.4	280	260	1 110
1 x 120 Al*	24.8	30.6	34.0	325	300	1 230
1 x 150 Al*	26.1	32.0	35.6	370	335	1 355
1 x 185 Al*	28.1	34.0	37.8	425	380	1 545
1 x 240 Al*	30.3	36.4	40.4	510	440	1 785
1 x 300 Al*	32.4	38.6	42.9	580	500	2 060
1 x 400 Al*	35.3	41.7	46.3	680	570	2 440
1 x 500 Al*	39.3	45.8	50.9	790	640	2 965
1 x 630 Al*	43.4	50.0	55.6	920	740	3 570
3 x 25 Al*	39.4	45.9	51.0	120	125	3 170
3 x 35 Al*	41.7	48.1	53.5	145	150	3 485
3 x 50 Al*	44.3	51.1	56.8	175	175	3 920
3 x 70 Al*	48.4	55.2	61.4	215	215	4 565
3 x 95 Al*	51.9	58.9	65.5	260	255	5 220
3 x 120 Al*	55.5	62.6	69.7	300	290	5 890
3 x 150 Al*	58.4	65.7	73.0	345	325	6 465
3 x 185 Al*	63.1	70.5	78.4	395	365	7 440
3 x 240 Al*	68.3	76.0	84.5	465	425	8 620
3 x 300 Al*	73.2	81.1	90.3	530	480	9 925

Product on request

IEC 60502-2 - MV armoured (GSTA) cables 12/20 (24) kV

Cables (mm²)	Inner Sheath Diameter	Outer diameter		Permissible current rating (A)		Weight (kg/km)
		Min.	Max.	in air at 30°C	underground at 20°C	
1 x 25	23.0	28.8	32.0	170	165	1 130
1 x 35	23.2	29.0	32.3	200	195	1 215
1 x 50	24.3	30.1	33.5	245	230	1 365
1 x 70	25.9	31.9	35.4	305	280	1 630
1 x 95	27.8	33.7	37.5	375	335	1 950
1 x 120	29.2	35.3	39.2	425	385	2 240
1 x 150	30.6	36.7	40.8	485	430	2 550
1 x 185	32.5	38.7	43.1	560	490	2 985
1 x 240	34.9	41.3	45.9	660	560	3 625
1 x 300	37.3	43.8	48.7	750	640	4 310
1 x 400	40.3	46.9	52.2	870	720	5 210
1 x 500	44.4	51.2	56.9	1 000	810	6 465
1 x 630	48.6	55.5	61.7	1 150	910	7 990
3 x 25	51.3	58.3	64.9	160	160	5 240
3 x 35	51.7	58.7	65.3	195	190	5 520
3 x 50	54.4	61.5	68.5	230	225	6 220
3 x 70	58.0	65.3	72.6	280	270	7 265
3 x 95	62.5	69.8	77.6	345	330	8 605
3 x 120	65.8	73.3	81.5	395	370	9 765
3 x 150	68.9	76.5	85.1	450	415	11 000
3 x 185	73.4	81.3	90.5	510	465	12 745
3 x 240	79.0	88.8	98.8	600	540	16 280
3 x 300	84.1	94.0	104.5	685	600	18 860
1 x 25 Al*	22.9	28.7	31.9	130	125	975
1 x 35 Al*	23.1	28.9	32.2	160	150	1 000
1 x 50 Al*	24.2	30.0	33.4	190	180	1 080
1 x 70 Al*	25.9	31.9	35.4	235	220	1 225
1 x 95 Al*	27.5	33.4	37.2	290	260	1 375
1 x 120 Al*	29.0	35.1	39.0	330	300	1 520
1 x 150 Al*	30.3	36.4	40.4	375	335	1 645
1 x 185 Al*	32.3	38.5	42.8	430	380	1 865
1 x 240 Al*	34.5	40.9	45.5	510	440	2 125
1 x 300 Al*	36.8	43.3	48.2	590	500	2 445
1 x 400 Al*	39.5	46.2	51.3	680	570	2 830
1 x 500 Al*	43.7	50.5	56.1	790	640	3 415
1 x 630 Al*	47.8	54.7	60.8	930	740	4 050
3 x 25 Al*	51.0	58.0	64.5	125	125	4 755
3 x 35 Al*	51.5	58.5	65.1	150	145	4 855
3 x 50 Al*	54.2	61.3	68.2	175	175	5 340
3 x 70 Al*	58.0	65.3	72.6	220	210	6 040
3 x 95 Al*	61.8	69.2	77.0	265	255	6 805
3 x 120 Al*	65.3	72.8	81.0	305	290	7 555
3 x 150 Al*	68.3	76.0	84.5	345	320	8 200
3 x 185 Al*	73.0	80.9	90.0	395	360	9 325
3 x 240 Al*	78.1	87.9	97.8	470	420	11 640
3 x 300 Al*	83.0	92.9	103.3	535	465	13 085

Product on request

IEC 60502 - MV armoured (GSTA) cables 18/30 (36) kV

Cables (mm²)	Inner Sheath Diameter	Outer diameter		Permissible current rating (A)		Weight (kg/km)
		Min.	Max.	in air at 30°C	underground at 20°C	
1 x 25	30.2	36.3	40.3	170	165	1 595
1 x 35	28.2	34.3	38.2	200	195	1 540
1 x 50	29.3	35.4	39.3	245	230	1 705
1 x 70	30.9	37.1	41.3	305	285	1 985
1 x 95	32.8	39.0	43.4	375	340	2 320
1 x 120	34.2	40.6	45.1	425	385	2 630
1 x 150	35.8	42.1	46.9	485	430	2 975
1 x 185	37.7	44.2	49.2	560	485	3 430
1 x 240	40.1	46.7	52.0	660	560	4 095
1 x 300	42.5	49.3	54.8	750	630	4 810
1 x 400	45.7	52.6	58.5	870	720	5 775
1 x 500	49.6	56.6	63.0	1 000	800	7 025
3 x 25	68.0	75.7	84.1	160	160	8 035
3 x 35	63.4	70.9	78.8	195	190	7 425
3 x 50	66.0	73.7	82.0	230	225	8 195
3 x 70	69.6	77.4	86.1	280	275	9 335
3 x 95	74.1	82.0	91.2	345	330	10 800
3 x 120	77.4	87.2	97.0	395	370	13 105
3 x 150	80.6	90.5	100.6	450	420	14 465
3 x 185	85.0	95.1	105.7	510	470	16 340
3 x 240	90.6	100.9	112.3	600	540	19 070
3 x 300	95.8	106.1	118.0	685	610	21 815
1 x 25 Al*	30.1	36.2	40.2	130	125	1 440
1 x 35 Al*	28.1	34.2	38.0	160	150	1 325
1 x50 Al*	29.2	35.3	39.2	190	180	1 415
1 x 70 Al*	30.9	37.1	41.3	235	220	1 585
1 x 95 Al*	32.5	38.7	43.1	290	260	1 745
1 x 120 Al*	34.0	40.4	44.9	330	300	1 910
1 x 150 Al*	35.5	41.8	46.5	375	335	2 065
1 x 185 Al*	37.5	44.0	48.9	430	380	2 310
1 x 240 Al*	39.7	46.4	51.6	510	440	2 590
1 x 300 Al*	42.0	48.8	54.3	590	500	2 940
1 x 400 Al*	44.9	51.8	57.7	680	570	3 380
1 x 500 Al*	48.9	56.0	62.2	790	640	3 975
3 x 25 Al*	68.0	75.7	84.1	125	125	7 575
3 x 35 Al*	63.1	70.7	78.6	150	145	6 755
3 x 50 Al*	65.8	73.5	81.8	175	175	7 310
3 x 70 Al*	69.6	77.4	86.1	220	210	8 110
3 x 95 Al*	73.4	81.3	90.5	265	255	8 985
3 x 120 Al*	77.0	86.7	96.5	305	290	10 875
3 x 150 Al*	79.9	89.9	100.0	245	320	11 635
3 x 185 Al*	84.6	94.6	105.2	395	360	12 905
3 x 240 Al*	89.7	100.1	111.3	470	420	14 415
3 x 300 Al*	94.6	105.1	116.8	535	465	16 010

Product on request

• Minimum bending radius
= 1 core: 9 x outer diameter[1]
= 3 cores: 8 x outer diameter[1]

[1] to be doubled during laying operations
Al*= stranded aluminium core

IEC 60502-2
MV - Armoured (SWA) cables

Applications

For electricity supply in medium voltage installation system.

3.6/6 (7.2) kV
6/10 (12) kV
12/20 (24) kV
18/30 (36) kV

Max core temperature: 90 °C

Design

1. Conductor
Stranded bare copper or stranded aluminium
Class 2

2. Extruded semi-conductor

3. Insulation
XLPE
(cross-linked polyethylene) or EPR for all rated voltages
(ethylene propylene rubber)

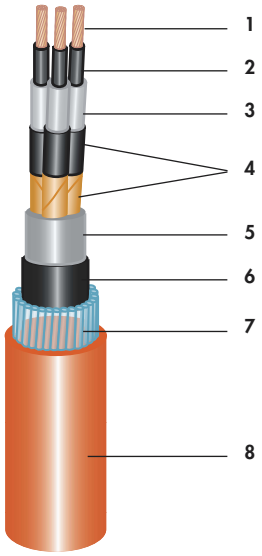
4. Screen
Extruded semi-conductor
Bare copper tape

5. Bedding (optional)

6. Inner sheath
PVC
(polyvinyl chloride)

7. Armour
Galvanized steel wire (SWA)
Aluminium wire for single core (AWA)

8. Outer sheath
PVC
(polyvinyl chloride)
Colour: red
Other colour on request



Marking

Factory number
IEC 60502-2 MV SWA - Voltage
n x S mm^2 - year
Other colour on request

Core Identification

Tape: black - blue - brown
Other colour on request

Standards

IEC 60228
IEC 60502-2
IEC 60332.1
Other fire performances and aliphatic hydrocarbons resistant on request.

Flame retardant IEC 60332.1 | Good | Good | -20 °C + 60 °C | EMI

IEC 60502-2 - MV armoured (SWA) cables 3.6/6 (7.2) kV

Cables (mm²)	Inner Sheath Diameter	Outer diameter		Permissible current rating (A)		Weight (kg/km)
		Min.	Max.	in air at 30°C	underground at 20°C	
1 x 25	16.2	22.9	25.5	160	165	890
1 x 35	17.2	23.9	26.6	200	195	1 010
1 x 50	18.3	25.0	27.8	235	230	1 165
1 x 70	19.9	26.6	29.5	295	285	1 410
1 x 95	21.8	28.6	31.8	360	340	1 735
1 x 120	23.2	30.0	33.4	420	385	2 010
1 x 150	24.6	31.6	35.1	475	430	2 325
1 x 185	26.5	34.0	37.8	550	485	2 795
1 x 240	29.1	36.6	40.7	650	560	3 425
1 x 300	31.7	39.3	43.7	740	630	4 110
1 x 400	35.1	43.0	47.9	860	720	5 060
1 x 500	39.6	48.6	54.1	990	800	6 495
1 x 630	43.8	52.9	58.9	1 140	910	8 040
3 x 25	35.4	43.1	48.0	155	160	4 010
3 x 35	37.8	46.6	51.9	190	190	4 990
3 x 50	40.3	49.3	54.8	225	225	5 660
3 x 70	44.1	53.2	59.2	280	275	6 745
3 x 95	48.4	57.6	64.1	340	330	8 055
3 x 120	51.7	61.3	68.1	385	370	9 245
3 x 150	55.1	64.8	72.0	445	420	10 520
3 x 185	59.3	69.1	76.8	510	470	12 180
3 x 240	65.4	75.5	83.9	590	540	14 755
3 x 300	71.4	84.0	93.4	680	610	18 940
1 x 25 Al*	16.1	22.8	25.4	125	125	735
1 x 35 Al*	17.1	23.8	26.5	150	150	800
1 x 50 Al*	18.2	24.9	27.7	185	180	880
1 x 70 Al*	19.9	26.6	29.5	230	220	1 005
1 x 95 Al*	21.5	28.3	31.5	280	260	1 160
1 x 120 Al*	23.0	29.8	33.1	325	300	1 290
1 x 150 Al*	24.3	31.3	34.8	370	335	1 425
1 x 185 Al*	26.3	33.8	37.6	425	380	1 685
1 x 240 Al*	28.7	36.2	40.2	510	440	1 935
1 x 300 Al*	31.2	38.8	43.2	580	500	2 245
1 x 400 Al*	34.3	42.2	47.0	680	570	2 680
1 x 500 Al*	38.9	47.9	53.3	790	640	3 445
1 x 630 Al*	43.0	52.1	58.0	920	740	4 095
3 x 25 Al*	35.2	42.9	47.7	120	125	3 510
3 x 35 Al*	37.6	46.5	51.7	145	150	4 335
3 x 50 Al*	40.1	49.1	54.6	175	175	4 790
3 x 70 Al*	44.1	53.2	59.2	215	215	5 520
3 x 95 Al*	47.7	56.9	63.3	260	255	6 250
3 x 120 Al*	51.3	60.9	67.7	300	290	7 020
3 x 150 Al*	54.4	64.1	71.3	345	325	7 710
3 x 185 Al*	58.9	68.7	76.4	395	365	8 740
3 x 240 Al*	64.5	74.6	82.9	465	425	10 130
3 x 300 Al*	70.3	82.9	92.2	530	480	13 155

Product on request

IEC 60502-2 - MV armoured (SWA) cables 6/10 (12) kV

Cables (mm²)	Inner Sheath Diameter	Outer diameter		Permissible current rating (A)		Weight (kg/km)
		Min.	Max.	in air at 30°C	underground at 20°C	
1 x 25	18.3	25.0	27.8	160	165	1 045
1 x 35	19.3	26.0	28.9	200	195	1 180
1 x 50	20.4	27.0	30.1	235	230	1 335
1 x 70	22.0	28.8	32.0	295	285	1 605
1 x 95	23.9	30.9	34.3	360	340	1 940
1 x 120	25.3	32.6	36.3	420	385	2 260
1 x 150	26.7	34.2	38.0	475	430	2 605
1 x 185	28.6	36.1	40.1	550	485	3 015
1 x 240	31.0	38.6	42.9	650	560	3 665
1 x 300	33.2	41.0	45.6	740	630	4 330
1 x 400	36.4	45.3	50.4	860	720	5 410
1 x 500	40.3	49.3	54.8	990	800	6 665
1 x 630	44.2	53.3	59.3	1 140	910	8 085
3 x 25	39.6	48.6	54.1	155	160	5 045
3 x 35	41.9	51.1	56.8	190	190	5 645
3 x 50	44.6	53.9	60.0	225	225	6 355
3 x 70	48.4	57.7	64.2	280	275	7 485
3 x 95	52.6	62.1	69.1	340	330	8 835
3 x 120	56.0	65.7	73.0	385	370	10 030
3 x 150	59.1	68.9	76.6	445	420	11 305
3 x 185	63.6	73.5	81.8	510	470	13 030
3 x 240	69.2	81.8	91.0	590	540	16 945
3 x 300	74.3	87.0	96.8	680	610	19 605
1 x 25 Al*	18.2	24.9	27.7	125	125	890
1 x 35 Al*	19.2	25.9	28.8	150	150	965
1 x 50 Al*	20.3	27.0	30.0	185	180	1 050
1 x 70 Al*	22.0	28.8	32.0	230	220	1 200
1 x 95 Al*	23.6	30.6	34.0	280	260	1 360
1 x 120 Al*	25.1	32.4	36.1	325	300	1 545
1 x 150 Al*	26.4	33.9	37.7	370	335	1 690
1 x 185 Al*	28.4	35.9	39.9	425	380	1 905
1 x 240 Al*	30.6	38.2	42.5	510	440	2 160
1 x 300 Al*	32.7	40.5	45.0	580	500	2 470
1 x 400 Al*	35.6	44.5	49.5	680	570	3 025
1 x 500 Al*	39.6	48.6	54.1	790	640	3 610
1 x 630 Al*	43.4	52.5	58.4	920	740	4 140
3 x 25 Al*	39.4	48.4	53.8	120	125	4 565
3 x 35 Al*	41.7	50.9	56.6	145	150	4 990
3 x 50 Al*	44.3	53.6	59.6	175	175	5 480
3 x 70 Al*	48.4	57.7	64.2	215	215	6 260
3 x 95 Al*	51.9	61.4	68.3	260	255	7 020
3 x 120 Al*	55.5	65.2	72.5	300	290	7 795
3 x 150 Al*	58.4	68.2	75.9	345	325	8 490
3 x 185 Al*	63.1	73.0	81.2	395	365	9 625
3 x 240 Al*	68.3	80.9	90.0	465	425	12 285
3 x 300 Al*	73.2	85.9	95.6	530	480	13 755

Product on request

IEC 60502-2 - MV armoured (SWA) cables 12/20 (24) kV

Cables (mm²)	Inner Sheath Diameter	Outer diameter		Permissible current rating (A)		Weight (kg/km)
		Min.	Max.	in air at 30°C	underground at 20°C	
1 x 25	23.3	30.1	33.5	170	165	1 365
1 x 35	23.5	30.3	33.7	200	195	1 445
1 x 50	24.6	31.6	35.1	245	230	1 630
1 x 70	26.2	33.7	37.5	305	280	1 965
1 x 95	28.1	35.6	39.6	375	335	2 305
1 x 120	29.5	37.1	41.3	425	385	2 610
1 x 150	30.9	38.5	42.8	485	430	2 935
1 x 185	32.8	40.6	45.1	560	490	3 390
1 x 240	35.4	44.3	49.3	660	560	4 225
1 x 300	37.6	46.6	51.9	750	640	4 925
1 x 400	40.8	50.0	55.6	870	720	5 900
1 x 500	44.4	53.7	59.7	1 000	810	7 040
1 x 630	48.6	58.0	64.5	1 150	910	8 610
3 x 25	51.3	60.9	67.7	160	160	7 000
3 x 35	51.7	61.3	68.1	195	190	7 315
3 x 50	54.4	64.1	71.3	230	225	8 095
3 x 70	58.0	67.8	75.4	280	270	9 240
3 x 95	62.5	72.3	80.4	345	330	10 750
3 x 120	65.8	78.3	87.1	395	370	13 180
3 x 150	68.9	81.5	90.7	450	415	14 570
3 x 185	73.4	86.1	95.8	510	465	16 535
3 x 240	79.0	92.0	102.4	600	540	19 295
3 x 300	84.1	97.4	108.3	685	600	22 115
1 x 25 Al*	23.2	30.0	33.4	130	125	1 205
1 x 35 Al*	23.4	30.2	33.6	160	150	1 230
1 x 50 Al*	24.5	31.5	35.0	190	180	1 345
1 x 70 Al*	26.2	33.7	37.5	235	220	1 560
1 x 95 Al*	27.8	35.3	39.2	290	260	1 725
1 x 120 Al*	29.3	36.9	41.1	330	300	1 890
1 x 150 Al*	30.6	38.2	42.5	375	335	2 020
1 x 185 Al*	32.6	40.4	44.9	430	380	2 275
1 x 240 Al*	34.8	42.7	47.5	510	440	2 560
1 x 300 Al*	37.1	46.2	51.3	590	500	3 045
1 x 400 Al*	40.0	49.2	54.7	680	570	3 505
1 x 500 Al*	43.7	53.0	59.0	790	640	3 980
1 x 630 Al*	47.8	57.2	63.7	930	740	4 660
3 x 25 Al*	51.0	60.6	67.4	125	125	6 515
3 x 35 Al*	51.5	61.1	67.9	150	145	6 615
3 x 50 Al*	54.2	63.9	71.1	175	175	7 215
3 x 70 Al*	58.0	67.8	75.4	220	210	8 015
3 x 95 Al*	61.8	71.7	79.8	265	255	8 920
3 x 120 Al*	65.3	77.8	86.5	305	290	10 975
3 x 150 Al*	68.3	80.9	90.0	345	320	11 775
3 x 185 Al*	73.0	85.8	95.4	395	360	13 060
3 x 240 Al*	78.1	91.1	101.4	470	420	14 615
3 x 300 Al*	83.0	96.3	107.1	535	465	16 300

Product on request

IEC 60502-2 - MV armoured (SWA) cables 18/30 (36) kV

Cables (mm²)	Inner Sheath Diameter	Outer diameter		Permissible current rating (A)		Weight (kg/km)
		Min.	Max.	in air at 30°C	underground at 20°C	
1 x 25	30.2	37.8	42.1	170	165	1 880
1 x 35	28.2	35.7	39.7	200	195	1 790
1 x 50	29.3	36.9	41.1	245	230	1 985
1 x 70	30.9	38.5	42.8	305	280	2 255
1 x 95	32.8	40.6	45.1	375	335	2 625
1 x 120	34.2	41.9	46.7	425	385	2 925
1 x 150	35.8	44.7	49.7	485	430	3 455
1 x 185	37.7	46.7	52.0	560	490	3 925
1 x 240	40.1	49.3	54.8	660	560	4 625
1 x 300	42.5	51.8	57.7	750	640	5 370
1 x 400	45.7	55.2	61.4	870	720	6 360
1 x 500	49.6	59.2	65.8	1 000	810	7 665
3 x 25	68.0	80.7	89.7	160	160	11 765
3 x 35	63.4	73.4	81.6	195	190	9 600
3 x 50	66.0	78.7	87.5	230	225	11 820
3 x 70	69.6	82.4	91.7	280	270	13 110
3 x 95	74.1	87.0	96.8	345	330	14 790
3 x 120	77.4	90.5	100.6	395	370	16 265
3 x 150	80.6	93.8	104.3	450	415	17 745
3 x 185	85.0	98.3	109.3	510	465	19 775
3 x 240	90.6	104.2	115.9	600	540	22 695
3 x 300	95.8	109.7	122.0	685	600	25 695
1 x 25 Al*	30.1	37.7	42.0	130	125	1 720
1 x 35 Al*	28.1	35.6	39.6	160	150	1 575
1 x 50 Al*	29.2	36.8	41.0	190	180	1 685
1 x 70 Al*	30.9	38.5	42.8	235	220	1 850
1 x 95 Al*	32.5	40.3	44.8	290	260	2 040
1 x 120 Al*	34.0	41.7	46.4	330	300	2 210
1 x 150 Al*	35.5	44.4	49.4	375	335	2 535
1 x 185 Al*	37.5	46.6	51.8	430	380	2 810
1 x 240 Al*	39.7	48.9	54.4	510	440	3 110
1 x 300 Al*	42.0	51.4	57.1	590	500	3 490
1 x 400 Al*	44.9	54.4	60.5	680	570	3 975
1 x 500 Al*	48.9	58.5	65.1	790	640	4 600
3 x 25 Al*	67.8	80.5	89.5	125	125	11 205
3 x 35 Al*	63.1	73.2	81.4	150	145	8 935
3 x 50 Al*	65.8	78.5	87.3	175	175	10 870
3 x 70 Al*	69.6	82.4	91.7	220	210	11 885
3 x 95 Al*	73.4	86.3	96.0	265	255	12 980
3 x 120 Al*	77.0	90.1	100.2	305	290	13 980
3 x 150 Al*	79.9	93.1	103.6	345	320	14 870
3 x 185 Al*	84.6	97.9	108.9	395	360	16 285
3 x 240 Al*	89.7	103.3	114.9	470	420	17 995
3 x 300 Al*	94.6	108.5	120.7	535	465	19 850

Product on request

• Minimum bending radius
= 1 core: 9 x outer diameter[1]
= 3 cores: 8 x outer diameter[1]

[1] to be doubled during laying operations
Al*= stranded aluminium core

IEC 60502-2
MV - Armoured (LC-GSTA) cables

Applications

For electricity supply in medium voltage installation system for direct burial underground where hydrocarbons may be present in the soil.

3.6/6 (7.2) kV
6/10 (12) kV
12/20 (24) kV
18/30 (36) kV

Max core temperature: 90 °C

Design

1. Conductor
Stranded bare copper or stranded aluminium
Class 2

2. Extruded semi-conductor

3. Insulation
XLPE
(cross-linked polyethylene) or EPR for all rated voltages
(ethylene propylene rubber)

4. Screen
Extruded semi-conductor
Bare copper tape

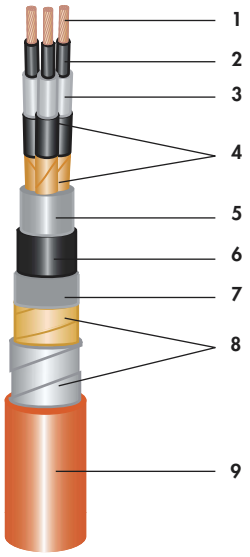
5. Bedding (optional)

6. Inner sheath
PVC
(polyvinyl chloride)

7. Lead covering

8. Armour
Paraffin-waxed crepe paper
Galvanized steel tape
(GSTA)

9. Outer sheath
PVC
(polyvinyl chloride)
Colour: red
Other colour on request



Marking

Factory number
IEC 60502-2 MV LC GSTA
Voltage - n x S mm^2 - year
Other marking on request

Core Identification

Tape: black - blue - brown
Other colour on request

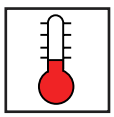
Standards

IEC 60228
IEC 60502-2
IEC 60332.1
Other fire performances and aliphatic hydrocarbons resistant on request.

Flame retardant
IEC 60332.1

Good

Good


-20 °C + 60 °C

IEC 60502-2 - MV armoured (LC-GSTA) cables 3.6/6 (7.2) k V

Cables (mm²)	Inner Sheath Diameter	Lead Pipe Diameter	Outer diameter		Permissible current rating (A)		Weight (kg/km)
			Min.	Max.	in air at 30°C	underground at 20°C	
1 x 25	15.8	18.2	25.1	27.9	160	165	1 555
1 x 35	16.8	19.4	26.3	29.2	200	195	1 790
1 x 50	17.9	20.5	27.3	30.4	235	230	1 990
1 x 70	19.5	22.3	29.3	32.6	295	285	2 400
1 x 95	21.4	24.2	31.2	34.7	360	340	2 790
1 x 120	22.8	25.8	32.9	36.6	420	385	3 235
1 x 150	24.2	27.2	34.3	38.2	475	430	3 605
1 x 185	26.1	29.1	36.4	40.4	550	485	4 120
1 x 240	29.1	32.3	39.7	44.1	650	560	5 065
1 x 300	31.7	35.1	42.6	47.4	740	630	6 015
1 x 400	35.1	38.7	46.4	51.6	860	720	7 275
1 x 500	39.8	43.6	51.4	57.1	990	800	9 005
1 x 630	43.8	47.8	55.9	62.1	1 140	910	10 965
3 x 25	35.4	38.6	46.1	51.2	155	160	5 445
3 x 35	37.6	41.0	48.6	54.1	190	190	6 220
3 x 50	40.5	44.1	51.8	57.7	225	225	7 205
3 x 70	44.1	47.9	55.8	62.0	280	275	8 540
3 x 95	48.4	52.4	60.6	67.4	340	330	10 240
3 x 120	51.9	56.1	64.4	71.6	385	370	11 785
3 x 150	55.1	59.5	67.9	75.5	445	420	13 385
3 x 185	57.3	61.9	70.5	78.4	510	470	15 045
3 x 240	65.2	70.0	78.8	87.6	590	540	18 590
3 x 300	71.4	76.6	85.7	95.3	680	610	22 300
1 x 25 Al*	15.7	18.1	25.0	27.8	125	125	1 395
1 x 35 Al*	16.7	19.3	26.2	29.1	150	150	1 575
1 x 50 Al*	17.8	20.4	27.2	30.3	185	180	1 700
1 x 70 Al*	19.5	22.3	29.3	32.6	230	220	1 995
1 x 95 Al*	21.1	23.9	30.9	34.3	280	260	2 200
1 x 120 Al*	22.6	25.6	32.7	36.4	325	300	2 510
1 x 150 Al*	23.9	26.9	34.0	37.8	370	335	2 685
1 x 185 Al*	25.9	28.9	36.2	40.2	425	380	3 000
1 x 240 Al*	28.7	31.9	39.3	43.7	510	440	3 550
1 x 300 Al*	31.2	34.6	42.1	46.9	580	500	4 125
1 x 400 Al*	34.3	37.9	45.6	50.7	680	570	4 845
1 x 500 Al*	39.1	42.9	50.7	56.4	790	640	5 915
1 x 630 Al*	43.0	47.0	55.1	61.3	920	740	6 970
3 x 25 Al*	35.2	38.4	45.9	51.0	120	125	4 950
3 x 35 Al*	37.4	40.8	48.4	53.8	145	150	5 550
3 x 50 Al*	40.3	43.9	51.6	57.4	175	175	6 315
3 x 70 Al*	44.1	47.9	55.8	62.0	215	215	7 315
3 x 95 Al*	47.7	51.7	59.9	66.6	260	255	8 410
3 x 120 Al*	51.5	55.7	64.0	71.2	300	290	9 560
3 x 150 Al*	54.4	58.8	67.2	74.8	345	325	10 550
3 x 185 Al*	58.9	63.5	72.0	80.1	395	365	12 050
3 x 240 Al*	64.3	69.1	77.9	86.7	465	425	13 915
3 x 300 Al*	70.3	75.5	84.6	94.1	530	480	16 460

Product on request

IEC 60502-2 - MV armoured (LC-GSTA) cables 6/10 (12) KV

Cables (mm²)	Inner Sheath Diameter	Lead Pipe Diameter	Outer diameter		Permissible current rating (A)		Weight (kg/km)
			Min.	Max.	in air at 30°C	underground at 20°C	
1 x 25	17.6	20.2	27.0	30.1	160	165	1 790
1 x 35	18.6	21.2	28.0	31.2	200	195	1 960
1 x 50	19.7	22.5	29.5	32.8	235	230	2 260
1 x 70					295	285	
1 x 95	23.2	26.2	33.3	37.1	360	340	3 090
1 x 120	24.6	27.6	34.7	38.6	420	385	3 435
1 x 150	26.0	29.0	36.3	40.3	475	430	3 830
1 x 185	28.3	31.5	38.9	43.3	550	485	4 525
1 x 240	30.7	34.1	41.5	46.1	650	560	5 395
1 x 300	32.9	36.3	43.8	48.7	740	630	6 175
1 x 400	35.9	39.5	47.1	52.4	860	720	7 385
1 x 500	40.2	44.0	51.7	57.6	990	800	9 070
1 x 630	44.2	48.2	56.3	62.6	1 140	910	11 030
3 x 25	39.4	43.0	50.8	56.5	155	160	6 495
3 x 35	42.1	45.7	53.6	59.6	190	190	7 240
3 x 50	44.6	48.4	56.4	62.8	225	225	8 185
3 x 70	46.3	50.3	58.5	65.1	280	275	9 225
3 x 95	52.8	57.0	65.3	72.6	340	330	11 425
3 x 120	56.0	60.4	68.8	76.5	385	370	12 945
3 x 150	59.1	63.7	72.4	80.6	445	420	14 635
3 x 185	63.4	68.2	77.0	85.7	510	470	16 800
3 x 240	68.8	73.8	82.7	92.0	590	540	19 840
3 x 300	74.1	79.5	90.5	100.6	680	610	24 485
1 x 25 Al*	17.5	20.1	27.0	30.0	125	125	1 630
1 x 35 Al*	18.5	21.1	27.9	31.1	150	150	1 745
1 x 50 Al*	19.6	22.4	29.4	32.7	185	180	1 970
1 x 70 Al*	21.3	24.1	31.1	34.6	230	220	2 175
1 x 95 Al*	22.9	25.9	33.0	36.7	280	260	2 500
1 x 120 Al*	24.4	27.4	34.5	38.4	325	300	2 710
1 x 150 Al*	25.7	28.7	36.0	40.0	370	335	2 910
1 x 185 Al*	28.1	31.3	38.7	43.1	425	380	3 400
1 x 240 Al*	30.3	33.7	41.1	45.7	510	440	3 875
1 x 300 Al*	32.4	35.8	43.3	48.2	580	500	4 285
1 x 400 Al*	35.1	38.7	46.4	51.6	680	570	4 960
1 x 500 Al*	39.5	43.3	51.1	56.8	790	640	5 980
1 x 630 Al*	43.4	47.4	55.5	61.7	920	740	7 035
3 x 25 Al*	39.2	42.8	50.6	56.2	120	125	6 000
3 x 35 Al*	41.9	45.5	53.4	59.4	145	150	6 565
3 x 50 Al*	44.3	48.1	56.2	62.5	175	175	7 295
3 x 70 Al*	46.3	50.3	58.5	65.1	215	215	8 000
3 x 95 Al*	52.1	56.3	64.6	71.8	260	255	9 590
3 x 120 Al*	55.5	59.9	68.3	76.0	300	290	10 705
3 x 150 Al*	58.4	63.0	71.7	79.8	345	325	11 790
3 x 185 Al*	62.9	67.7	76.5	85.1	395	365	13 350
3 x 240 Al*	67.9	72.9	81.8	91.0	465	425	15 155
3 x 300 Al*	73.0	78.4	89.3	99.3	530	480	18 625

Product on request

IEC 60502-2 - MV armoured (LC-GSTA) cables 12/20 (24) kV

Cables (mm²)	Inner Sheath Diameter	Lead Pipe Diameter	Outer diameter		Permissible current rating (A)		Weight (kg/km)
			Min.	Max.	in air at 30°C	underground at 20°C	
1 x 25	22.6	25.6	32.7	36.4	170	165	2 500
1 x 35	22.8	25.8	32.9	36.6	200	195	2 595
1 x 50	23.9	26.9	34.0	37.8	245	230	2 815
1 x 70	25.5	28.5	35.8	39.8	305	280	3 170
1 x 95	27.8	31.0	38.4	42.7	375	335	3 780
1 x 120	29.2	32.4	39.8	44.3	425	385	4 140
1 x 150	30.6	34.0	41.6	46.2	485	430	4 675
1 x 185	32.5	35.9	43.4	48.3	560	490	5 210
1 x 240	34.9	38.5	46.2	51.3	660	560	6 145
1 x 300	37.1	40.7	48.5	54.0	750	640	6 955
1 x 400	40.5	44.3	52.2	58.1	870	720	8 290
1 x 500	44.4	48.4	56.4	62.8	1 000	810	9 975
1 x 630	48.4	52.6	60.8	67.6	1 150	910	11 955
3 x 25	51.5	55.7	64.0	71.2	160	160	9 550
3 x 35	51.9	56.1	64.4	71.6	195	190	9 865
3 x 50	54.4	58.8	67.2	74.8	230	225	10 945
3 x 70	58.0	62.6	71.1	79.1	280	270	12 505
3 x 95	62.3	67.1	75.9	84.4	345	330	14 450
3 x 120	65.4	70.4	79.4	88.3	395	370	16 110
3 x 150	68.9	74.1	83.2	92.5	450	415	18 020
3 x 185	73.2	78.6	89.6	99.6	510	465	21 455
3 x 240	78.6	84.2	95.3	105.9	600	540	24 780
1 x 25 Al*	22.5	25.5	32.6	36.3	130	125	2 340
1 x 35 Al*	22.7	25.7	32.8	36.5	160	150	2 375
1 x 50 Al*	23.8	26.8	33.9	37.7	190	180	2 520
1 x 70 Al*	25.5	28.5	35.8	39.8	235	220	2 765
1 x 95 Al*	27.5	30.7	38.1	42.4	290	260	3 190
1 x 120 Al*	29.0	32.2	39.6	44.0	330	300	3 410
1 x 150 Al*	30.3	33.7	41.3	45.9	375	335	3 750
1 x 185 Al*	32.3	35.7	43.2	48.1	430	380	4 080
1 x 240 Al*	34.5	38.1	45.8	50.9	510	440	4 620
1 x 300 Al*	36.6	40.2	48.0	53.4	590	500	5 055
1 x 400 Al*	39.7	43.5	51.5	57.2	680	570	5 855
1 x 500 Al*	43.7	47.7	55.8	62.0	790	640	6 875
1 x 630 Al*	47.6	51.8	60.0	66.7	930	740	7 955
3 x 25 Al*	51.2	55.4	63.7	70.9	125	125	9 045
3 x 35 Al*	51.7	55.9	64.2	71.4	150	145	9 185
3 x 50 Al*	54.2	58.6	67.0	74.6	175	175	10 045
3 x 70 Al*	58.0	62.6	71.1	79.1	220	210	11 280
3 x 95 Al*	61.6	66.4	75.3	83.7	265	255	12 595
3 x 120 Al*	64.9	69.9	78.9	87.7	305	290	13 855
3 x 150 Al*	68.3	73.5	82.6	91.9	345	320	15 155
3 x 185 Al*	72.8	78.2	89.1	99.1	395	360	17 985
3 x 240 Al*	77.7	83.3	94.4	105.0	470	420	20 055

Product on request

IEC 60502-2 - MV armoured (LC-GSTA) cables 18/30 (36) kV

Cables (mm²)	Inner Sheath Diameter	Lead Pipe Diameter	Outer diameter		Permissible current rating (A)		Weight (kg/km)
			Min.	Max.	in air at 30°C	underground at 20°C	
1 x 25	30.2	33.6	41.2	45.8	170	165	3 700
1 x 35	28.2	31.4	38.8	43.2	200	195	3 380
1 x 50	29.3	32.7	40.1	44.6	245	230	3 730
1 x 70	30.9	34.3	41.8	46.5	305	280	4 115
1 x 95	32.8	36.2	43.7	48.6	375	335	4 570
1 x 120	34.2	37.8	45.5	50.6	425	385	5 105
1 x 150	35.6	39.2	46.8	52.1	485	430	5 520
1 x 185	37.5	41.3	49.1	54.6	560	490	6 250
1 x 240	40.3	44.1	52.0	57.9	660	560	7 160
1 x 300	42.5	46.5	54.6	60.7	750	640	8 180
1 x 400	45.5	49.7	57.9	64.4	870	720	9 520
1 x 500	49.8	54.2	62.5	69.5	1 000	810	11 360
3 x 25	68.0	73.2	82.3	91.6	160	160	14 960
3 x 35	63.2	68.0	76.7	85.3	195	190	13 305
3 x 50	65.6	70.6	79.6	88.5	230	225	14 515
3 x 70	69.6	74.8	85.7	95.3	280	270	17 400
3 x 95	73.9	79.3	90.2	100.3	345	330	19 575
3 x 120	77.0	82.6	93.7	104.2	395	370	21 435
1 x 25 Al*	30.1	33.5	41.1	45.7	130	125	3 535
1 x 35 Al*	28.1	31.3	38.7	43.1	160	150	3 160
1 x 50 Al*	29.2	32.6	40.0	44.5	190	180	3 435
1 x 70 Al*	30.9	34.3	41.8	46.5	235	220	3 710
1 x 95 Al*	32.5	35.9	43.4	48.3	290	260	3 970
1 x 120 Al*	34.0	37.6	45.3	50.4	330	300	4 375
1 x 150 Al*	35.3	38.9	46.6	51.8	375	335	4 595
1 x 185 Al*	37.3	41.1	48.9	54.4	430	380	5 120
1 x 240 Al*	39.9	43.7	51.6	57.4	510	440	5 630
1 x 300 Al*	42.0	46.0	54.1	60.2	590	500	6 275
1 x 400 Al*	44.7	48.9	57.1	63.5	680	570	7 065
1 x 500 Al*	49.1	53.5	61.8	68.8	790	640	8 250
3 x 25 Al*	67.8	73.0	82.1	91.3	125	125	14 440
3 x 35 Al*	62.9	67.7	76.5	85.1	150	145	12 615
3 x 50 Al*	65.4	70.4	79.4	88.3	175	175	13 605
3 x 70 Al*	69.6	74.8	85.7	95.3	220	210	16 175
3 x 95 Al*	73.2	78.6	89.6	99.6	265	255	17 685
3 x 120 Al*	76.6	82.2	93.2	103.7	305	290	19 165

Product on request

- Minimum bending radius
  = 1 core: 9 x outer diameter[1]
  = 3 cores: 8 x outer diameter[1]

[1] to be doubled during laying operations
Al*= stranded aluminium core

IEC 60502-2
MV - Armoured (LC-SWA) cables

3.6/6 (7.2) kV
6/10 (12) kV
12/20 (24) kV
18/30 (36) kV

Applications

For electricity supply in medium voltage installation system for direct burial underground where hydrocarbons may be present in the soil.

Max core temperature: 90 °C

Design

1. Conductor
Stranded bare copper or stranded aluminium.
Class 2

2. Extruded semi-conductor

3. Insulation
XLPE
(cross-linked polyethylene) or EPR for all rated voltages
(ethylene propylene rubber)

4. Screen
Extruded semi-conductor
Bare copper tape

5. Bedding (optional)

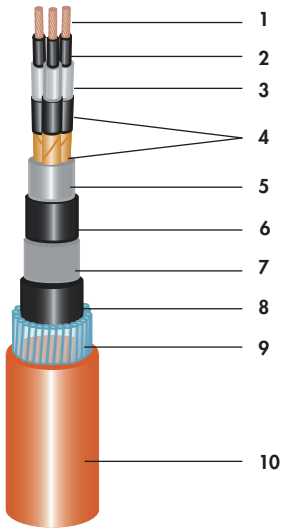
6. Inner sheath
PVC
(polyvinyl chloride)

7. Lead covering

8. Bedding
PVC
(polyvinyl chloride)

9. Armour
Galvanized steel wire (SWA)

10. Outer sheath
PVC
(polyvinyl chloride)
Colour: red
Other colour on request



Marking

Factory number
IEC 60502-2 Construction - Voltage - n x S mm^2 - year
Other marking on request

Core Identification

Tape: black - blue - brown
Other colour on request

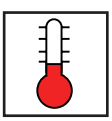
Standards

IEC 60228
IEC 60502-2
IEC 60332.1
Other fire performances and aliphatic hydrocarbons resistant on request.

Flame retardant
IEC 60332.1

Good

Good


-20 °C + 60 °C

IEC 60502-2 - MV armoured (LC-SWA) cables 3.6/6 (7.2) kV

Cables (mm²)	Inner Sheath Diameter	Lead Pipe Diameter	Outer diameter		Permissible current rating (A)		Weight (kg/km)
			Min.	Max.	in air at 30°C	underground at 20°C	
1 x 25	15.8	18.2	26.9	29.9	160	165	1 780
1 x 35	16.8	19.4	28.0	31.2	200	195	2 030
1 x 50	17.9	20.5	29.3	32.6	235	230	2 245
1 x 70	19.5	22.3	31.1	34.6	295	285	2 660
1 x 95	21.4	24.2	33.7	37.5	360	340	3 155
1 x 120	22.8	25.8	35.5	39.5	420	385	3 625
1 x 150	24.2	27.2	36.8	41.0	475	430	4 010
1 x 185	26.1	29.1	39.1	43.5	550	485	4 570
1 x 240	29.1	32.3	42.4	47.2	650	560	5 560
1 x 300	31.7	35.1	46.6	51.8	740	630	6 720
1 x 400	35.1	38.7	50.3	55.9	860	720	8 035
1 x 500	39.8	43.6	55.7	61.9	990	800	9 905
1 x 630	43.8	47.8	60.2	66.9	1 140	910	11 955
3 x 25	35.4	38.6	50.2	55.8	155	160	7 160
3 x 35	37.6	41.0	52.7	58.6	190	190	8 030
3 x 50	40.5	44.1	56.2	62.5	225	225	9 170
3 x 70	44.1	47.9	60.3	67.0	280	275	10 700
3 x 95	48.4	52.4	64.9	72.2	340	330	12 530
3 x 120	51.9	56.1	69.1	76.8	385	370	14 310
3 x 150	55.1	59.5	73.8	82.1	445	420	16 305
3 x 185	59.3	63.9	79.8	88.7	510	470	19 605
3 x 240	65.2	70.0	86.5	96.2	590	540	23 145
3 x 300	71.4	76.6	93.6	104.1	680	610	27 330
1 x 25 Al*	15.7	18.1	26.8	29.8	125	125	1 615
1 x 35 Al*	16.7	19.3	27.9	31.1	150	150	1 805
1 x 50 Al*	17.8	20.4	29.2	32.5	185	180	1 955
1 x 70 Al*	19.5	22.3	31.1	34.6	230	220	2 255
1 x 95 Al*	21.1	23.9	33.4	37.2	280	260	2 565
1 x 120 Al*	22.6	25.6	35.3	39.2	325	300	2 890
1 x 150 Al*	23.9	26.9	36.6	40.7	370	335	3 085
1 x 185 Al*	25.9	28.9	38.9	43.3	425	380	3 450
1 x 240 Al*	28.7	31.9	42.0	46.8	510	440	4 035
1 x 300 Al*	31.2	34.6	46.1	51.2	580	500	4 815
1 x 400 Al*	34.3	37.9	49.5	55.0	680	570	5 595
1 x 500 Al*	39.1	42.9	55.0	61.1	790	640	6 800
1 x 630 Al*	43.0	47.0	59.4	66.1	920	740	7 945
3 x 25 Al*	35.2	38.4	50.0	55.6	120	125	6 670
3 x 35 Al*	37.4	40.8	52.5	58.4	145	150	7 365
3 x 50 Al*	40.3	43.9	56.0	62.2	175	175	8 285
3 x 70 Al*	42.4	46.2	59.6	66.3	215	215	9 225
3 x 95 Al*	47.7	51.7	64.2	71.4	260	255	10 670
3 x 120 Al*	51.5	55.7	68.7	76.4	300	290	12 050
3 x 150 Al*	54.4	58.8	73.1	81.3	345	325	13 435
3 x 185 Al*	58.9	63.5	79.4	88.3	395	365	16 100
3 x 240 Al*	64.3	69.1	85.7	95.3	465	425	18 410
3 x 300 Al*	70.3	75.5	92.5	102.9	530	480	21 430

Product on request

IEC 60502-2 - MV armoured (LC-SWA) cables 6/10 (12) kV

Cables (mm²)	Inner Sheath Diameter	Lead Pipe Diameter	Outer diameter		Permissible current rating (A)		Weight (kg/km)
			Min.	Max.	in air at 30°C	underground at 20°C	
1 x 25	17.6	20.2	29.0	32.3	160	165	2 050
1 x 35.	18.6	21.2	30.0	33.4	200	195	2 230
1 x 50	19.7	22.5	31.5	35.0	235	230	2 540
1 x 70	21.3	24.1	33.6	37.4	295	285	2 945
1 x 95	23.2	26.2	35.9	39.9	360	340	3 480
1 x 120	24.6	27.6	37.2	41.4	420	385	3 840
1 x 150	26.0	29.0	39.0	43.4	475	430	4 280
1 x 185	28.3	31.5	41.7	46.3	550	485	5 000
1 x 240	30.7	34.1	44.2	49.2	650	560	5 905
1 x 300	32.9	36.3	47.9	53.3	740	630	6 920
1 x 400	35.9	39.5	51.3	57.0	860	720	8 190
1 x 500	40.2	44.0	56.1	62.3	990	800	9 985
1 x 630	44.2	48.2	60.6	67.4	1 140	910	12 020
3 x 25	39.4	43.0	54.9	61.0	155	160	8 405
3 x 35	42.1	45.7	57.7	64.2	190	190	9 240
3 x 50	44.6	48.4	60.8	67.6	225	225	10 310
3 x 70	48.2	52.2	65.0	72.3	280	275	11 945
3 x 95	52.8	57.0	70.0	77.8	340	330	13 975
3 x 120	56.0	60.4	73.7	82.0	385	370	15 660
3 x 150	59.1	63.7	78.8	87.6	445	420	18 490
3 x 185	63.4	68.2	83.4	92.8	510	470	20 885
3 x 240	68.8	73.8	90.5	100.6	590	540	24 630
3 x 300	74.1	79.5	96.6	107.5	680	610	28 535
1 x 25 Al*	17.5	20.1	28.9	32.2	125	125	1 890
1 x 35 Al*	18.5	21.1	29.9	33.2	150	150	2 005
1 x 50 Al*	19.6	22.4	31.4	34.9	185	180	2 250
1 x 70 Al*	21.3	24.1	33.6	37.4	230	220	2 540
1 x 95 Al*	22.9	25.9	35.6	39.6	280	260	2 890
1 x 120 Al*	24.4	27.4	37.0	41.2	325	300	3 115
1 x 150 Al*	25.7	28.7	38.7	43.1	370	335	3 350
1 x 185 Al*	28.1	31.3	41.5	46.1	425	380	3 875
1 x 240 Al*	30.3	33.7	43.8	48.7	510	440	4 385
1 x 300 Al*	32.4	35.8	47.4	52.8	580	500	5 025
1 x 400 Al*	35.1	38.7	50.5	56.1	680	570	5 745
1 x 500 Al*	39.5	43.3	55.4	61.6	790	640	6 880
1 x 630 Al*	43.4	47.4	59.8	66.5	920	740	8 010
3 x 25 Al*	39.2	42.8	54.7	60.8	120	125	7 870
3 x 35 Al*	40.2	43.8	56.7	63.1	145	150	8 330
3 x 50 Al*	42.6	46.4	60.0	66.7	175	175	9 200
3 x 70 Al*	48.2	52.2	65.0	72.3	215	215	10 720
3 x 95 Al*	52.1	56.3	69.3	77.1	260	255	12 105
3 x 120 Al*	55.5	59.9	73.2	81.4	300	290	13 425
3 x 150 Al*	58.4	63.0	79.1	88.0	345	325	15 835
3 x 185 Al*	62.9	67.7	82.9	92.2	395	365	17 435
3 x 240 Al*	67.9	72.9	88.6	98.5	465	425	19 605
3 x 300 Al*	73.0	78.4	94.4	105.0	530	480	22 280

Product on request

IEC 60502-2 - MV armoured (LC-SWA) cables 12/20 (24) kV

Cables (mm²)	Inner Sheath Diameter	Lead Pipe Diameter	Outer diameter		Permissible current rating (A)		Weight (kg/km)
			Min.	Max.	in air at 30°C	underground at 20°C	
1 x 25	22.6	25.6	35.3	39.2	170	165	2 885
1 x 35	22.8	25.8	35.5	39.5	200	195	2 985
1 x 50	23.9	26.9	36.6	40.7	245	230	3 210
1 x 70	25.5	28.5	38.5	42.8	305	280	3 610
1 x 95	27.8	31.0	41.2	45.8	375	335	4 260
1 x 120	29.2	32.4	42.5	47.3	425	385	4 630
1 x 150	30.6	34.0	45.5	50.6	485	430	5 355
1 x 185	32.5	35.9	47.5	52.9	560	490	5 955
1 x 240	34.9	38.5	50.1	55.7	660	560	6 905
1 x 300	37.1	40.7	52.6	58.5	750	640	7 785
1 x 400	40.5	44.3	56.4	62.7	870	720	9 180
1 x 500	44.4	48.4	61.0	67.8	1 000	810	10 995
1 x 630	48.4	52.6	65.5	72.8	1 150	910	13 100
3 x 25	49.6	53.8	66.8	74.3	160	160	11 540
3 x 35	50.0	54.2	67.2	74.8	195	190	11 890
3 x 50	52.5	56.9	70.2	78.0	230	225	13 080
3 x 70	56.0	60.6	76.5	85.1	280	270	15 930
3 x 95	60.2	65.0	81.2	90.4	345	330	18 080
3 x 120	63.2	68.2	84.8	94.3	395	370	19 925
3 x 150	66.7	71.9	89.0	99.0	450	415	22 140
3 x 185	70.9	76.3	93.5	104.0	510	465	24 700
3 x 240	76.2	81.8	99.5	110.6	600	540	28 375
1 x 25 Al*	22.5	25.5	35.2	39.1	130	125	2 720
1 x 35 Al*	22.7	25.7	35.4	39.3	160	150	2 760
1 x 50 Al*	23.8	26.8	36.5	40.5	190	180	2 920
1 x 70 Al*	25.5	28.5	38.5	42.8	235	220	3 205
1 x 95 Al*	27.5	30.7	40.9	45.5	290	260	3 655
1 x 120 Al*	29.0	32.2	42.3	47.1	330	300	3 905
1 x 150 Al*	30.3	33.7	45.2	50.2	375	335	4 430
1 x 185 Al*	32.3	35.7	47.3	52.6	430	380	4 825
1 x 240 Al*	34.5	38.1	49.7	55.3	510	440	5 345
1 x 300 Al*	36.6	40.2	52.1	58.0	590	500	5 870
1 x 400 Al*	39.7	43.5	55.6	61.8	680	570	6 730
1 x 500 Al*	43.7	47.7	60.3	67.0	790	640	7 895
1 x 630 Al*	47.6	51.8	64.7	71.9	930	740	9 085
3 x 25 Al*	49.4	53.6	66.6	74.1	125	125	11 035
3 x 35 Al*	49.8	54.0	67.0	74.6	150	145	11 175
3 x 50 Al*	52.2	56.6	70.0	77.8	175	175	12 180
3 x 70 Al*	56.0	60.6	76.5	85.1	220	210	14 705
3 x 95 Al*	59.5	64.3	80.6	89.6	265	255	16 165
3 x120 Al*	62.8	67.8	84.4	93.8	305	290	17 680
3 x 150 Al*	66.1	71.3	88.4	98.3	345	320	19 215
3 x 185 Al*	70.5	75.9	93.1	103.6	395	360	21 240
3 x 240 Al*	75.3	80.9	98.6	109.7	470	420	23 605

Product on request

IEC 60502-2 - MV armoured (LC-SWA) cables 18/30 (36) kV

Cables (mm²)	Inner Sheath Diameter	Lead Pipe Diameter	Outer diameter		Permissible current rating (A)		Weight (kg/km)
			Min.	Max.	in air at 30°C	underground at 20°C	
1 x 25	30.2	33.6	43.9	48.8	170	165	4 210
1 x 35	28.2	31.4	41.6	46.2	200	195	3 855
1 x 50	29.3	32.7	42.8	47.6	245	230	4 220
1 x 70	30.9	34.3	45.8	50.9	305	280	4 805
1 x 95	32.8	36.2	47.8	53.2	375	335	5 310
1 x 120	34.2	37.8	49.4	54.9	425	385	5 855
1 x 150	35.6	39.2	51.2	56.9	485	430	6 345
1 x 185	37.5	41.3	53.4	59.4	560	490	7 120
1 x 240	40.3	44.1	56.2	62.5	660	560	8 050
1 x 300	42.5	46.5	58.9	65.5	750	640	9 140
1 x 400	45.5	49.7	62.6	69.7	870	720	10 605
1 x 500	49.8	54.2	67.2	74.8	1 000	810	12 535
3 x 25	68.0	73.2	89.9	100.0	160	160	19 780
3 x 35	63.2	68.0	84.5	94.0	195	190	17 855
3 x 50	65.6	70.6	87.3	97.1	230	225	19 255
3 x 70	69.6	74.8	91.8	102.1	280	270	21 400
3 x 95	73.9	79.3	96.6	107.5	345	330	23 815
3 x 120	77.0	82.6	100.3	111.5	395	370	25 935
1 x 25 Al*	30.1	33.5	43.8	48.7	130	125	4 035
1 x 35 Al*	28.1	31.3	41.5	46.1	160	150	3 635
1 x 50 Al*	29.2	32.6	42.7	47.5	190	180	3 930
1 x 70 Al*	30.9	34.3	45.8	50.9	235	220	4 400
1 x 95 Al*	32.5	35.9	47.5	52.9	290	260	4 710
1 x 120 Al*	34.0	37.6	49.2	54.7	330	300	5 120
1 x 150 Al*	35.3	38.9	50.9	56.6	375	335	5 415
1 x 185 Al*	37.3	41.1	53.2	59.9	430	380	5 975
1 x 240 Al*	39.9	43.7	55.8	62.0	510	440	6 505
1 x 300 Al*	42.0	46.0	58.4	65.0	590	500	7 220
1 x 400 Al*	44.7	48.9	61.8	68.8	680	570	8 135
1 x 500 Al*	49.1	53.5	66.5	74.0	790	640	9 410
3 x 25 Al*	67.8	73.0	89.7	99.7	125	125	19 265
3 x 35 Al*	62.9	67.7	84.3	93.7	150	145	17 170
3 x 50 Al*	65.4	70.4	87.1	96.9	175	175	18 285
3 x 70 Al*	69.6	74.8	91.8	102.1	220	210	20 175
3 x 95 Al*	73.2	78.6	95.9	106.7	265	255	21 935
3 x 120 Al*	76.6	82.2	99.9	111.1	305	290	23 605

Product on request

- Minimum bending radius
  = 1 core: 9 x outer diameter[1]
  = 3 cores: 8 x outer diameter[1]

[1] to be doubled during laying operations
Al*= stranded aluminium core

Nexans

2 - Low Voltage

Selection of Cables

The selection of a cable and conductor size can only be determined after accurate study.

Cable Laying

Depending on the nature of the cable system (fixed or mobile) a rigid or flexible cable should be selected.

The appropriate protection of a cable will be determined taking into account the mechanical hazards and the proximity of chemical agents.

Ambient Temperature

The quality of the material used for the manufacture of a cable shall be determined according to the maximum and minimum temperatures to which the cable will be submitted.

Nature of Conductors

Copper or aluminium conductors will be used.

- for equal current-carrying capacity aluminium cross-section = 1.28 copper cross-section
- for equal ohmic resistance aluminium cross-section = 1.65 copper cross-section

Current Rating

Current rating is to be calculated in terms of power and power factor when operating the appliances.

Current rating shall not exceed the admissible capacity of a cable taking into account the different correction factors due to the ambient temperature and the laying conditions.

Please contact us for study or consult technical data booklet.

Short-Circuit Current

Short-circuit current and breakdown time shall not cause a temperature rise highter than that admissible according to the nature of the insulation compound.

Voltage Drop

Voltage drop shall not exceed:

- 3 % for lighting wire systems
- 5 % for driving force wire systems
- 10 % on starting time for motors

BS 6346
Armoured (SWA) Power cables

Applications

0.6/1 kV

For electricity supply in low voltage installation system.

Max core temperature: 70 °C

Design

1. Conductor
Solid or stranded bare copper
Class 1 or class 2

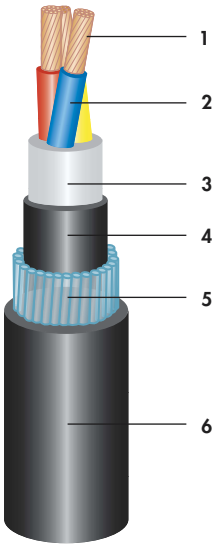
2. Insulation
PVC
(polyvinyl chloride)

3. Bedding (optional)

4. Inner sheath
PVC
(polyvinyl chloride)

5. Armour
Galvanized steel wire (SWA)
Aluminium wire for single core (AWA)

6.Outer sheath
PVC
(polyvinyl chloride)
Colour: black



Marking

Factory number
Construction - 0.6/1 kV
n x S mm^2 - year
Other marking on request

Core Identification

1 core: red or black
2 cores: red - black
3 cores: red - yellow - blue
4 cores: red - yellow - blue - black
5 cores: red - yellow - blue - black - green/yellow
≥ 7 cores: printed numbers

Standards

BS 6346
Other fire performances and aliphatic hydrocarbons resistant on request.

Flame retardant
IEC 60332.1

Good

Good

-20 °C + 60 °C

BS 6346 - Armoured (SWA) Power cables

Cables (mm²)	Inner Sheath Diameter	Outer diameter		Permissible current rating (A)		Weight (kg/km)
		Min.	Max.	in air at 30°C	underground at 20°C	
1 x 50	12.6	18.7	20.9	168	174	835
1 x 70	14.2	20.5	22.9	213	216	1 075
1 x 95	16.5	22.8	25.4	258	256	1 390
1 x 120	18.3	24.8	27.6	299	290	1 685
1 x 150	20.1	26.6	29.5	344	328	2 000
1 x 185	22.4	29.0	32.3	392	367	2 445
1 x 240	25.2	31.9	35.5	461	424	3 090
1 x 300	27.8	34.5	38.4	530	480	3 740
1 x 400	31.6	39.0	43.4	600	550	4 760
1 x 500	35.1	42.4	47.2	687	703	5 900
1 x 630	39.1	46.6	51.8	782	795	7 365
2 x 1.5	7.3	11.4	13.0	22	32	315
2 x 2.5	8.6	12.7	14.4	30	42	390
2 x 4	10.2	14.3	16.1	40	54	495
2 x 6	10.9	15.2	17.1	51	67	570
2 x 10	13.5	18.7	20.9	70	90	900
2 x 16	15.5	20.7	23.1	94	116	1 135
2 x 25	19.2	25.3	28.1	119	148	1 735
2 x 35	21.2	27.4	30.5	147	178	2 070
2 x 50	24.2	30.6	34.0	179	211	2 580
2 x 70	27.4	33.7	37.5	229	261	3 235
2 x 95	32.4	39.8	44.3	278	308	4 545
2 x 120	35.2	42.7	47.5	322	351	5 315
2 x 150	38.8	46.5	51.7	371	397	6 315
2 x 185	43.8	52.5	58.4	424	445	8 150
2 x 240	49.4	58.2	64.7	500	514	10 090
2 x 300	55.0	64.1	71.3	576	581	12 205
2 x 400	61.8	71.1	79.1	656	600	14 975
3 x 1.5	7.7	11.8	13.4	19	26	340
3 x 2.5	9.1	13.2	14.9	25	34	430
3 x 4	10.9	15.0	16.9	34	44	555
3 x 6	11.6	16.6	18.6	43	56	735
3 x 10	14.4	19.6	21.9	60	74	1 025
3 x 16	16.6	21.8	24.3	80	96	1 310
3 x 25	20.6	26.7	29.6	101	123	2 010
3 x 35	22.7	28.9	32.2	126	147	2 440
3 x 50	26.0	32.3	36.0	153	174	3 060
3 x 70	29.8	37.0	41.2	196	216	4 215
3 x 95	34.8	42.1	46.9	238	256	5 475
3 x 120	37.8	45.3	50.4	276	290	6 445
3 x 150	42.1	50.9	56.6	319	328	8 235
3 x 185	47.1	56.0	62.2	364	367	9 935
3 x 240	53.5	62.4	69.4	430	424	12 465
3 x 300	59.1	68.3	76.0	497	480	15 045
3 x 400	66.5	76.0	84.5	562	500	18 555

Product on request

x: without green/yellow core

BS 6346 - Armoured (SWA) Power cables

Cables (mm²)	Inner Sheath Diameter	Outer diameter		Permissible current rating (A)		Weight (kg/km)
		Min.	Max.	in air at 30°C	underground at 20°C	
4 x 1.5	8.4	12.5	14.2	16	22	380
4 x 2.5	10.0	14.1	15.9	21	29	485
4 x 4	12.0	17.0	19.1	29	37	740
4 x 6	12.8	17.8	19.9	36	47	850
4 x 10	16.0	21.2	23.7	50	62	1 195
4 x 35	25.2	31.6	35.1	106	123	2 930
4 x 50	29.2	36.5	40.5	128	146	3 990
4 x 70	33.1	40.5	45.0	165	181	5 090
4 x 95	38.7	46.2	51.3	200	215	6 655
4 x 120	42.5	51.2	56.9	232	244	8 450
4 x 150	46.8	55.7	61.9	268	275	10 030
4 x 185	52.8	61.7	68.7	306	308	12 210
4 x 240	59.5	68.7	76.4	361	356	15 315
4 x 300	65.8	75.3	83.7	417	403	18 545
4 x 400	74.5	86.6	96.4	460	420	24 420
5 G 1,5	9.2	13.3	15.0	17	25	425
5 G 2.5	11.0	15.3	17.2	23	33	555
5 G 4	13.1	18.1	20.3	29	37	840
5 G 6	14.1	19.3	21.6	36	47	980
5 G 10	18.0	24.1	26.8	50	62	1565
5 G 16	20.7	26.8	29.8	67	80	2010
5 G 25	25.2	31.6	35.1	85	103	2810
5 G 35	27.9	34.2	38.0	106	123	3445
5 G 50	32.3	39.7	44.1	128	146	4720
5 G 70	36.6	44.1	49.1	165	181	6065
7 x 1.5	9.8	13.9	15.7	14.5	21	475
12 x 1.5	13.0	18.0	20.2	11.0	16	785
19 x 1.5	15.4	20.6	23.0	8.5	12.5	1035
27 x 1.5	18.9	25.0	27.8	7.0	10.5	1530
37 x 1.5	21.3	27.5	30.6	6.5	9	1860
48 x 1.5	24.4	30.8	34.2	5.5	8	2200
7 x 2.5	11.8	16.8	18.9	19.5	27.5	735
12 x 2.5	15.8	21.0	23.4	15.0	21	1035
19 x 2.5	19.2	25.3	28.1	12.0	16.5	1595
27 x 2.5	23.1	29.3	32.6	10.0	14	2085
37 x 2.5	25.9	32.2	35.9	8.5	12	2485
48 x 2.5	30.3	37.7	42.0	7.5	10.5	3385
7 x 4	14.2	19.4	21.7	26	35	975
12 x 4	19.5	25.6	28.4	20	27	1595
19 x 4	23.2	29.4	32.7	16	21.5	2175
27 x 4	28.3	35.6	39.6	13	18	3095
37 x 4	32.0	39.3	43.7	11	15	3845
48 x 4	36.8	44.3	49.3	10	13.5	4690

Product on request

x: without green/yellow core

G: with green/yellow core

BS 6346 - Armoured (SWA) Power cables

Cables (mm²)	Inner Sheath Diameter	Outer diameter		Permissible current rating (A)		Weight (kg/km)
		Min.	Max.	in air at 30°C	underground at 20°C	
3 x 25 + 1 x 16	21.9	28.1	31.3	85	103	2 285
3 x 35 + 1 x 16	23.9	30.1	33.5	106	123	2 675
3 x 50 + 1 x 25	27.6	33.9	37.7	129	146	3 430
3 x 70 + 1 x 35	31.5	38.7	43.1	165	181	4 710
3 x 95 + 1 x 50	36.7	44.2	49.2	200	215	6 130
3 x 120 + 1 x 70	40.6	49.2	54.7	232	244	7 845
3 x 150 + 1 x 70	44.1	52.8	58.8	268	276	9 105
3 x 185 + 1 x 95	49.6	58.4	65.0	306	308	11 105
3 x 240 + 1 x 120	56.1	65.2	72.5	361	356	13 900
3 x 300 + 1 x 185	63.1	72.4	80.6	417	403	17 335
3 x 300 + 1 x 150	62.0	71.3	79.4	417	403	16 785
3 x 400 + 1 x 185	70.1	81.9	91.1	460	420	21 935

Product on request

x: without green/yellow core

• Minimum bending radius
= 1 core: 10 x outer diameter[1]
= multicores: 8 x outer diameter[1]

[1] to be doubled during laying operations

BS 6346
Armoured (LC-SWA) Power & Control cables

Applications

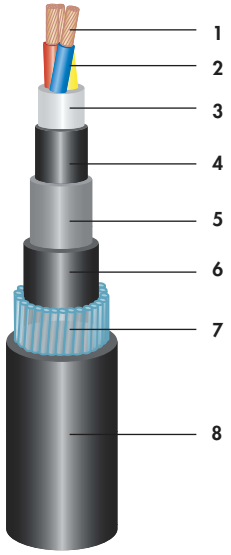
0.6/1 kV

For electricity supply in low voltage installation system for direct burial underground where hydrocarbons may be present in soil.

Max core temperature: 70 °C

Design

1. **Conductor**
   Solid or stranded bare copper
   Class 2
2. **Insulation**
   PVC
   (polyvinyl chloride)
3. **Bedding (optional)**
4. **Inner sheath**
   PVC
   (polyvinyl chloride)
5. **Lead covering**
6. **Bedding sheath**
   PVC
   (polyvinyl chloride)
7. **Armour**
   Galvanized steel wire (SWA)
8. **Outer sheath**
   PVC
   (polyvinyl chloride)
   Colour: black



Marking

Factory number
Construction - 0.6/1 kV
n x S mm² - year
Other marking on request

Core Identification

1 core: red or black
2 cores: red - black
3 cores: red - yellow - blue
4 cores: red - yellow - blue - black
5 cores: red - yellow - blue - black - green/yellow
≥ 7 cores: printed numbers

Standards

EEMUA Pub. N° 133 (for lead)
BS 6346
IEC 60332.1
Other fire performances and aliphatic hydrocarbons resistant on request.

Flame retardant IEC 60332.1	Good	Good	-20 °C + 60 °C

BS 6346 - Armoured (LC-SWA) Power & Control cables

Cables (mm²)	Inner Sheath Diameter	Lead Pipe Diameter	Outer diameter		Permissible current rating (A)		Weight (kg/km)
			Min.	Max.	in air at 30°C	underground at 20°C	
2 x 1.5	7.3	9.5	15.2	17.1	22	32	770
2 x 2.5	8.6	10.8	16.5	18.5	30	42	905
2 x 4	10.2	12.4	18.1	20.3	40	54	1 075
2 x 6	10.9	13.1	19.0	21.3	51	67	1 185
2 x 10	13.5	15.7	22.5	25.1	70	90	1 650
2 x 16	15.5	17.9	24.7	27.5	94	116	2 035
2 x 25	19.2	21.8	29.8	33.1	119	148	2 960
2 x 35	21.2	24.0	32.1	35.8	147	178	3 500
2 x 50	24.2	27.0	35.3	39.2	179	211	4 175
2 x 70	27.4	30.2	38.4	42.7	229	261	5 000
2 x 95	32.4	35.4	45.1	50.1	278	308	6 815
2 x 120	35.2	38.4	48.2	53.6	322	351	7 915
2 x 150	38.8	42.2	52.1	58.0	371	397	9 295
2 x 185	43.8	47.4	58.8	65.4	424	445	11 780
2 x 240	49.4	53.2	64.7	71.9	500	514	14 310
2 x 300	55.0	59.2	71.3	79.4	576	581	17 380
2 x 400	61.8	66.2	80.9	89.9	656	600	22 150
3 x 1.5	7.7	9.9	15.6	17.5	19	26	820
3 x 2.5	9.1	11.3	17.0	19.1	25	34	970
3 x 4	10.9	13.1	18.8	21.0	34	44	1 165
3 x 6	11.6	13.8	20.4	22.8	43	56	1 415
3 x 10	14.4	16.8	23.6	26.3	60	74	1 885
3 x 16	16.6	19.0	25.8	28.7	80	96	2 275
3 x 25	20.6	23.2	31.2	34.7	101	123	3 315
3 x 35	22.7	25.5	33.6	37.4	126	147	3 955
3 x 50	26.0	28.8	37.0	41.2	153	174	4 750
3 x 70	29.8	32.8	42.3	47.1	196	216	6 335
3 x 95	34.8	38.0	47.6	53.0	238	256	8 025
3 x 120	37.8	41.2	51.0	56.7	276	290	9 360
3 x 150	42.1	45.7	57.1	63.5	319	328	11 745
3 x 185	47.1	51.1	62.6	69.7	364	367	14 165
3 x 240	53.5	57.7	69.7	77.5	430	424	17 510
3 x 300	59.1	63.7	76.0	84.5	497	480	21 020
3 x 400	66.5	71.5	86.2	95.9	552	500	26 980
4 x 1.5	8.4	10.6	16.3	18.3	16	22	885
4 x 2.5	10.0	12.2	17.9	20.1	21	29	1 065
4 x 4	12.0	14.2	20.8	23.2	29	37	1 425
4 x 6	12.8	15.0	21.6	24.1	36	47	1 570
4 x 10	16.0	18.4	25.2	28.0	50	62	2 130
4 x 16	18.8	21.4	29.4	32.7	67	80	2 960
4 x 25	22.8	25.6	33.7	37.5	85	103	3 915
4 x 35	25.2	28.2	36.5	40.5	106	123	4 700
4 x 50	29.2	32.2	41.7	46.4	128	146	6 120
4 x 70	33.1	36.3	46.0	51.1	165	181	7 585
4 x 95	38.7	42.3	52.0	57.9	200	215	9 810
4 x 120	42.5	46.3	57.6	64.1	232	244	12 190
4 x 150	46.8	50.8	62.3	69.3	268	275	14 285
4 x 185	52.8	57.2	69.2	77.0	306	308	17 460
4 x 240	59.5	64.3	76.5	85.1	361	356	21 670
4 x 400	74.5	80.1	95.6	106.4	460	420	33 555

Product on request

x: without green/yellow core

BS 6346 - Armoured (LC-SWA) Power & Control cables

Cables (mm²)	Inner Sheath Diameter	Lead Pipe Diameter	Outer diameter		Permissible current rating (A)		Weight (kg/km)
			Min.	Max.	in air at 30°C	underground at 20°C	
5 G 1.5	9.2	11.4	17.1	19.2	17	25	970
5 G 2.5	11.0	13.2	19.1	21.4	23	33	1 180
5 G 4	13.1	15.3	21.9	24.4	29	37	1 580
5 G 6	14.1	16.5	23.3	25.9	36	47	1 835
5 G 10	18.0	20.6	28.6	31.8	50	62	2 750
5 G 16	20.7	23.5	31.5	35.0	67	80	3 425
5 G 25	25.2	28.2	36.5	40.5	85	103	4 575
5 G 35	27.9	31.1	39.3	43.7	106	123	5 500
5 G 50	32.3	35.7	45.4	50.5	128	146	7 300
5 G 70	36.6	40.4	50.2	55.8	165	181	9 225
7 x 1.5	9.8	12.0	17.7	19.8	15	21	1 040
12 x 1.5	13.0	15.2	21.8	24.3	11	16	1 525
19 x 1.5	15.4	17.8	24.6	27.4	9	13	1 940
27 x 1.5	18.9	21.5	29.5	32.8	7	11	2 760
37 x 1.5	21.3	24.1	32.2	35.9	7	9	3 295
48 x 1.5	24.4	27.4	35.7	39.7	5.5	8	3 940
7 x 2.5	11.8	14.0	20.6	23.0	20	28	1 410
12 x 2.5	15.8	18.2	25.0	27.8	15	21	1 980
19 x 2.5	19.2	21.8	29.8	33.1	12	17	2 830
27 x 2.5	23.1	25.9	34.0	37.8	10	14	3 615
37 x 2.5	25.9	28.9	37.1	41.3	8.5	12	4 325
48 x 2.5	30.2	33.4	43.1	48.0	8	11	5 680
7 x 4	14.2	16.4	23.2	25.8	26	35	1 760
12 x 4	19.5	22.1	30.1	33.5	20	27	2 880
19 x 4	23.1	25.9	34.0	37.8	16	22	3 710
27 x 4	28.3	31.5	41.1	45.7	13	18	5 295
37 x 4	31.9	35.3	45.0	50.0	11	15	6 375
48 x 4	36.7	40.3	50.1	55.7	10	14	7 720
3 x 25+1 x 16	21.9	24.6	32.6	36.3	85	103	3 650
3 x 35+1 x 16	23.9	26.7	34.8	38.7	106	123	4 255
3 x 50 +1 x 25	27.6	30.6	38.8	43.2	129	146	5 345
3 x 70 +1 x 35	31.5	34.7	44.2	49.2	165	181	7 070
3 x 95+1 x 50	36.7	40.3	50.1	55.7	200	215	9 140
3 x 120+1 x 70	40.6	44.4	54.7	60.8	232	244	10 945
3 x 150+1 x 70	44.1	48.1	59.5	66.2	268	276	13 130
3 x 185+1 x 95	49.6	53.8	65.3	72.6	306	308	15 805
3 x 240+1 x 120	56.1	60.7	72.8	81.0	361	356	19 645
3 x 300+1 x 150	62.0	67.0	81.6	90.8	417	403	24 745
3 x 400+1 x 185	70.1	75.5	90.7	100.9	460	420	30 315

Product on request

x: without green/yellow core

• Minimum bending radius

= 1 core: 10 x outer diameter[1]

= multicores: 8 x outer diameter[1]

[1] to be doubled during laying operations

BS 5467
Armoured (SWA) Power & Control cables

Applications

0.6/1 kV

For electricity supply in low voltage installation system.

Max core temperature: 90 °C

Design

1. Conductor
Solid or stranded bare copper
Class 1 or class 2

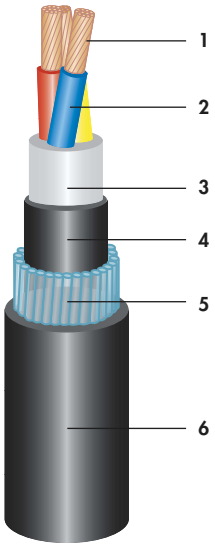
2. Insulation
XLPE
(cross-linked polyethylene)

3. Bedding (optional)

4. Inner sheath
PVC
(polyvinl chloride)

5. Armour
Galvanized steel wire (SWA)
Aluminium wire for single core (AWA)

6. Outer sheath
PVC
(polyvinyl chloride)
Colour: black



Marking

Factory number
Construction - 0.6/1 kV
n x S mm^2 - year
Other marking on request

Core Identification

1 core: red or black
2 cores: red - black
3 cores: red - yellow - blue
4 cores: red - yellow - blue - black
5 cores: red - yellow - blue - black - green/yellow
≥ 7 cores: printed numbers

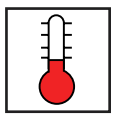
Standards

BS 5467
IEC 60332.1
Other fire performances and aliphatic hydrocarbons resistant on request.

Flame retardant
IEC 60332.1

Good

Good


-20 °C + 60 °C

BS 5467 - Armoured (SWA) Power & Control cables

Cables (mm²)	Inner Sheath Diameter	Outer diameter		Permissible current rating (A)		Weight (kg/km)
		Min.	Max.	in air at 30°C	underground at 20°C	
1 x 50	11.8	17.9	20.1	207	206	770
1 x 70	13.6	19.7	22.0	268	254	995
1 x 95	15.5	21.8	24.3	328	301	1 295
1 x 120	17.1	23.4	26.1	382	343	1 550
1 x 150	19.3	25.8	28.7	441	387	1 895
1 x 185	21.6	28.2	31.4	506	434	2 310
1 x 240	24.2	30.8	34.2	599	501	2 900
1 x 300	26.6	33.3	37.1	693	565	3 535
1 x 400	30.4	37.6	41.9	825	732	4 500
1 x 500	33.9	41.3	45.9	946	825	5 615
1 x 630	38.3	45.8	50.9	1 088	932	7 085
2 x 1.5	7.3	11.2	12.8	26	37	305
2 x 2.5	8.6	12.7	14.4	36	48	380
2 x 4	9.8	13.9	15.7	49	63	465
2 x 6	10.5	14.6	16.5	63	80	530
2 x 10	12.3	16.6	18.6	86	104	695
2 x 16	14.3	19.3	21.6	115	136	1 020
2 x 25	17.6	22.8	25.4	149	173	1 405
2 x 35	20.0	26.1	29.0	185	208	1 915
2 x 50	22.6	28.8	32.0	225	247	2 360
2 x 70	26.2	32.5	36.2	289	304	3 050
2 x 95	30.4	37.6	41.9	352	360	4 195
2 x 120	33.6	41.0	45.6	410	410	5 005
2 x 150	37.2	44.7	49.7	473	463	5 905
2 x 185	42.2	51.0	56.7	542	518	7 710
2 x 240	47.4	56.3	62.6	641	598	9 540
2 x 300	52.6	61.5	68.5	741	677	11 450
2 x 400	59.4	68.6	76.3	850	830	14 115
3 x 1.5	7.7	11.6	13.2	23	31	325
3 x 2.5	9.1	13.2	14.9	31	41	420
3 x 4	10.4	14.5	16.4	42	53	515
3 x 6	11.2	15.3	17.2	54	66	600
3 x 10	13.1	18.1	20.3	75	87	905
3 x 16	15.3	20.5	22.9	100	113	1 190
3 x 25	19.3	25.4	28.2	127	144	1 860
3 x 35	21.4	27.6	30.7	158	174	2 275
3 x 50	24.2	30.4	33.8	192	206	2 805
3 x 70	28.1	34.4	38.3	246	254	3 665
3 x 95	32.6	40.0	44.5	298	301	5 100
3 x 120	36.1	43.6	48.5	346	343	6 105
3 x 150	40.4	49.0	54.5	395	387	7 750
3 x 185	45.3	54.0	60.1	450	434	9 370
3 x 240	51.0	60.0	66.7	538	501	11 700
3 x 300	56.5	65.6	72.9	621	565	14 150
3 x 400	63.9	73.2	81.4	754	662	17 485

Product on request

x: without green/yellow core

BS 5467 - Armoured (SWA) Power & Control cables

Cables (mm²)	Inner Sheath Diameter	Outer diameter		Permissible current rating (A)		Weight (kg/km)
		Min.	Max.	in air at 30°C	underground at 20°C	
4 x 1.5	8.4	12.3	14.0	19	26	365
4 x 2.5	10.0	14.1	15.9	26	34	475
4 x 4	11.5	15.6	17.5	35	44	590
4 x 6	12.3	17.3	19.4	45	55	800
4 x 10	14.5	19.5	21.8	63	73	1 050
4 x 16	16.9	22.1	24.6	84	95	1 400
4 x 25	21.3	27.3	30.4	106	121	2 190
4 x 35	23.7	29.9	33.2	133	146	2 700
4 x 50	26.9	33.2	37.0	161	173	3 385
4 x 70	31.6	39.0	43.4	206	213	4 805
4 x 95	36.2	43.7	48.6	250	253	6 175
4 x 120	40.5	49.1	54.6	291	288	7 935
4 x 150	44.9	53.6	59.6	332	325	9 495
4 x 185	50.4	59.4	66.1	378	364	11 575
4 x 240	57.1	66.2	73.6	452	420	14 545
4 x 300	62.9	72.2	80.3	522	474	17 580
4 x 400	71.6	83.6	93.0	633	556	23 340
5 G 1.5	9.2	13.3	15.0	19	26	410
5 G 2.5	11.0	15.1	17.0	26	34	530
5 G 4	12.6	16.9	19.0	35	44	680
5 G 6	13.6	18.5	20.7	45	55	910
5 G 10	15.9	21.2	23.6	63	73	1 215
5 G 16	19.1	25.2	28.0	84	95	1 825
5 G 25	23.5	29.7	33.0	106	121	2 570
5 G 35	26.2	32.5	36.2	133	146	3 195
5 G 50	30.1	37.3	41.5	161	173	4 340
5 G 70	35.0	42.5	47.3	206	213	5 705

Product on request

x: without green/yellow core

BS 5467 - Armoured (SWA) Power & Control cables

Cables (mm²)	Inner Sheath Diameter	Outer diameter		Permissible current rating (A)		Weight (kg/km)
		Min.	Max.	in air at 30°C	underground at 20°C	
3 x 25+1 x 16	20.5	26.6	29.5	107	121	2 075
3 x 35+1 x 16	22.4	28.6	31.8	133	174	2 480
3 x 50+1 x 25	25.7	32.0	35.6	161	173	3 155
3 x 70+1 x 35	30.1	37.3	41.5	207	213	4 435
3 x 95+1 x 50	34.4	41.7	46.4	250	253	5 650
3 x 120+1 x 70	38.4	45.9	51.0	291	288	6 900
3 x 150+1 x 70	42.2	51.0	56.7	332	325	8 590
3 x 180+1 x 95	47.6	56.4	62.8	378	365	10 530
3 x 240+1 x 120	53.8	62.7	69.8	452	421	13 140
3 x 300+1 x 185	60.4	69.6	77.4	522	475	16 355
3 x 300+1 x 150	59.3	68.5	76.2	522	475	15 870
3 x 400+1 x 185	67.0	76.4	85.0	633	556	19 645
7 x 1.5	9.8	13.9	15.7	17	24	455
12 x 1.5	13.0	18.0	20.2	13	18.5	765
19 x 1.5	15.4	20.6	23.0	10.5	15	980
27 x 1.5	18.9	25.0	27.8	9	12	1 460
37 x 1.5	21.3	27.3	30.4	7.5	10.5	1 750
48 x 1.5	24.4	30.6	34.0	6.5	9	2 060
7 x 2.5	11.8	15.9	17.9	24	31	595
12 x 2.5	15.8	21.0	23.4	18	24	1 010
19 x 2.5	19.2	25.3	28.1	14.5	19	1 515
27 x 2.5	23.1	29.3	32.6	12	16	1 975
37 x 2.5	25.9	32.0	35.6	10.5	14	2 330
48 x 2.5	30.2	37.4	41.6	9	12	3 180
7 x 4	13.6	18.6	20.8	32	41	885
12 x 4	18.7	24.6	27.4	24	25	1 470
19 x 4	22.1	28.1	31.3	19	21	1 940
27 x 4	26.7	33.0	36.7	16	17.5	2 545
37 x 4	30.5	37.7	42.0	14	17.5	3 465
48 x 4	35.1	42.4	47.2	12	16	4 230

Product on request

x: without green/yellow core

- Minimum bending radius
  = 1 core: 10 x outer diameter[1]
  = multicores: 8 x outer diameter[1]

[1] to be doubled during laying operations

BS 5467 / EEMUA Pub. N°133
Armoured (LC-SWA) Power & Control cables

Applications

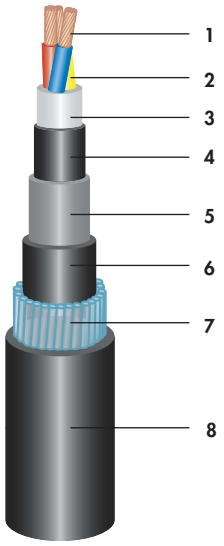
0.6/1 kV

For electricity supply in low voltage installation system for direct burial underground where hydrocarbons may be present in soil.

Max core temperature: 90 °C

Design

1. **Conductor**
   Solid or stranded bare copper
   Class 1 or class 2
2. **Insulation**
   XLPE
   (cross-linked polyethylene)
3. **Bedding (optional)**
4. **Inner sheath**
   PVC
   (polyvinyl chloride)
5. **Lead covering**
6. **Bedding sheath**
   PVC
   (polyvinyl chloride)
7. **Armour**
   Galvanized steel wire (SWA)
8. **Outher sheath**
   PVC
   (polyvinyl chloride)
   Colour: black



Marking

Factory number
Construction - 0.6/1 kV
n x S mm² - year
Other marking on request

Core Identification

1 core: red or black
2 cores: red - black
3 cores: red - yellow - blue
4 cores: red - yellow - blue - black
5 cores: red - yellow - blue - black - green/yellow
≥ 7 cores: printed numbers

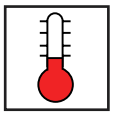
Standards

EEMUA Pub. N°133 (for lead)
BS 5467
IEC 60332.1
Other fire performances and aliphatic hydrocarbons resistant on request.

Flame retardant
IEC 60332.1

Good

Good


-20 °C + 60 °C

BS 5467 - Armoured (LC-SWA) Power & Control cables

Cables (mm²)	Inner Sheath Diameter (mm)	Lead Pipe (mm)	Outer diameter		Permissible current rating (A)		Weight (kg/km)
			Min.	Max.	in air at 30°C	underground at 20°C	
2 x 1.5	7.3	9.5	15.0	16.9	26	37	755
2 x 2.5	8.6	10.8	16.5	18.5	36	48	900
2 x 4	9.8	12.0	17.7	19.8	49	63	1 030
2 x 6	10.5	12.7	18.4	20.6	63	80	1 125
2 x 10	12.3	14.5	20.4	22.8	86	104	1 365
2 x 16	14.3	16.5	23.1	25.7	115	136	1 805
2 x 25	17.6	19.8	26.6	29.5	149	173	2 330
2 x 35	20.0	22.4	30.4	33.8	185	208	3 095
2 x 50	22.6	25.2	33.3	37.1	225	247	3 770
2 x 70	26.2	29.0	37.2	41.4	289	304	4 755
2 x 95	30.4	33.4	42.9	47.7	352	360	6 345
2 x 120	33.6	36.6	46.3	51.4	410	410	7 340
2 x 150	37.2	40.4	50.2	55.8	473	463	8 665
2 x 185	42.2	45.6	57.0	63.4	542	518	11 100
2 x 240	47.4	51.2	62.7	69.8	641	598	13 650
2 x 300	52.6	56.6	68.6	76.3	741	677	16 265
2 x 400	59.4	64.0	76.2	84.8	850	830	20 175
3 x 1.5	7.7	9.9	15.4	17.3	23	31	805
3 x 2.5	9.1	11.3	17.0	19.1	31	41	960
3 x 4	10.3	12.5	18.2	20.4	42	53	1 100
3 x 6	11.2	13.4	19.1	21.4	54	66	1 225
3 x 10	13.1	15.3	21.9	24.4	75	87	1 640
3 x 16	15.3	17.7	24.5	27.9	100	113	2 095
3 x 25	19.3	21.7	29.7	33.0	127	144	3 005
3 x 35	21.4	24.0	32.1	35.8	158	174	3 615
3 x 50	24.2	27.0	35.1	39.0	192	206	4 400
3 x 70	28.1	31.1	39.3	43.7	246	254	5 605
3 x 95	32.6	35.8	45.5	50.6	298	301	7 510
3 x 120	36.1	39.5	49.3	54.8	346	343	8 905
3 x 150	40.4	44.0	55.3	61.5	395	387	11 175
3 x 185	45.3	49.1	60.5	67.3	450	434	13 340
3 x 240	51.0	55.0	66.6	74.1	538	501	16 290
3 x 300	56.5	60.9	73.0	81.2	621	565	19 735
3 x 400	63.9	68.7	83.3	92.7	754	662	25 605
4 x 1.5	8.4	10.6	16.1	18.1	19	26	870
4 x 2.5	10.0	12.2	17.9	20.1	26	34	1 050
4 x 4	11.5	13.7	19.4	21.7	35	44	1 230
4 x 6	12.3	14.5	21.1	23.5	45	55	1 500
4 x 10	14.5	16.9	23.5	26.2	63	73	1 915
4 x 16	16.9	19.3	26.1	29.0	84	95	2 390
4 x 25	21.3	23.9	31.9	35.4	106	121	3 535
4 x 35	23.7	26.5	34.6	38.5	133	146	4 285
4 x 50	26.9	29.7	37.9	42.2	161	173	5 140
4 x 70	31.6	34.8	44.5	49.5	206	213	7 210
4 x 95	36.2	39.6	49.4	54.9	250	253	9 015
4 x 120	40.5	44.1	55.4	61.6	291	288	11 365
4 x 150	44.9	48.7	60.1	66.8	332	325	13 385
4 x 185	50.4	54.6	66.2	73.7	378	364	16 320
4 x 240	57.1	61.7	73.8	82.1	452	420	20 395
4 x 300	62.9	67.7	82.3	91.6	522	474	25 510
4 x 400	71.6	77.0	92.4	102.8	633	556	31 900

Product on request

x: without green/yellow core

BS 5467 - Armoured (LC-SWA) Power & Control cables

Cables (mm²)	Inner Sheath Diameter (mm)	Lead Pipe (mm)	Outer diameter		Permissible current rating (A)		Weight (kg/km)
			Min.	Max.	in air at 30°C	underground at 20°C	
5 G 1.5	9.2	11.4	17.1	19.2	19	26	960
5 G 2.5	11.0	13.2	18.9	21.1	26	34	1 155
5 G 4	12.6	14.8	20.7	23.1	35	44	1 375
5 G 6	13.6	17.2	23.7	26.4	45	55	2 135
5 G 10	16.0	19.6	26.4	29.3	63	73	2 610
5 G 16	19.1	22.7	30.7	34.1	106	121	3 515
5 G 25	23.5	27.1	35.2	39.1			4 550
5 G 35	26.2	29.8	38.0	42.3	133	146	5 370
5 G 50	30.1	33.7	43.2	48.1	161	173	6 890
5 G 70	35.0	38.6	48.4	53.8	206	213	8 605
7 x 1.5	9.9	12.1	17.8	19.9	17	24	1 040
12 x 1.5	13.0	15.2	21.8	24.3	13	18.5	1 480
19 x 1.5	15.4	17.8	24.6	27.4	10.5	15	1 895
27 x 1.5	18.9	21.5	29.5	32.8	9	12	2 695
37 x 1.5	21.3	24.1	32.0	35.6	7.5	10.5	3 190
7 x 2.5	11.9	14.1	19.8	22.1	24	31	1 250
12 x 2.5	15.8	18.2	25.0	27.8	18	24	1 915
19 x 2.5	19.2	23.8	29.8	33.1	14.5	19	2 760
27 x 2.5	23.1	25.9	34.0	37.8	12	16	3 515
37 x 2.5	25.9	28.9	36.9	41.1	10.5	14	4 140
3 x 25 +1 x 16	20.5	23.1	31.1	34.6	107	121	3 385
3 x 35 +1 x 16	22.4	25.0	33.1	36.8	133	146	3 875
3 x 50 +1 x 25	25.7	28.5	36.8	40.9	161	173	4 840
3 x 70 +1 x 35	30.1	33.3	42.8	47.6	207	213	6 695
3 x 95 +1 x 50	34.4	37.8	47.4	52.8	250	253	8 345
3 x 120 +1 x 70	38.4	42.0	51.7	57.6	291	288	10 015
3 x 150 +1 x 70	42.2	46.0	57.4	63.9	332	325	12 265
3 x 185 +1 x 16	47.6	51.8	63.3	70.4	378	365	14 975
3 x 240 +1 x 120	53.8	58.2	70.2	78.0	452	421	18 400
3 x 300 +1 x 150	59.3	64.1	77.3	86.0	522	475	22 335
3 x 300 +1 x 185	60.4	68.4	78.4	87.2	522	475	22 930
3 x 400 +1 x 95	67.0	72.2	86.9	96.7	633	556	28 435

Product on request

x: without green/yellow core

• Minimum bending radius

= 1 core: 10 x outer diameter[1]

= multicores: 8 x outer diameter[1]

[1] to be doubled during laying operations

IEC 60502-1
Unarmoured Power & Control cables

Applications

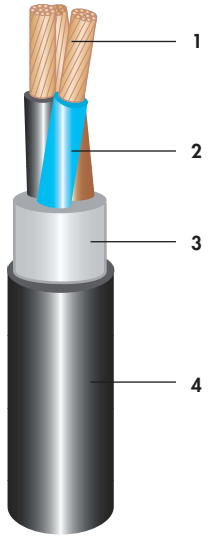
0.6/1 kV

For electricity supply in low voltage installation system.

Max core temperature: 90 °C

Design

1. **Conductor**
   Solid or stranded bare copper
   Class 1 or class 2
2. **Insulation**
   XLPE
   (cross-linked polyethylene)
3. **Bedding (optional)**
4. **Outer sheath**
   PVC
   (polyvinyl chloride)
   Colour: black



Marking

Factory number
Construction - 0.6/1 kV
n x S mm² - year
Other marking on request

Core Identification

1 core: black
2 cores: black - light-blue
3 cores: black - light-blue - brown or green/yellow
4 cores: black - light-blue - brown - black or green yellow
5 cores: black - light-blue - brown - black - black or green/yellow
≥ 7 cores: printed numbers.

Standards

IEC 60228
IEC 60502-1
IEC 60332.1
Other fire performances and aliphatic hydrocarbons resistant on request.

Flame retardant
IEC 60332.1

Good

-20 °C + 60 °C

IEC 60502-1 - Unarmoured Power & Control cables

Cables (mm²)	Outer diameter		Permissible current rating (A)		Weight (kg/km)
	Min.	Max.	in air at 30°C	underground at 20°C	
1 x 25	10.2	11.7	138	144	305
1 x 35	11.2	12.8	169	174	400
1 x 50	12.5	14.2	207	206	520
1 x 70	14.3	16.1	268	254	720
1 x 95	16.4	18.4	328	301	980
1 x 120	18.0	20.2	382	343	1 210
1 x 150	20.0	22.3	441	387	1 490
1 x 185	22.3	24.9	506	434	1 850
1 x 240	25.1	27.9	599	501	2 410
1 x 300	27.6	30.7	693	565	3 000
1 x 400	31.2	34.7	825	732	3 810
1 x 500	34.8	38.7	946	825	4 855
1 x 630	39.5	43.9	1 088	932	6 250
2 x 1.5*	8.9	10.2	26	37	135
2 x 1.5	9.2	10.6	26	37	140
2 x 2.5*	9.6	11.0	36	48	165
2 x 2.5	10.1	11.6	36	48	180
2 x 4*	10.5	12.0	49	63	215
2 x 4	11.3	12.9	49	63	240
2 x 6	12.0	13.6	63	80	290
2 x 10	13.8	15.6	86	104	410
2 x 16	15.8	17.8	115	136	575
2 x 25	19.1	21.4	149	173	865
2 x 35	21.1	23.5	185	208	1 110
2 x 50	23.7	26.4	225	247	1 445
2 x 70	27.2	30.3	289	304	1 985
2 x 95	31.2	34.7	352	360	2 675
2 x 120	34.5	38.4	410	410	3 330
2 x 150	38.4	42.7	473	463	4 130
2 x 185	43.1	48.0	542	518	5 175
2 x 240	48.6	54.1	641	598	6 705
2 x 300	53.5	59.5	741	677	8 280
3 x 1.5*	9.3	10.7	23	31	150
3 x 1.5	9.6	11.0	23	31	160
3 x 2.5*	10.1	11.6	31	41	190
3 x 2.5	10.6	12.1	31	41	205
3 x 4*	11.1	12.6	42	53	250
3 x 4	11.9	13.5	42	53	280
3 x 6	12.7	14.4	54	66	345
3 x 10	14.6	16.5	75	87	500
3 x 16	16.8	18.9	100	113	715
3 x 25	20.4	22.8	127	144	1 075
3 x 35	22.5	25.1	158	174	1 405
3 x 50	25.3	28.1	192	206	1 835
3 x 70	29.3	32.6	246	254	2 555
3 x 95	33.5	37.3	298	301	3 460
3 x 120	37.1	41.3	346	343	4 310
3 x 150	41.4	46.0	395	387	5 340
3 x 185	46.4	51.6	450	434	6 685
3 x 240	52.3	58.2	538	501	8 685
3 x 300	57.5	64.0	621	565	10 760

Product on request

x: without green/yellow core

*Class 1

3 cores on request : with green/yellow core

IEC 60502-1 - Unarmoured Power & Control cables

Cables (mm²)	Outer diameter		Permissible current rating (A)		Weight (kg/km)
	Min.	Max.	in air at 30°C	underground at 20°C	
4 x 1.5*	10.0	11.4	19	26	175
4 x 1.5	10.4	11.9	19	26	185
4 x 2.5*	10.9	12.4	26	34	225
4 x 2.5	11.5	13.1	26	34	245
4 x 4*	12.0	13.6	35	44	300
4 x 4	13.0	14.7	35	44	330
4 x 6	13.8	15.6	45	55	415
4 x 10	16.0	18.0	63	73	610
4 x 16	18.4	20.6	84	95	890
4 x 25	22.4	25.0	106	121	1 345
4 x 45	24.8	27.6	133	146	1 765
4 x 50	27.9	31.1	161	173	2 315
4 x 70	32.5	36.2	206	213	3 250
4 x 95	37.2	41.4	250	253	4 410
4 x 120	41.5	46.1	291	288	5 495
4 x 150	46.0	51.1	332	325	6 785
4 x 185	51.7	57.6	378	364	8 525
4 x 240	58.3	64.9	452	420	11 090
4 x 400	64.4	71.6	522	474	13 775
5 G 1.5*	10.8	12.3	19	26	205
5 G 1.5	11.2	12.8	19	26	215
5 G 2.5*	11.8	13.4	26	34	270
5 G 2.5	12.5	14.2	26	34	285
5 G 4*	13.0	14.7	35	44	360
5 G 4	14.1	15.9	35	44	395
5 G 6	15.0	16.9	45	55	500
5 G 10	17.5	19.6	63	73	740
5 G 16	20.2	22.6	84	95	1 075
5 G 25	24.6	27.4	106	121	1 635
5 G 35	27.2	30.3	133	146	2 150
5 G 50	30.9	34.3	161	173	2 850
5 G 70	36.1	40.1	206	213	3 995
5 G 95	41.3	45.9	250	253	5 425
5 G 120	46.0	51.1	291	288	6 750
5 G 150	51.1	56.8	332	325	8 360
5 G 185	57.5	64.0	378	364	10 455
5 G 240	64.8	72.0	452	420	13 640
5 G 300	71.5	79.6	522	474	16 895

Product on request
x: without green/yellow core
*Class 1

4 cores on request : with green/yellow core
5 cores on request : with green/yellow core

IEC 60502-1 - Unarmoured Power & Control cables

Cables (mm²)	Outer diameter		Permissible current rating (A)		Weight (kg/km)
	Min.	Max.	in air at 30°C	underground at 20°C	
7 x 1.5	11.9	13.5	17.0	24	245
10 x 1.5	14.9	16.8	14.0	20	360
12 x 1.5	15.4	17.3	13.0	18.5	380
14 x 1.5	16.1	18.1	12.0	17.0	425
19 x 1.5	17.9	20.1	10.5	15.0	545
24 x 1.5	20.8	23.2	9.0	13.0	700
27 x 1.5	21.3	23.8	9.0	12.0	745
30 x 1.5	22.0	24.5	8.5	11.5	845
37 x 1.5	23.8	26.5	7.5	10.5	970
7 x 2.5	13.3	15.0	24.0	31	330
10 x 2.5	16.8	18.9	19.5	26	490
12 x 2.5	17.3	19.4	18.0	24	525
14 x 2.5	18.2	20.4	16.0	22	590
19 x 2.5	20.3	22.7	14.5	19	760
24 x 2.5	23.7	26.4	13.0	17	980
27 x 2.5	24.2	26.9	12.0	16	1 055
30 x 2.5	25.0	27.8	11.5	15	1 195
37 x 2.5	27.0	30.1	10.5	14	1 385
3 x 25 + 1 x 16	21.6	24.1	107	121	1 255
3 x 35 + 1 x 16	23.5	26.2	133	146	1 575
3 x 50 + 1 x 25	26.8	29.8	161	173	2 115
3 x 70 + 1 x 35	30.9	34.3	207	213	2 925
3 x 95 + 1 x 50	35.5	39.5	250	253	3 970
3 x 120 + 1 x 70	39.6	44.0	291	288	5 025
3 x 150 + 1 x 70	43.1	48.0	332	325	6 005
3 x 185 + 1 x 95	48.8	54.3	378	365	7 635
3 x 240 + 1 x 120	54.7	60.8	452	421	9 845
3 x 300 + 1 x 150	60.5	67.3	522	475	12 225
3 x 300 + 1 x 185	61.7	68.7	522	475	12 700

Product on request

x: without green/yellow core

- Minimum bending radius
  = 1 core: 9 x outer diameter[1]
  = multicores: 6 x outer diameter[1]

[1] to be doubled during laying operations

IEC 60502-1
Armoured (GSTA) Power & Control cables

Applications

0.6/1 kV

For electricity supply in low voltage installation system.

Max core temperature: 90 °C

Design

1. Conductor
Solid or stranded bare copper
Class 1 or class 2

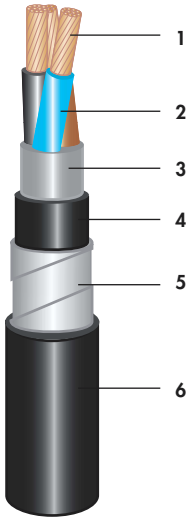
2. Insulation
XLPE
(cross-linked polyethylene)

3. Bedding (optional)

4. Inner sheath
PVC
(polyvinyl chloride)

5. Armour
Galvanized steel tape (GSTA)
Aluminium tape for single core (ATA)

6. Outer sheath
PVC
(polyvinyl chloride)
Colour: black



Marking

Factory number
Construction - 0.6/1 kV
n x S mm² - year
Other marking on request

Core Identification

1 core: black
2 cores: black - light-blue
3 cores: black - light-blue - brown or green/yellow
4 cores: black - light-blue - brown - black or green yellow
5 cores: black - light-blue - brown - black - black or green/yellow
≥ 7 cores: printed numbers.

Standards

IEC 60228
IEC 60502-1
IEC 60332.1
Other fire performances and aliphatic hydrocarbons resistant on request.

Flame retardant IEC 60332.1	Good	Good	-20 °C + 60 °C

IEC 60502-1 - Armoured (GSTA) Power & Control cables

Cables (mm²)	Inner Sheath Diameter (mm)	Armour (mm)	Outer diameter		Permissible current rating (A)		Weight (kg/km)
			Min.	Max.	in air at 30°C	underground at 20°C	
1 x 25	9.9	12.5	14.6	17.1	138	144	495
1 x 35	10.9	13.5	15.6	18.1	169	174	595
1 x 50	12.2	14.8	16.9	19.5	207	206	730
1 x 70	14.0	16.6	18.7	21.4	268	254	955
1 x 95	15.9	18.5	20.6	23.4	328	301	1 225
1 x 120	17.5	20.1	22.1	25.1	382	343	1 480
1 x 150	19.3	21.9	23.9	27.0	441	387	1 770
1 x 185	21.6	24.2	26.2	29.5	506	434	2 155
1 x 240	24.2	26.8	28.8	32.2	599	501	2 735
1 x 300	26.6	29.2	31.3	35.0	693	565	3 350
1 x 400	30.4	33.0	35.3	39.2	825	732	4 235
1 x 500	33.9	36.5	38.9	43.1	946	825	5 330
1 x 630	38.3	40.9	43.7	48.2	1 088	932	6 785
2 x 1.5*	7.8	8.8	11.0	13.1	26	37	260
2 x 1.5	8.1	9.1	11.0	13.1	26	37	270
2 x 2.5*	8.5	9.5	11.7	13.9	36	48	300
2 x 2.5	9.0	10.0	11.7	13.9	36	48	320
2 x 4*	9.4	10.5	12.5	14.8	49	63	360
2 x 4	10.2	11.2	12.6	14.9	49	63	395
2 x 6	10.9	11.9	14.1	16.5	63	80	455
2 x 10	12.7	13.7	15.8	18.4	86	104	595
2 x 16	14.7	15.7	17.8	20.5	115	136	785
2 x 25	18.0	19.0	21.1	24.0	149	173	1 105
2 x 35	20.0	21.0	23.1	26.1	185	208	1 380
2 x 50	22.6	23.6	25.6	28.9	225	247	1 740
2 x 70	26.2	27.2	29.4	32.9	289	304	2 340
2 x 95	30.4	31.4	33.7	37.6	352	360	3 115
2 x 120	33.6	36.2	38.6	42.8	410	410	4 190
2 x 150	37.2	39.8	42.6	47.1	473	463	5 065
2 x 185	42.2	44.8	47.7	52.6	542	518	6 275
2 x 240	47.4	50.0	53.3	58.5	641	598	7 940
2 x 300	52.6	55.2	58.6	64.2	741	677	9 695
3 x 1.5*	8.2	9.2	11.4	13.6	23	31	280
3 x 1.5	8.5	9.6	11.4	13.6	23	31	295
3 x 2.5*	9.0	10.0	12.2	14.4	31	41	335
3 x 2.5	9.5	10.6	12.2	14.5	31	41	355
3 x 4*	10.0	11.0	13.1	15.5	42	53	405
3 x 4	10.8	11.9	13.2	15.5	42	53	445
3 x 6	11.6	12.6	14.8	17.2	54	66	515
3 x 10	13.5	14.6	16.7	19.3	75	87	690
3 x 16	15.7	16.7	18.8	21.6	100	113	930
3 x 25	19.3	20.3	22.3	25.3	127	144	1 335
3 x 35	21.4	22.5	24.5	27.6	158	174	1 680
3 x 50	24.2	25.3	27.2	30.6	192	206	2 150
3 x 70	28.5	29.6	31.7	35.4	246	254	2 950
3 x 95	32.6	33.7	36.1	40.1	298	301	3 930
3 x 120	36.1	38.7	41.3	45.7	346	343	5 220
3 x 150	40.4	43.0	45.9	50.6	395	387	6 390
3 x 185	45.3	47.9	51.0	56.1	450	434	7 855
3 x 240	51.4	54.0	57.4	62.9	538	501	10 065
3 x 300	56.5	59.1	62.9	68.8	621	565	12 300

Product on request

x: without green/yellow core

*Class 1

3 cores on request : with green/yellow core

IEC 60502-1 - Armoured (GSTA) Power & Control cables

Cables (mm²)	Inner Sheath Diameter (mm)	Armour (mm)	Outer diameter		Permissible current rating (A)		Weight (kg/km)
			Min.	Max.	in air at 30°C	underground at 20°C	
4 x 1.5*	8.9	10.0	12.2	14.4	19	26	315
4 x 1.5	9.3	10.3	12.1	14.4	19	26	330
4 x 2.5*	9.8	10.9	13.0	15.4	26	34	375
4 x 2.5	10.4	11.5	13.0	15.3	26	34	405
4 x 4*	10.9	12.0	14.1	16.5	35	44	465
4 x 4	11.9	12.9	14.1	16.5	35	44	505
4 x 6	12.7	13.8	15.9	18.4	45	55	600
4 x 10	14.9	15.9	18.0	20.7	63	73	820
4 x 16	17.3	18.4	20.4	23.3	84	95	1 125
4 x 25	21.3	22.4	24.4	27.5	106	121	1 625
4 x 35	23.7	24.8	26.8	30.1	133	146	2 070
4 x 50	26.9	27.9	30.1	33.6	161	173	2 675
4 x 70	31.6	32.7	35.0	38.9	206	213	3 685
4 x 95	36.2	38.8	41.4	45.8	250	253	5 335
4 x 120	40.5	43.1	46.1	50.8	291	288	6 595
4 x 150	44.9	47.5	50.6	55.6	332	325	7 970
4 x 185	50.4	53.0	56.4	61.9	378	364	9 870
4 x 240	57.1	59.7	63.4	69.5	452	420	12 650
4 x 400	62.9	65.5	69.6	76.0	522	474	15 495
5 G 1.5*	9.7	10.8	12.8	15.2	19	26	355
5 G 1.5	10.1	11.2	12.9	15.2	19	26	370
5 G 2.5*	10.7	11.7	13.8	16.2	26	34	430
5 G 2.5	11.4	12.4	14.1	16.5	26	34	455
5 G 4*	11.9	13.0	15.1	17.6	35	44	530
5 G 4	13.0	14.0	15.1	17.6	35	44	585
5 G 6	13.9	15.0	17.1	19.7	45	55	695
5 G 10	16.4	17.4	19.5	22.3	63	73	960
5 G 16	19.1	20.1	22.2	25.1	84	95	1 330
5 G 25	23.5	24.6	26.5	29.9	106	121	1 940
5 G 35	26.2	27.3	29.4	32.9	133	146	2 505
5 G 50	30.1	31.2	33.5	37.3	161	173	3 285
5 G 70	35.0	37.6	40.2	44.5	206	213	4 890
5 G 95	40.5	43.1	45.9	50.6	250	253	6 500
5 G 120	44.9	47.5	50.5	55.6	291	288	7 965
5 G 150	49.7	52.3	55.7	61.2	332	325	9 670
5 G 185	56.3	58.9	62.7	68.6	378	364	11 995
5 G 240	63.3	65.9	70.0	76.5	452	420	15 370
5 G 300	70.2	72.8	77.2	84.2	522	474	18 880

Product on request

x: without green/yellow core

*Class 1

4 cores on request : with green/yellow core

IEC 60502-1 - Armoured (GSTA) Power & Control cables

Cables (mm²)	Inner Sheath Diameter (mm)	Armour (mm)	Outer diameter		Permissible current rating (A)		Weight (kg/km)
			Min.	Max.	in air at 30°C	underground at 20°C	
7 x 1.5	10.8	11.8	14.0	16.4	17	24	410
10 x 1.5	13.8	14.9	17.0	19.6	14	20	555
12 x 1.5	14.3	15.3	17.4	20.0	13	18.5	580
14 x 1.5	15.0	16.1	18.1	20.9	12	17	635
19 x 1.5	16.8	17.8	19.9	22.7	10.5	15	770
24 x 1.5	19.7	20.8	22.8	25.8	9	13	960
27 x 1.5	20.2	21.2	23.2	26.3	9	12	1 015
30 x 1.5	20.9	22.0	24.0	27.1	8.5	11.5	1 115
37 x 1.5	22.7	23.7	25.7	28.9	7.5	10.5	1 265
7 x 2.5	12.2	13.2	15.4	17.9	24	31	510
10 x 2.5	15.7	16.8	18.8	21.6	19.5	26	700
12 x 2.5	16.2	17.3	19.3	22.1	18	24	745
14 x 2.5	17.1	18.1	20.2	23.0	16	22	820
19 x 2.5	19.2	20.2	22.2	25.2	14.5	19	1 015
24 x 2.5	22.6	23.6	25.6	28.8	13	17	1 270
27 x 2.5	23.1	24.1	26.1	29.4	12	16	1 350
30 x 2.5	23.9	25.0	27.0	30.3	11.5	15	1 495
37 x 2.5	26.0	27.0	28.9	32.4	10.5	14	1 710
3 x 25+1 x 16	20.5	21.5	23.5	26.6	107	121	1 525
3 x 35+1 x 16	22.4	23.5	25.4	28.7	133	146	1 870
3 x 50+1 x 25	25.7	26.8	28.7	32.2	161	173	2 445
3 x 70+1 x 35	30.1	31.1	33.4	37.2	207	213	3 360
3 x 95+1 x 50	34.4	37.0	39.4	43.7	250	253	4 830
3 x 120+1 x 70	38.4	41.0	43.7	48.3	291	288	6 015
3 x 150+1 x 70	42.2	44.8	47.7	52.6	332	325	7 120
3 x 185+1 x 95	47.6	50.2	53.4	58.7	378	365	8 890
3 x 240+1 x 120	53.8	56.4	59.9	65.7	452	421	11 340
3 x 300+1 x 150	59.3	61.9	65.6	71.7	522	475	13 840
3 x 300+1 x 185	60.4	63.0	66.9	73.2	522	475	14 340

Product on request

x: without green/yellow core

• Minimum bending radius

= 1 core: 8 x outer diameter[1]

= multicores: 10 x outer diameter[1]

[1] to be doubled during laying operations

IEC 60502-1
Armoured (SWA) Power & Control cables

Applications

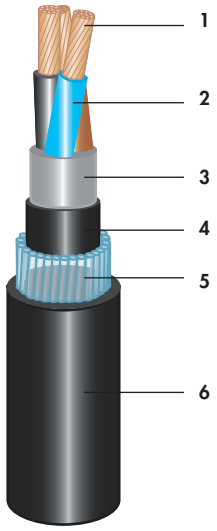
0.6/1 kV

For electricity supply in low voltage installation system.

Max core temperature: 90 °C

Design

1. **Conductor**
   Solid or stranded bare copper
   Class 1 or class 2
2. **Insulation**
   XLPE
   (cross-linked polyethylene)
3. **Bedding (optional)**
4. **Inner sheath**
   PVC
   (polyvinyl chloride)
5. **Armour**
   Galvanized steel wire (SWA)
   Aluminium wire for single core (AWA)
6. **Outer sheath**
   PVC
   (polyvinyl chloride)
   Colour: black



Marking

Factory number
Construction - 0.6/1 kV
n x S mm² - year
Other marking on request

Core Identification

1 core: black
2 cores: black - light-blue
3 cores: black - light-blue - brown or green/yellow
4 cores: black - light-blue - brown - black or green yellow
5 cores: black - light-blue - brown - black - black or green/yellow
≥ 7 cores: printed numbers.

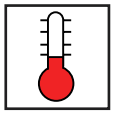
Standards

IEC 60228
IEC 60502-1
IEC 60332.1
Other fire performances and aliphatic hydrocarbons resistant on request.

Flame retardant
IEC 60332.1

Good

Good


-20 °C + 60 °C

IEC 60502-1 - Armoured (SWA) Power & Control cables

Cables (mm²)	Inner Sheath Diameter (mm)	Armour (mm)	Outer diameter		Permissible current rating (A)		Weight (kg/km)
			Min.	Max.	in air at 30°C	underground at 20°C	
1 x 25	9.9	13.5	15.8	18.3	138	144	560
1 x 35	10.9	14.5	16.7	19.4	169	174	675
1 x 50	12.2	15.8	18.0	20.8	207	206	820
1 x 70	14.0	17.6	19.8	22.7	268	254	1 050
1 x 95	15.9	19.5	21.6	24.7	328	301	1 335
1 x 120	17.5	21.1	23.2	26.4	382	343	1 600
1 x 150	19.3	22.9	25.0	28.4	441	387	1 900
1 x 185	21.6	25.2	27.2	30.8	506	434	2 305
1 x 240	24.2	27.8	30.0	33.8	599	501	2 910
1 x 300	26.6	30.2	32.5	36.6	693	565	3 545
1 x 400	30.4	34.4	36.8	41.3	825	732	4 510
1 x 500	33.9	37.9	40.5	45.3	946	825	5 630
1 x 630	38.3	42.3	45.0	50.2	1 088	932	7 100
2 x 1.5*	7.8	9.6	11.9	14.1	26	37	350
2 x 1.5	8.1	9.9	12.2	14.4	26	37	365
2 x 2.5*	8.5	10.3	12.6	14.9	36	48	400
2 x 2.5	9.0	10.8	13.1	15.4	36	48	420
2 x 4*	9.4	11.2	13.5	15.8	49	63	470
2 x 4	10.2	12.0	14.3	16.7	49	63	515
2 x 6	10.9	12.7	15.0	17.4	63	80	575
2 x 10	12.7	15.2	17.4	20.1	86	104	840
2 x 16	14.7	17.2	19.4	22.3	115	136	1 070
2 x 25	18.0	21.2	23.3	26.5	149	173	1 585
2 x 35	20.0	23.2	25.3	28.7	185	208	1 910
2 x 50	22.6	25.8	27.8	31.5	225	247	2 340
2 x 70	26.2	29.4	31.7	35.7	289	304	3 050
2 x 95	30.4	34.4	36.8	41.3	352	360	4 185
2 x 120	33.6	37.6	40.2	44.9	410	410	4 990
2 x 150	37.2	41.2	43.9	49.0	473	463	5 915
2 x 185	42.2	47.2	50.2	55.9	542	518	7 710
2 x 240	47.4	52.4	55.6	61.8	641	598	9 575
2 x 300	52.6	57.6	60.9	67.6	741	677	11 490
3 x 1.5*	8.2	10.0	12.3	14.6	23	31	380
3 x 1.5	8.5	10.3	12.6	14.9	23	31	395
3 x 2.5*	9.0	10.8	13.1	15.4	31	41	435
3 x 2.5	9.5	11.3	13.6	15.9	31	41	460
3 x 4*	10.0	11.8	14.1	16.5	42	53	520
3 x 4	10.8	12.6	14.9	17.3	42	53	565
3 x 6	11.6	13.4	15.7	18.2	54	66	645
3 x 10	13.5	16.0	18.2	21.0	75	87	950
3 x 16	15.7	18.2	20.4	23.3	100	113	1 230
3 x 25	19.3	22.5	24.6	27.9	127	144	1 850
3 x 35	21.4	24.6	26.6	30.2	158	174	2 255
3 x 50	24.2	27.4	29.6	33.4	192	206	2 805
3 x 70	28.5	32.5	34.8	39.1	246	254	3 950
3 x 95	32.6	36.6	39.2	43.9	298	301	5 085
3 x 120	36.1	40.1	42.8	47.8	346	343	6 095
3 x 150	40.4	45.4	48.4	53.9	395	387	7 780
3 x 185	45.3	50.3	53.4	59.4	450	434	9 410
3 x 240	51.4	56.4	59.8	66.3	538	501	11 810
3 x 300	56.5	61.5	65.2	72.2	621	565	14 245

Product on request

x: without green/yellow core

*Class 1

3 cores on request : with green/yellow core

IEC 60502-1 - Armoured (SWA) Power & Control cables

Cables (mm²)	Inner Sheath Diameter (mm)	Armour (mm)	Outer diameter		Permissible current rating (A)		Weight (kg/km)
			Min.	Max.	in air at 30°C	underground at 20°C	
4 x 1.5*	8.9	10.7	13.0	15.3	19	26	415
4 x 1.5	9.3	11.1	13.4	15.7	19	26	435
4 x 2.5*	9.8	11.6	13.9	16.3	26	34	490
4 x 2.5	10.4	12.2	14.5	16.9	26	34	520
4 x 4*	10.9	12.7	15.0	17.4	35	44	590
4 x 4	11.9	13.7	16.0	18.5	35	44	640
4 x 6	12.7	15.2	17.4	20.1	45	55	845
4 x 10	14.9	17.4	19.6	22.5	63	73	1 100
4 x 16	17.3	20.5	22.6	25.8	84	95	1 590
4 x 25	21.3	24.5	26.5	30.1	106	121	2 200
4 x 35	23.7	26.9	29.1	32.8	133	146	2 715
4 x 50	26.9	30.1	32.4	36.5	161	173	3 405
4 x 70	31.6	35.6	38.2	42.8	206	213	4 825
4 x 95	36.2	40.2	42.9	47.9	250	253	6 205
4 x 120	40.5	45.5	48.5	54.0	291	288	7 985
4 x 150	44.9	49.9	53.0	59.0	332	325	9 485
4 x 185	50.4	55.4	58.8	65.3	378	364	11 565
4 x 240	57.1	62.1	65.7	72.9	452	420	14 580
4 x 300	62.9	67.9	71.8	79.5	522	474	17 615
5 G 1.5*	9.7	11.5	13.8	16.2	19	26	470
5 G 1.5	10.1	11.9	14.2	16.6	19	26	485
5 G 2.5*	10.7	12.5	14.8	17.2	26	34	550
5 G 2.5	11.4	13.2	15.5	18.0	26	34	585
5 G 4*	11.9	14.4	16.6	19.3	35	44	765
5 G 4	13.0	15.5	17.7	20.4	35	44	840
5 G 6	13.9	16.4	18.6	21.4	45	55	965
5 G 10	16.4	18.9	21.1	24.1	63	73	1 280
5 G 16	19.1	22.3	24.4	27.7	84	95	1 835
5 G 25	23.5	26.7	28.7	32.4	106	121	2 570
5 G 35	26.2	29.4	31.5	35.5	133	146	3 200
5 G 50	30.1	34.1	36.5	41.0	161	173	4 355
5 G 70	35.0	39.0	41.7	46.7	206	213	5 730
5 G 95	40.5	45.5	48.3	53.8	250	253	7 885
5 G 120	44.9	49.9	53.0	59.0	291	288	9 490
5 G 150	49.7	54.7	58.1	64.5	332	325	11 350
5 G 185	56.3	61.3	65.0	72.0	378	364	13 895
5 G 240	63.3	68.3	72.2	79.9	452	420	17 520
5 G 300	70.2	77.5	81.8	90.4	522	474	22 670

Product on request

x: without green/yellow core

*Class 1

4 cores on request : with green/yellow core

IEC 60502-1 - Armoured (SWA) Power & Control cables

Cables (mm²)	Inner Sheath Diameter (mm)	Armour (mm)	Outer diameter		Permissible current rating (A)		Weight (kg/km)
			Min.	Max.	in air at 30°C	underground at 20°C	
7 x 1.5	10.8	12.6	14.9	17.3	17	24	530
10 x 1.5	13.8	16.3	18.5	21.3	14	20	825
12 x 1.5	14.3	16.8	19.0	21.8	13	18.5	860
14 x 1.5	15.0	17.5	19.7	22.6	12	17	930
19 x 1.5	16.8	19.3	21.4	24.5	10.5	15	1 095
24 x 1.5	19.7	22.9	25.0	28.4	9	13	1 490
27 x 1.5	20.2	23.4	25.5	28.9	9	12	1 545
30 x 1.5	20.9	24.1	26.1	29.6	8.5	11.5	1 675
37 x 1.5	22.7	25.9	27.9	31.6	7.5	10.5	1 860
7 x 2.5	12.2	14.7	16.9	19.6	24	31	750
10 x 2.5	15.7	18.2	20.4	23.3	19.5	26	1 005
12 x 2.5	16.2	18.7	20.9	23.9	18	24	1 050
14 x 2.5	17.1	19.6	21.7	24.8	16	22	1 150
19 x 2.5	19.2	22.4	24.5	27.8	14.5	19	1 520
24 x 2.5	22.6	25.8	27.8	31.5	13	17	1 870
27 x 2.5	23.1	26.3	28.3	32.0	12	16	1 965
30 x 2.5	23.9	27.1	29.3	33.1	11.5	15	2 140
37 x 2.5	25.9	29.1	31.2	35.2	10.5	14	2 405
3 x 25+1 x 16	20.5	23.7	25.8	29.2	107	121	2 070
3 x 35+1 x 16	22.4	25.6	27.6	31.2	133	146	2 465
3 x 50+1 x 25	25.7	28.9	31.0	35.0	161	173	3 140
3 x 70+1 x 35	30.1	34.1	36.5	41.0	207	213	4 430
3 x 95+1 x 50	34.4	38.4	40.9	45.8	250	253	5 645
3 x 120+1 x 70	38.4	42.4	45.3	50.5	291	288	6 925
3 x 150+1 x 70	42.2	47.2	50.2	55.9	332	325	8 575
3 x 185+1 x 95	47.6	52.6	55.8	62.1	378	365	10 545
3 x 240+1 x 120	53.8	58.8	62.3	69.1	452	421	13 195
3 x 300+1 x 150	59.3	64.3	67.9	75.2	522	475	15 895
3 x 300+1 x 185	60.4	65.4	69.2	76.6	522	475	16 420

Product on request

x: without green/yellow core

- Minimum bending radius
  = 1 core: 8 x outer diameter[1]
  = multicores: 10 x outer diameter[1]

[1] to be doubled during laying operations

IEC 60502-1
Armoured (LC-GSTA) Power & Control cables

Applications

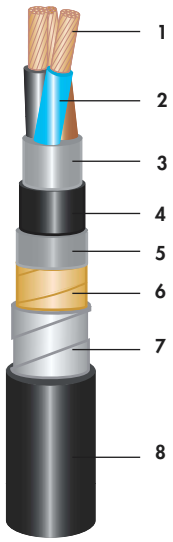
0.6/1 kV

For electricity supply in low voltage installation system for direct burial underground where hydrocarbons may be present in soil.

Max core temperature: 90 °C

Design

1. **Conductor**
   Solid or stranded bare copper
   Class 1 or class 2
2. **Insulation**
   XLPE
   (cross-linked polyethylene)
3. **Bedding (optional)**
4. **Inner sheath**
   PVC
   (polyvinyl chloride)
5. **Lead covering**
6. **Bedding**
   Parrafin - waxed crepe paper
7. **Armour**
   Galvanized steel tape (GSTA)
8. **Outer sheath**
   PVC
   (polyvinyl chloride)
   Colour: black



Marking

Factory number
Construction - 0.6/1 kV
n x S mm² - year
Other marking on request

Core Identification

1 core: black
2 cores: black - light-blue
3 cores: black - light-blue - brown or green/yellow
4 cores: black - light-blue - brown - black or green yellow
5 cores: black - light-blue - brown - black - black or green/yellow
≥ 7 cores: printed numbers.

Standards

IEC 60228
IEC 60502-1
IEC 60332.1
Other fire performances and aliphatic hydrocarbons resistant on request.

Flame retardant IEC 60332.1	Good	Good	-20 °C + 60 °C

IEC 60502-1 - Armoured (LC-GSTA) Power & Control cables

Cables (mm²)	Inner Sheath Diameter (mm)	Armour (mm)	Outer diameter		Permissible current rating (A)		Weight (kg/km)
			Min.	Max.	in air at 30°C	underground at 20°C	
1 x 25	9.9	16.1	18.3	21.1	138	144	1 025
1 x 35	10.9	17.1	19.3	22.1	169	174	1 180
1 x 50	12.2	18.4	20.6	23.5	207	206	1 365
1 x 70	14.0	20.2	22.3	25.5	268	254	1 670
1 x 95	15.9	22.1	24.2	27.5	328	301	2 030
1 x 120	17.5	23.9	26.0	29.4	382	343	2 420
1 x 150	19.3	25.7	27.7	31.4	441	387	2 805
1 x 185	21.6	28.2	30.4	34.2	506	434	3 395
1 x 240	24.2	31.0	33.3	37.5	599	501	4 225
1 x 300	26.6	33.4	35.7	40.0	693	565	4 955
1 x 400	30.4	37.4	40.0	44.7	825	732	6 200
1 x 500	33.9	41.1	43.8	48.9	946	825	7 635
1 x 630	38.3	45.7	48.5	54.0	1 088	932	9 490
2 x 1.5*	7.8	12.4	14.7	17.1	26	37	705
2 x 1.5	8.1	12.7	15.0	17.4	26	37	730
2 x 2.5*	8.5	13.1	15.4	17.9	36	48	780
2 x 2.5	9.0	13.6	15.9	18.4	36	48	820
2 x 4*	9.4	14.1	16.2	18.8	49	63	880
2 x 4	10.2	14.8	17.0	19.7	49	63	945
2 x 6	10.9	15.5	17.7	20.4	63	80	1 040
2 x 10	12.7	17.3	19.5	22.4	86	104	1 255
2 x 16	14.7	19.3	21.4	24.5	115	136	1 530
2 x 25	18.0	22.6	24.7	28.0	149	173	1 995
2 x 35	20.0	24.6	26.6	30.2	185	208	2 355
2 x 50	22.6	27.4	29.6	33.4	225	247	2 940
2 x 70	26.2	31.2	33.5	37.7	289	304	3 820
2 x 95	30.4	37.2	39.8	44.5	352	360	5 345
2 x 120	33.6	40.6	43.3	48.4	410	410	6 390
2 x 150	37.2	44.4	47.2	52.6	473	463	7 605
2 x 185	42.2	49.6	52.7	58.6	542	518	9 320
2 x 240	47.4	55.2	58.6	65.1	641	598	11 705
2 x 300	52.6	60.6	64.1	71.0	741	677	14 050
3 x 1.5*	8.2	12.8	15.1	17.5	23	31	750
3 x 1.5	8.5	13.2	15.5	18.0	23	31	775
3 x 2.5*	9.0	13.6	15.9	18.4	31	41	835
3 x 2.5	9.5	14.2	16.4	19.0	31	41	880
3 x 4*	10.0	14.6	16.8	19.5	42	53	950
3 x 4	10.8	15.5	17.7	20.4	42	53	1 030
3 x 6	11.6	16.2	18.4	21.2	54	66	1 130
3 x 10	13.5	18.2	20.4	23.3	75	87	1 390
3 x 16	15.7	20.3	22.4	25.6	100	113	1 725
3 x 25	19.3	23.9	26.0	29.4	127	144	2 280
3 x 35	21.4	26.3	28.3	32.0	158	174	2 815
3 x 50	24.2	29.3	31.4	35.4	192	206	3 530
3 x 70	28.5	33.8	36.2	40.7	246	254	4 685
3 x 95	32.6	39.6	42.3	47.3	298	301	6 435
3 x 120	36.1	43.3	46.1	51.5	346	343	7 725
3 x 150	40.4	47.8	50.7	56.5	395	387	9 285
3 x 185	45.3	52.9	56.1	62.4	450	434	11 310
3 x 240	51.4	59.4	62.9	69.8	538	501	14 325
3 x 300	56.5	64.7	68.5	75.9	621	565	17 180

Product on request

x: without green/yellow core

*Class 1

3 cores on request : with green/yellow core

IEC 60502-1 - Armoured (LC-GSTA) Power & Control cables

Cables (mm²)	Inner Sheath Diameter (mm)	Armour (mm)	Outer diameter		Permissible current rating (A)		Weight (kg/km)
			Min.	Max.	in air at 30°C	underground at 20°C	
4 x 1.5*	8.9	13.6	15.9	18.4	19	26	815
4 x 1.5	9.3	13.9	16.2	18.7	19	26	840
4 x 2.5*	9.8	14.5	16.7	19.4	26	34	915
4 x 2.5	10.4	15.1	17.3	20.0	26	34	965
4 x 4*	10.9	15.6	17.8	20.5	35	44	1 050
4 x 4	11.9	16.5	18.7	21.5	35	44	1 130
4 x 6	12.7	17.4	19.6	22.5	45	55	1 260
4 x 10	14.9	19.6	21.6	24.7	63	73	1 575
4 x 16	17.3	22.0	24.1	27.4	84	95	1 985
4 x 25	21.3	26.2	28.2	31.9	106	121	2 755
4 x 35	23.7	28.6	30.8	34.7	133	146	3 330
4 x 50	26.9	32.1	34.4	38.6	161	173	4 305
4 x 70	31.6	38.6	41.1	46.0	206	213	6 135
4 x 95	36.2	43.4	46.2	51.6	250	253	7 840
4 x 120	40.5	47.9	50.8	56.6	291	288	9 505
4 x 150	44.9	52.5	55.7	62.0	332	325	11 375
4 x 185	50.4	58.4	61.9	68.7	378	364	14 050
4 x 240	57.1	65.5	69.3	76.7	452	420	17 810
4 x 300	62.9	71.5	75.5	83.6	522	474	21 390
5 G 1.5*	9.7	14.4	16.5	19.2	19	26	885
5 G 1.5	10.1	14.8	17.0	19.7	19	26	920
5 G 2.5*	10.7	15.3	17.5	20.2	26	34	1 005
5 G 2.5	11.4	16.0	18.2	21.0	26	34	1 060
5 G 4*	11.9	16.6	18.8	21.6	35	44	1 160
5 G 4	13.0	17.6	19.8	22.7	35	44	1 260
5 G 6	13.9	18.6	20.8	23.8	45	55	1 410
5 G 10	16.4	21.0	23.1	26.3	63	73	1 785
5 G 16	19.1	23.7	25.8	29.2	84	95	2 270
5 G 25	23.5	28.4	30.6	34.5	106	121	3 190
5 G 35	26.2	31.3	33.6	37.8	133	146	3 990
5 G 50	30.1	36.9	39.5	44.2	161	173	5 495
5 G 70	35.0	42.2	45.1	50.3	206	213	7 320
5 G 95	40.5	47.9	50.8	56.6	250	253	9 435
5 G 120	44.9	52.5	55.7	62.0	291	288	11 370
5 G 150	49.7	57.7	61.2	67.9	332	325	13 810
5 G 185	56.3	64.5	68.3	75.6	378	364	16 865
5 G 240	63.3	71.9	75.9	84.0	452	420	21 300
5 G 300	70.2	80.8	85.2	94.2	522	474	27 005

Product on request

x: without green/yellow core

*Class 1

4 cores on request : with green/yellow core

IEC 60502-1 - Armoured (LC-GSTA) Power & Control cables

Cables (mm²)	Inner Sheath Diameter (mm)	Armour (mm)	Outer diameter		Permissible current rating (A)		Weight (kg/km)
			Min.	Max.	in air at 30°C	underground at 20°C	
7 x 1.5	10.8	15.4	17.6	20.3	17	24	985
10 x 1.5	13.8	18.5	20.7	23.6	14	20	1 285
12 x 1.5	14.3	18.9	21.1	24.1	13	18.5	1 310
14 x 1.5	15.0	19.7	21.8	24.9	12	17	1 400
19 x 1.5	16.8	21.4	23.5	26.8	10.5	15	1 615
24 x 1.5	19.7	24.4	26.4	30.0	9	13	1 925
27 x 1.5	20.2	24.8	26.8	30.4	9	12	2 000
30 x 1.5	20.9	25.8	27.8	31.5	8.5	11.5	2 225
37 x 1.5	22.7	27.5	29.7	33.5	7.5	10.5	2 470
7 x 2.5	12.2	16.8	19.0	21.8	24	31	1 145
10 x 2.5	15.7	20.4	22.4	25.6	19.5	26	1 500
12 x 2.5	16.2	20.9	23.0	26.2	18	24	1 560
14 x 2.5	17.1	21.7	23.8	27.1	16	22	1 675
19 x 2.5	19.2	23.8	25.9	29.3	14.5	19	1 960
24 x 2.5	22.6	27.4	29.6	33.4	13	17	2 470
27 x 2.5	23.1	27.9	30.1	33.9	12	16	2 575
30 x 2.5	23.9	28.8	30.9	34.9	11.5	15	2 770
37 x 2.5	26.0	31.0	33.3	37.5	10.5	14	3 200
3 x 25+1 x 16	20.5	25.1	27.1	30.7	107	121	2 525
3 x 35+1 x 16	22.4	27.3	29.3	33.1	133	146	3 045
3 x 50+1 x 25	25.7	30.8	33.1	37.2	161	173	3 920
3 x 70+1 x 35	30.1	36.9	39.5	44.2	207	213	5 565
3 x 95+1 x 50	34.4	41.4	44.1	49.2	250	253	7 075
3 x 120+1 x 70	38.4	45.6	48.6	54.1	291	288	8 650
3 x 150+1 x 70	42.2	49.6	52.7	58.6	332	325	10 170
3 x 185+1 x 95	47.6	55.4	58.8	65.3	378	365	12 675
3 x 240+1 x 120	53.8	61.8	65.4	72.5	452	421	15 795
3 x 300+1 x 150	59.3	67.7	71.4	79.1	522	475	19 185
3 x 300+1 x 185	60.4	68.8	72.7	80.5	522	475	19 785

Product on request

x: without green/yellow core

• Minimum bending radius

= 1 core: 8 x outer diameter[1]

= multicores: 10 x outer diameter[1]

[1] to be doubled during laying operations

IEC 60502-1
Armoured (LC-SWA) Power & Control cables

Applications

0.6/1 kV

For electricity supply in low voltage installation system for direct burial underground where hydrocarbons may be present in soil.

Max core temperature: 90 °C

Design

1. Conductor
Solid or stranded bare copper
Class 1 or class 2

2. Insulation
XLPE
(cross-linked polyethylene)

3. Bedding (optional)

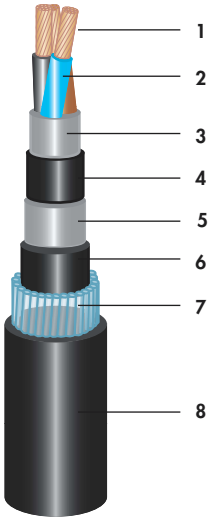
4. Inner sheath
PVC
(polyvinyl chloride)

5. Lead covering

6. Bedding
PVC
(polyvinyl chloride)

7.Armour
Galvanized steel wire (SWA)

8. Outer sheath
PVC
(polyvinyl chloride)
Colour: black



Marking

Factory number
Construction - 0.6/1 kV
n x S mm^2 - year
Other marking on request

Core Identification

1 core: black
2 cores: black - light-blue
3 cores: black - light-blue - brown or green/yellow
4 cores: black - light-blue - brown - black or green yellow
5 cores: black - light-blue - brown - black - black or green/yellow
≥ 7 cores: printed numbers.

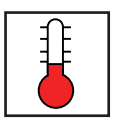
Standards

IEC 60228
IEC 60502-1
IEC 60332.1
Other fire performances and aliphatic hydrocarbons resistant on request.

Flame retardant
IEC 60332.1

Good

Good


-20 °C + 60 °C

IEC 60502-1 - Armoured (LC-SWA) Power & Control cables

Cables (mm²)	Inner Sheath Diameter	Lead Pipe Diameter	Outer diameter		Permissible current rating (A)		Weight (kg/km)
			Min.	Max.	in air at 30°C	underground at 20°C	
1 x 25	9.9	12.3	19.9	23.0	138	144	1 185
1 x 35	10.9	13.3	20.9	24.1	169	174	1 340
1 x 50	12.2	14.6	22.1	25.5	207	206	1 550
1 x 70	14.0	16.4	23.9	27.4	268	254	1 865
1 x 95	15.9	18.3	25.8	29.4	328	301	2 250
1 x 120	17.5	20.1	27.5	31.4	382	343	2 665
1 x 150	19.3	21.9	29.5	33.5	441	387	3 070
1 x 185	21.6	24.4	32.1	36.4	506	434	3 700
1 x 240	24.2	27.2	35.6	40.2	599	501	4 630
1 x 300	26.6	29.6	38.2	43.0	693	565	5 405
1 x 400	30.4	33.6	42.5	47.7	825	732	6 710
1 x 500	33.9	37.3	47.5	53.2	946	825	8 360
1 x 630	38.3	41.9	52.6	58.7	1 088	932	10 360
2 x 1.5*	7.8	10.2	16.7	19.6	26	37	1 000
2 x 1.5	8.1	10.5	17.0	19.9	26	37	1 025
2 x 2.5*	8.5	10.9	17.4	20.3	36	48	1 080
2 x 2.5	9.0	11.4	17.9	20.9	36	48	1 140
2 x 4*	9.4	11.8	18.3	21.3	49	63	1 205
2 x 4	10.2	12.6	19.1	22.1	49	63	1 290
2 x 6	10.9	13.3	19.8	22.9	63	80	1 390
2 x 10	12.7	15.1	21.5	24.8	86	104	1 655
2 x 16	14.7	17.1	24.2	27.7	115	136	2 115
2 x 25	18.0	20.4	27.4	31.2	149	173	2 685
2 x 35	20.0	22.4	29.6	33.6	185	208	3 105
2 x 50	22.6	25.2	33.5	37.9	225	247	4 045
2 x 70	26.2	29.0	37.6	42.4	289	304	5 065
2 x 95	30.4	33.4	42.3	47.5	352	360	6 380
2 x 120	33.6	36.8	47.0	52.6	410	410	7 980
2 x 150	37.2	40.6	51.1	57.1	473	463	9 350
2 x 185	42.2	45.8	56.6	63.1	542	518	11 300
2 x 240	47.4	51.4	62.7	69.8	641	598	13 945
2 x 300	52.6	56.8	68.6	76.2	741	677	16 595
3 x 1.5*	8.2	10.6	17.1	20.0	23	31	1 050
3 x 1.5	8.5	10.9	17.4	20.3	23	31	1 085
3 x 2.5*	9.0	11.4	17.9	20.9	31	41	1 155
3 x 2.5	9.5	11.9	18.4	21.4	31	41	1 205
3 x 4*	10.0	12.4	18.9	21.9	42	53	1 285
3 x 4	10.8	13.2	19.7	22.8	42	53	1 375
3 x 6	11.6	14.0	20.5	23.6	54	66	1 500
3 x 10	13.5	15.9	23.0	26.4	75	87	1 940
3 x 16	15.7	18.1	25.2	28.8	100	113	2 335
3 x 25	19.3	21.7	28.9	32.8	127	144	3 015
3 x 35	21.4	24.0	31.1	35.3	158	174	3 610
3 x 50	24.2	27.0	35.5	40.0	192	206	4 700
3 x 70	28.5	31.5	40.3	45.3	246	254	6 060
3 x 95	32.6	35.8	46.0	51.6	298	301	8 000
3 x 120	36.1	39.5	49.9	55.7	346	343	9 405
3 x 150	40.4	44.0	54.9	61.2	395	387	11 235
3 x 185	45.3	49.1	60.2	67.1	450	434	13 430
3 x 240	51.4	55.6	67.4	74.9	538	501	16 800
3 x 300	56.5	60.9	73.0	81.0	621	565	19 895

Product on request

x: without green/yellow core

*Class 1

3 cores on request : with green/yellow core

IEC 60502-1 - Armoured (LC-SWA) Power & Control cables

Cables (mm²)	Inner Sheath Diameter	Lead Pipe Diameter	Outer diameter		Permissible current rating (A)		Weight (kg/km)
			Min.	Max.	in air at 30°C	underground at 20°C	
4 x 1.5*	8.9	11.3	17.8	20.8	19	26	1 125
4 x 1.5	9.3	11.7	18.2	21.2	19	26	1 160
4 x 2.5*	9.8	12.2	18.7	21.7	26	34	1 250
4 x 2.5	10.4	12.8	19.3	22.4	26	34	1 310
4 x 4*	10.9	13.3	19.8	22.9	35	44	1 400
4 x 4	11.9	14.3	20.8	24.0	35	44	1 515
4 x 6	12.7	15.1	22.2	25.6	45	55	1 800
4 x 10	14.9	17.3	24.4	27.9	63	73	2 170
4 x 16	17.3	19.7	26.7	30.5	84	95	2 645
4 x 25	21.3	23.9	31.0	35.2	106	121	3 545
4 x 35	23.7	26.3	34.8	39.3	133	146	4 475
4 x 50	26.9	29.9	38.7	43.5	161	173	5 620
4 x 70	31.6	34.8	43.7	49.0	206	213	7 225
4 x 95	36.2	39.6	50.0	55.9	250	253	9 520
4 x 120	40.5	44.1	55.0	61.3	291	288	11 430
4 x 150	44.9	48.7	60.1	66.9	332	325	13 545
4 x 185	50.4	54.6	66.2	73.6	378	364	16 450
4 x 240	57.1	61.7	74.0	82.1	452	420	20 590
4 x 300	62.9	67.7	82.7	91.6	522	474	25 830
5 G 1.5*	9.7	12.1	18.6	21.6	19	26	1 215
5 G 1.5	10.1	12.5	19.0	22.0	19	26	1 255
5 G 2.5*	10.7	13.1	19.6	22.7	26	34	1 360
5 G 2.5	11.4	13.8	20.3	23.4	26	34	1 420
5 G 4*	11.9	14.3	20.8	24.0	35	44	1 545
5 G 4	13.0	15.4	21.8	25.1	35	44	1 660
5 G 6	13.9	16.3	23.4	26.9	45	55	1 980
5 G 10	16.4	18.8	25.8	29.5	63	73	2 410
5 G 16	19.1	21.5	28.7	32.6	84	95	3 005
5 G 25	23.5	26.1	34.4	38.8	106	121	4 315
5 G 35	26.2	29.0	37.4	42.2	133	146	5 215
5 G 50	30.1	33.1	42.0	47.2	161	173	6 535
5 G 70	35.0	38.4	48.8	54.6	206	213	8 975
5 G 95	40.5	44.1	55.0	61.3	250	253	11 365
5 G 120	44.9	48.7	59.8	66.6	291	288	13 495
5 G 150	49.7	53.9	65.5	72.9	332	325	16 175
5 G 185	56.3	60.7	72.8	80.8	378	364	19 570
5 G 240	63.3	68.1	83.3	92.2	452	420	25 785
5 G 300	70.2	75.4	91.2	100.9	522	474	30 975

Product on request
x: without green/yellow core
*Class 1

4 cores on request : with green/yellow core
5 cores on request : with green/yellow core

IEC 60502-1 - Armoured (LC-SWA) Power & Control cables

Cables (mm²)	Inner Sheath Diameter (mm)	Lead Pipe (mm)	Outer diameter		Permissible current rating (A)		Weight (kg/km)
			Min.	Max.	in air at 30°C	underground at 20°C	
7 x 1.5	10.8	13.2	19.7	22.8	17	24	1 340
10 x 1.5	13.8	16.2	23.3	26.8	14	20	1 830
12 x 1.5	14.3	16.7	23.8	27.3	13	18.5	1 895
14 x 1.5	15.0	17.4	24.5	28.0	12	17	1 995
19 x 1.5	16.8	19.2	26.2	30.0	10.5	15	2 255
24 x 1.5	19.7	22.1	29.3	33.3	9	13	2 675
27 x 1.5	20.2	22.6	29.8	33.8	9	12	2 765
30 x 1.5	20.9	23.5	30.7	34.8	8.5	11.5	3 005
37 x 1.5	22.7	25.3	33.6	38.0	7.5	10.5	3 570
7 x 2.5	12.2	14.6	21.0	24.3	24	31	1 530
10 x 2.5	15.7	18.1	25.2	28.8	19.5	26	2 110
12 x 2.5	16.2	18.6	25.7	29.3	18	24	2 185
14 x 2.5	17.1	19.5	26.5	30.3	16	22	2 335
19 x 2.5	19.2	21.6	28.7	32.6	14.5	19	2 690
24 x 2.5	22.6	25.2	32.7	37.0	13	17	3 330
27 x 2.5	23.1	25.7	34.0	38.4	12	16	3 680
30 x 2.5	23.9	26.5	35.0	39.5	11.5	15	3 935
37 x 2.5	26.0	28.8	37.2	41.9	10.5	14	4 425
3 x 25+1 x 16	20.5	22.9	30.1	34.1	107	121	3 285
3 x 35+1 x 16	22.4	25.0	32.3	36.6	133	146	3 880
3 x 50+1 x 25	25.7	28.5	36.9	41.6	161	173	5 135
3 x 70+1 x 35	30.1	33.1	42.0	47.2	207	213	6 595
3 x 95+1 x 50	34.4	37.6	48.0	53.7	250	253	8 705
3 x 120+1 x 70	38.4	41.8	52.5	58.6	291	288	10 440
3 x 150+1 x 70	42.2	45.8	56.6	63.1	332	325	12 130
3 x 185+1 x 95	47.6	51.6	62.9	70.0	378	365	14 885
3 x 240+1 x 120	53.8	58.0	69.8	77.5	452	421	18 300
3 x 300+1 x 150	59.3	63.9	78.8	87.3	522	475	23 280
3 x 300+1 x 185	60.4	65.0	79.8	88.5	522	475	23 905

Product on request

x: without green/yellow core

• Minimum bending radius
= 1 core: 8 x outer diameter[1]
= multicores: 10 x outer diameter[1]

[1] to be doubled during laying operations

U - 1000 RGPFV - RH/ARGPFV - RH Armoured (LC-STA) Power and Control cables

Applications

0.6/1kV

Fixed to walls or on cable trays.
Passages through walls.
Underground mechanical protection.
Installation on grounds subject to being flooded, even if continously.
Oil and petrochimical industries: owing to the lead pipe, this type of cable may be installed in refineries, even if liable to contact with aromatic hydrocarbons.

Max core temperature: 90 °C

Design

1. Conductor
Stranded or solid bare copper or stranded aluminium.
Class 1 or class 2

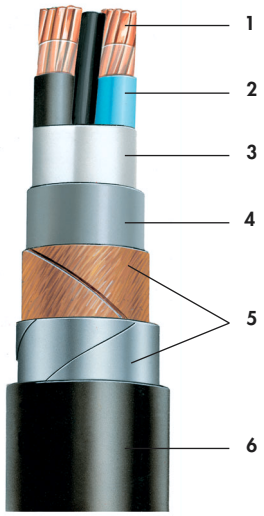
2. Insulation
XLPE
(cross-linked polyethylene)

3. Inner sheath
An inner sheath acting as a filler a elastic material

4. Lead covering

5. Armour
Paraffin-waxed crepe paper steel tape armour (STA)

6. Outer sheath
PVC
(polyvinyl chloride)
Colour: black



Marking

Factory number
U-1000 RGPFV-RH
n(G or x)S mm² - NF USE
Other marking on request

Core Identification

1 core: black
2 cores: black - light-blue
3 cores: black - light-blue - green/yellow
4 cores: black - light-blue - brown - green/yellow
5 cores: black - light-blue - brown - black - green/yellow
≥ 7 cores: printed numbers.

Standards

NFC 32-070-C2
IEC 60332.1
NF C 32-111

Flame retardant NF C 32-070-C2 IEC 60332.1	Good	Oil resistant Aliphalic hydrocarbons	-20°C + 60°C

U - 1000 RGPFV - RH - Armoured (LC-STA) Power & Control cables

Cables (mm²)	Lead Pipe (mm)	Outer diameter		Permissible current rating (A)		Weight (kg/km)
		Min.	Max.	in air at 30°C	underground at 20°C	
2 x 1.5	8.8	13.0	14.5	26	37	505
2 x 2.5	9.5	13.7	15.2	36	48	565
2 x 4	10.4	16.2	18.0	49	63	805
2 x 6	12.1	17.9	19.9	63	80	1 000
2 x 10	13.9	19.8	22.1	86	104	1 210
2 x 16	16.1	22.0	24.5	115	136	1 545
2 x 25	20.0	26.1	29.0	149	173	2 125
2 x 35	22.0	28.1	31.3	185	208	2 500
2 x 50	25.2	31.5	35.0	225	247	3 140
2 x 70	29.0	35.3	39.2	289	304	4 020
2 x 95	33.0	41.0	45.6	352	360	5 535
2 x 120	36.4	45.5	49.5	410	410	6 580
2 x 150	40.2	48.6	54.0	473	463	7 800
2 x 185	45.0	53.5	59.5	542	518	9 385
2 x 240	50.6	59.2	65.9	641	598	11 705
3 G 1.5	9.2	13.4	14.9	26	37	545
3 G 2.5	10.0	15.7	17.5	36	48	755
3 G 4	11.2	17.0	18.9	49	63	915
3 G 6	12.8	18.6	20.7	63	80	1 095
3 G 10	14.8	20.6	22.9	86	104	1 350
3 G 16	17.1	23.2	25.8	115	136	1 755
3 G 25	21.3	27.4	30.5	149	173	2 490
3 x 35	24.1	30.3	33.7	158	174	3 050
3 x 50	27.1	33.4	37.2	192	206	3 780
3 x 70	31.2	37.5	41.7	246	254	4 870
3 x 95	35.5	43.6	48.5	298	301	6 680
3 x 120	39.1	47.3	52.6	346	343	7 980
3 x 150	43.2	51.6	57.4	395	387	9 460
3 x 185	48.4	56.9	63.3	450	434	11 455
3 x 240	54.4	63.1	70.1	538	501	14 350
4 G 1.5	10.0	15.6	17.4	23	31	755
4 G 2.5	11.1	16.9	18.8	31	41	880
4 G 4	12.2	18.0	20.0	42	53	1 015
4 G 6	14.0	19.8	22.1	54	66	1 245
4 G 10	16.8	22.6	25.1	75	87	1 645
4 G 16	19.4	25.4	28.2	100	113	2 150
4 G 25	23.6	29.8	33.1	127	144	2 950
4 x 35	26.4	32.5	36.2	133	146	3 600
4 x 50	29.9	36.4	40.4	161	173	4 585
4 x 70	34.5	42.6	47.4	206	213	6 425
4 x 95	39.3	47.5	52.8	250	253	8 030
4 x 120	43.4	51.8	57.6	291	288	9 745
4 x 150	47.9	56.6	63.0	332	325	11 615
5 G 1.5	11.0	16.8	18.7	19	26	855
5 G 2.5	12.0	17.8	19.8	26	34	975
5 G 4	13.2	19.1	21.2	35	44	1 140
5 G 6	15.4	21.3	23.7	45	55	1 440
5 G 10	18.2	24.2	26.9	63	73	1 875
5 G 16	21.1	27.2	30.3	84	95	2 450
5 G 25	26.2	32.3	36.0	106	121	3 445
3 x 50 + 35	29.0	35.2	39.2	161	173	4 300
3 x 70 + 35	32.6	40.6	45.2	206	213	5 815
3 x 70 + 50	33.3	41.2	45.8	206	213	6 000
3 x 95 + 50	37.1	45.3	50.4	250	253	7 335
3 x 120 + 70	41.3	49.5	55.1	291	288	8 900
3 x 150 + 70	44.9	53.3	59.2	332	325	10 340
3 x 185 + 70	49.5	58.1	64.6	378	364	12 240
3 x 240 + 70	55.8	64.6	71.9	452	420	15 430

Product on request

x: without green/yellow core

U - 1000 ARGPFV - RH - Armoured (LC-STA) Power & Control cables

Cables (mm²)	Lead Pipe (mm)	Outer diameter		Permissible current rating (A)		Weight (kg/km)
		Min.	Max.	in air at 30°C	underground at 20°C	
2 x 35	22.0	28.1	31.2	135	160	2 065
2 x 50	25.2	31.4	34.9	164	188	2 545
2 x 70	29.0	35.2	39.2	211	233	2 955
2 x 95	33.0	41.0	45.6	257	275	4 455
2 x 120	36.4	44.5	49.5	300	314	5 165
2 x 150	40.2	48.6	54.0	346	359	6 075
2 x 185	45.0	53.5	59.5	397	398	7 205
2 x 240	50.6	59.2	65.9	470	458	8 900
3 x 35	24.1	30.2	33.6	120	134	2 420
3 x 50	27.1	33.4	37.1	146	160	2 930
3 x 70	31.2	37.5	41.7	187	197	3 645
3 x 95	35.5	43.6	48.5	227	234	4 985
3 x 120	39.1	47.3	52.6	263	266	5 825
3 x 150	43.2	51.6	57.4	304	300	6 830
3 x 185	48.4	56.9	63.3	347	337	8 115
3 x 240	34.4	63.1	70.1	409	388	9 945
4 x 35	26.4	32.5	36.1	101	112	2 760
4 x 50	29.9	36.3	40.4	122	134	3 450
4 x 70	34.5	42.6	47.5	157	165	4 790
4 x 95	39.3	47.5	52.8	190	196	5 770
4 x 120	43.4	51.8	57.6	221	223	6 870
4 x 150	47.9	56.6	63.1	255	252	8 065
3 x 50 + 35	29.0	35.2	39.2	122	134	3 245
3 x 70 + 35	32.6	40.6	45.2	157	165	4 380
3 x 70 + 50	33.3	41.2	45.8	157	165	4 495
3 x 95 + 50	37.1	45.3	50.4	190	196	5 355
3 x 120 + 70	41.3	49.5	55.1	221	223	6 340
3 x 150 + 70	44.9	53.3	59.2	255	252	7 275
3 x 185 + 70	49.5	58.1	64.6	291	283	8 500
3 x 240 + 95	55.8	64.6	71.9	343	326	10 470

Product on request

x: without green/yellow core

• Minimum bending radius
= 1 core: 9 x outer diameter[1]

[1] to be doubled during laying operations

G.V.S - RH
Power and Control flexible cables

Applications

0.6/1 kV

For moving body or collapsible connections (CNC machine, engines, pumps,...), material subject to vibrations. For oil and gas industries where hydrocarbons may be present.

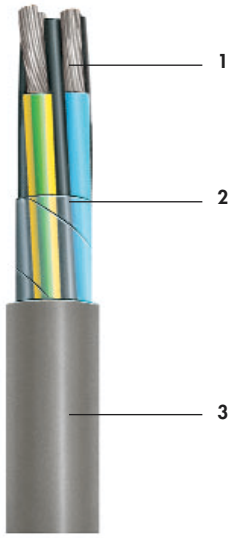
Max core temperature: 70 °C

Design

1. Conductor
Tinned copper
Flexible stranded
Class 5

2. Insulation
PVC
(polyvinyl chloride)

3. Outer sheath
PVC
(polyvinyl chloride)
Colour: grey



Marking

Manufacturer's name
G.V.S - RH - 1000V
n x S mm^2
Other marking on request

Core Identification

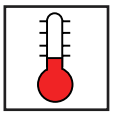
1 core: black
2 cores: light-blue - brown
3 cores: light-blue - brown - green/yellow
4 cores: black - light-blue - brown - green/yellow
5 cores: light-blue - brown - black - black - green/yellow
≥ 7 cores: printed numbers.

Standards

NFC 32-070-C2
IEC 60332.1

Flame retardant
NF C 32-070-C2
IEC 60332.1

Oil resistant
Aliphalic hydrocarbons


Fixed installation:
-20°C + 60°C

G.V.S - RH - Power & Control flexible cables

Cables (mm²)	Nominal Diameter (mm²)	Permissible current rating (A) in air at 30°C	Weight (approx) (kg/km)
2 x 0.75	6.4	13.5	60
2 x 1	6.8	15.0	80
2 x 1.5	7.6	22.0	100
2 x 2.5	9.2	30.0	150
2 x 4	10.4	40.0	180
2 x 6	11.8	51.0	235
2 x 10	15.4	70.0	430
2 x 16	17.2	94.0	575
2 x 25	21.4	119.0	885
3 G 0.75	6.8	13.5	75
3 G 1	7.2	15.0	90
3 G 1.5	8.3	22.0	120
3 G 2.5	10.0	30.0	180
3 G 4	11.3	40.0	245
3 G 6	12.8	51.0	300
3 G 10	16.6	70.0	540
3 G 16	18.6	94.0	730
3 G 25	23.1	119.0	1 150
4 G 0.75	7.4	12.0	85
4 G 1	8.1	13.5	110
4 G 1.5	9.1	18.5	145
4 G 2.5	11.2	25.0	225
4 G 4	12.6	34.0	305
4 G 6	14.0	43.0	410
4 G 10	18.4	60.0	675
4 G 16	20.8	80.0	935
4 G 25	25.5	101.0	1 410
5 G 0.75	8.3	12.0	115
5 G 1	8.8	13.5	135
5 G 1.5	10.1	15.5	180
5 G 2.5	12.2	21.0	270
5 G 4	13.9	29.0	340
5 G 6	15.5	36.0	500
5 G 10	20.4	50.0	815
5 G 16	23.0	67.0	1 150
5 G 25	28.5	85.0	1 750

Product on request

x: without green/yellow core

• Minimum bending radius
= 1 core: 5 x outer diameter[1]

[1] to be doubled during laying operations

Nexans

3 - Instrumentation

NOISE REDUCTION

In industrial process control systems the use of computers and other sensitive electronic apparatus necessitates connections that are technically designed for the purpose of picking up and abating noises to be found in instrumentation electronic circuits.These types of noise are four in number: static, magnetic, common mode and crosstalk.

Static Noise:

The electric fields generated by the radiation from high voltage lines and other potential sources surrounding an industrial installation are capacitatively coupled with the wires of an instrumentation circuit. To remove the coupling between the external potantial sources and the instrumentation circuit, the most efficient means consist in placing an electrostatic screen around the connection cable. For the static noise rejection, better results have been obtained with an aluminium tape shielding rather than with a copper braid or parallel copper wire shieldings.

Magnetic Noise:

Industrial installations are infested with unwanted magnetic fields. Where a current flows through a conductor a magnetic field will radiate around it. All power transmission lines, all motors, relays, generators will radiate magnetic fields of variable strengths.Since the conductors of a pair form a loop, a current will be induced into the loop so as to oppose the unwanted magnetic field. This current produces a noise voltage which is superimposed on the voltage conveyed by the instrumentation cable. Two means may be used to abate this noise. The first consists in laying the cable within a rigid steel conduit, which is not always easy and is expensive. The second consists in twisting together the wires of a pair with a short length of lay. Every magnetic field which influences the pair tends to be cancelled by the adjacent loops, since the currents induced to the loops adjacent to each wire are in an opposite direction. The abatement of the magnetic noise is the more important as the length of lay is shorter.

Common Mode Noise:

The noises considered in the first two paragraphs (static and magnetic) are generated outside the instrumentation circuit. The common mode noise is different since it results from the electrical connections of the circuit itself. If originates from the fact that the different parts of an industrial installation are at different earth potentials, which may vary between 1 V. and 10 V. The common mode noise is particularly troublesome in thermal convertor circuits, most of which are now of the earthed type. Though the manufacturers of recorders and computers have preferred input devices of the differential type without any earthed terminal, which leads to a rejection of common mode signals of about 100 dB, there nevertheless subsits a phenomenon which arises in another way within the circuit of the thermal convertor.In order to prevent this, the cable should be shielded. The earthing of this shielding should be made abreast of the thermal convertor and not in the testing room. It results from this that the shielding is kept at the same earth potential as the thermocouple and no load current or common mode noise are produced. If multipair cables are used, between a connection box and the testing room, the pairs shall be shielded. The continuity of the shielding in the connection box should be ensured. The only earthing shall be that abreast of the thermal convertor.

Crosstalk:

When pulsating D.C. signals or A.C. signals are transmitted on a pair of multipair cables, the signal tends to be superimposed on the signals of adjacent pairs. This phenomenon is called CROSSTALK.

Two means may be used to abate this noise. The first consists of supplying each pair through transformers at each end in order to isolate the considered pair from the earths which may exist The middle taps of transformers at each end are earthed. This symmetrical system is suitable for the transmission of D.C. signals The second means, of a more general application, consists of shielding the pairs separately and earthing the shieldings, in order to insulate the pairs from each other. In this case it is of no importance whether circuits are symmetrical or not and accordingly it is easy to transmit D.C. as well as A.C. signals.

STANDARD: AFNOR NF M 87 202

General

These very low voltage cables are used for AC or DC signal transmission. They are PVC/PVC types and can be non-armoured, armoured or lead-sheathed and armoured.
- non-armoured cables are used in environments where there is no risk of mechanical deterioration.
- armoured cables are used in environments where there is a risk of mechanical deterioration.
- Lead-sheathed armoured cables are used in environments where it may be exposed to aromatic hydrocarbons.

Note : In all these cable types the watertight protective sheath are made of a special aliphatic hydrocarbon resistant PVC.

Designation and codes

In order :
- Two numbers corresponding to the number of pairs, triads or quads
- Two letters defining whether the cable is made up of pairs (IP), triads (IT) or quads (IQ)
- Two numbers corresponding to the conductor cross-sectional area :

AFNOR NF M 87-202

09 : 0.88sqmm (7 x 0.40mm)
05 : 0.5sqmm (1 x 0.80mm)

Derived from AFNOR NF M 87-202

15 : 1.5sqmm class 2

•Two letters describing the screening:

EG : Collective screen (over the complete assembly of all pairs, triads or quads)
EI : Individual screen (over each individual pair, triad or quad)

Individual screens are insulated by a PVC sheath and also include a collective screen.

•Two letters indicating the outer covering:

SF : Non-armoured with PVC outer sheath

FA : Armoured - PVC sheath, paraffin crepe paper bedding (optional), double steel tape armour, PVC outer sheath.

PF : Lead-sheathed and armoured – PVC sheath, lead tube, paraffin crepe paper bedding), double steel tape armour, PVC outer sheath.

Intrinsec Security

According to the present Intrinsic Security standards these cables conform to NF C 23-539 and EN 50 039.

CORE IDENTIFICATION 05 - 09 - 15

Formations	Conductors	
Pair	white + red	
Multipair EG	white conductor with number of the pair	
Triple	white + red + blue	
Multitriple EG	white conductor with number of the triple	
Quad	white + red + blue + yellow	
Multipair EI	white + red	Blue outer sheath with number of the pair or the triple
Multitriple EI	white + red + blue	

ELECTRICAL DATA

Serie	Maximum Voltage V	Voltage Test V	DC Lineic resistance at 20°C Ω/km	Self Inductance mH/km		Capacitance between cond. nF/km
				No Armoured	Armoured	
05	250	2000	37.5	0.33	0.38	≤145
09	250	2000	21.4	0.31	0.36	≤160
15	250	2000	12.1	0.31	0.36	≤150

AFNOR NF M 87-202
Collective Screen
Single Pair/Triple/Quad cables

Applications

250V

Instrumentation
Communication
Transmission of analogue or digital signals in measurement and process control where hydrocarbons may be present.

Max core temperature: 70 °C

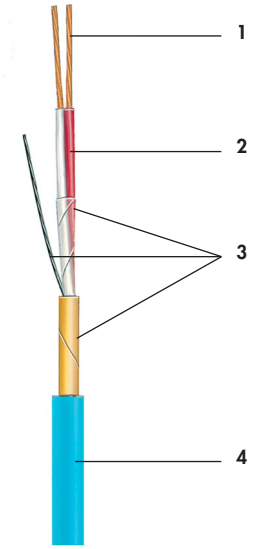
Design

1. Conductor
Stranded copper 0.88 mm²
(7 x 0.40 mm)

2. Insulation
PVC
(polyvinyl chloride)

3. Screen
Polyester tape
Drain tinned copper wire
Aluminium/Polyester tape

4. Outer sheath
PVC
(polyvinyl chloride)
Colour: light-blue



Marking

Manufacturer's name
n x S mm² - construction
+ Metric Marking

Core Identification

Pair: white - red
Triple: white - red - blue
Quad: white - red - blue - yellow

Standards

AFNOR NF M 87-202
NF C 32-070-C2

Flame retardant
NF C 32-070-C2

Oil resistant
Aliphalic hydrocarbons

-40 °C + 65 °C

EMI

AFNOR NF M 87-202 - Collective Screen - Single Pair/Triple/Quad cables

Section and Type of cables (mm^2)	Outer Diameter		Weight (kg/km)
	Minimum	Maximum	
01 - IP - 09 - EG - SF	6.1	7.2	65
01 - IT - 09 - EG - SF	6.4	7.5	80
01 - IQ - 09 - EG - SF	7.0	8.2	90

Stocked products

- Minimum bending radius = 9 x outer diameter

AFNOR NF M 87-202
Collective Screen
Multipair/Multitriple cables

Applications

250 V

Instrumentation
Communication
Transmission of analogue or digital signals in measurement and process control where hydrocarbons may be present.

Max core temperature: 70 °C

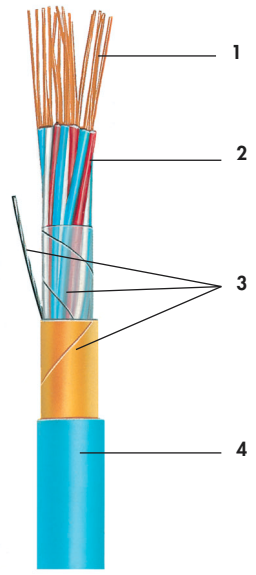
Design

1. Conductor
Solid copper 0.50 mm²
(1 x 0.80 mm) or
Stranded 0.88 mm²
(7 x 0.40 mm)

2. Insulation
PVC
(polyvinyl chloride)

3. Screen
Polyester tape
Drain tinned copper wire
Aluminium/Polyester tape

4. Outer sheath
PVC
(polyvinyl chloride)
Colour: light-blue



Marking

Manufacturer's name
n x S mm² - construction
+ Metric Marking

Core Identification

Pair: white - red
Triple: white - red - blue
white cores printed with pair or triple number

Standards

AFNOR NF M 87-202
NF C 32-070-C2

Flame retardant
NF C 32-070-C2

Oil resistant
Aliphalic hydrocarbons

-40 °C +65 °C

EMI

AFNOR NF M 87-202 - Collective Screen - Multipair/Multitriple cables

Section and Type of cables (mm^2)	Outer Diameter		Weight (kg/km)
	Minimum	Maximum	
03 - IP - 05 - EG - SF	8.0	9.3	95
07 - IP - 05 - EG - SF	10.5	12.1	160
12 - IP - 05 - EG - SF	13.4	15.4	255
19 - IP - 05 - EG - SF	16.5	19.0	380
27 - IP - 05 - EG - SF	19.2	22.0	510
07 - IT - 05 - EG - SF	12.0	13.8	210
12 - IT - 05 - EG - SF	15.1	17.4	355
03 - IP - 09 - EG - SF	10.5	12.0	150
07 - IP - 09 - EG - SF	14.0	16.0	280
12 - IP - 09 - EG - SF	17.9	20.5	440
19 - IP - 09 - EG - SF	22.0	25.3	665
27 - IP - 09 - EG - SF	25.8	29.6	880
07 - IT - 09 - EG - SF	16.0	18.3	395
12 - IT - 09 - EG - SF	20.2	23.2	630

Products on request

- Minimum bending radius = 9 x outer diameter

AFNOR NF M 87-202
Collective Screen Armoured
Single Pair/Triple/Quad cables

Applications

250 V

Instrumentation
Communication
Transmission of analogue or digital signals in measurement and process control for direct burial in ground where hydrocarbons may be present in the soil.

Max core temperature: 70 °C

Design

1. Conductor
Stranded copper 0.88 mm²
(7 x 0.40 mm)

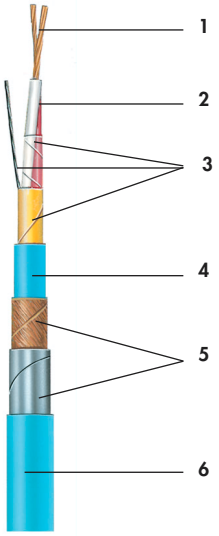
2. Insulation
PVC
(polyvinyl chloride)

3. Screen
Polyester tape
Drain tinned copper wire
Aluminium/Polyester tape

4. Inner sheath
PVC
(polyvinyl chloride)

5. Armour
Paraffin-waxed crepe paper
Double steel tape 0.2 mm thick

6. Outer sheath
PVC
(polyvinyl chloride)
Colour: light-blue



Marking

Manufacturer's name
n x S mm² - construction
+ Metric Marking

Core Identification

Pair: white - red
Triple: white - red - blue
Quad: white - red - blue - yellow

Standards

AFNOR NF M 87-202
NF C 32-070-C2

Flame retardant
NF C32-070-C2

Good

Oil resistant
Aliphatic hydrocarbons

-40 °C +65 °C

EMI

AFNOR NF M 87-202 - Collective Screen Armoured - Single Pair/Triple/Quad cables

Section and Type of cables (mm^2)	Outer Diameter (mm)		Weight (kg/km)
	Minimum	Maximum	
01 - IP - 09 - EG - FA	9.1	10.5	160
01 - IT - 09 - EG - FA	9.4	10.8	175
01 - IQ - 09 - EG - FA	10.0	11.4	195

Products on request

- Minimum bending radius
  = 9 x outer diameter

AFNOR NF M 87-202
Collective Screen Armoured Multipair/Multitriple cables

Applications

250 V

Instrumentation
Communication
Transmission of analogue or digital signals in measurement and process control for direct burial in ground where hydrocarbons may be present in the soil.

Max core temperature: 70 °C

Design

1. Conductor
Solid copper 0.50 mm²
(1 x 0.80 mm) or
Stranded 0.88 mm²
(7 x 0.40 mm)

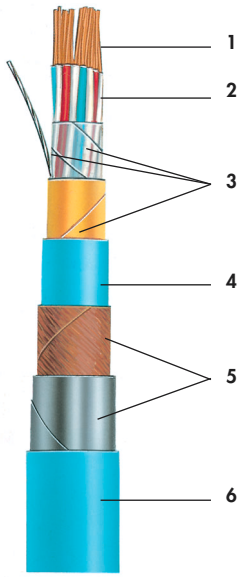
2. Insulation
PVC
(polyvinyl chloride)

3. Screen
Polyester tape
Drain tinned copper wire
Aluminium/Polyeter tape

4. Inner sheath
PVC
(polyvinyl chloride)

5. Armour
Paraffin-waxed crepe paper
Double steel tape 0.2 mm thick

6. Outer sheath
PVC
(polyvinyl chloride)
Colour: light-blue



Marking

Manufacturer's name
n x S mm² - construction
+ Metric Marking

Core Identification

Pair: white - red
Triple: white - red - blue
white cores printed with pair or triple number

Standards

AFNOR NF M 87-202
NF C 32-070-C2

Flame retardant
NF C 32070-C2

Good

Oil resistant
Aliphalic hydrocarbons

-40 °C + 65 °C

EMI

AFNOR NF M 87-202 - Collective Screen Armoured - Multipair/Multitriple cables

Section and Type of cables (mm^2)	Outer Diameter (mm)		Weight (kg/km)
	Minimum	Maximum	
03 - IP - 05 - EG - FA	10.9	12.5	215
07 - IP - 05 - EG - FA	13.6	15.6	320
12 - IP - 05 - EG - FA	16.6	19.1	465
19 - IP - 05 - EG - FA	20.0	22.9	640
27 - IP - 05 - EG - FA	22.6	25.9	810
07 - IT - 05 - EG - FA	15.2	17.4	410
12 - IT - 05 - EG - FA	18.3	21.0	590
03 - IP - 09 - EG - FA	13.5	15.5	310
07 - IP - 09 - EG - FA	17.2	19.7	475
12 - IP - 09 - EG - FA	21.3	24.4	720
19 - IP - 09 - EG - FA	25.7	29.4	1 000
27 - IP - 09 - EG - FA	29.6	34.0	1 300
07 - IT - 09 - EG - FA	19.2	22.0	625
12 - IT - 09 - EG - FA	23.7	27.1	925

Product on request

- Minimum bending radius = 9 x outer diameter

AFNOR NF M 87-202
Collective Screen Lead Covered Armoured Single Pair/Triple/Quad cables

Applications

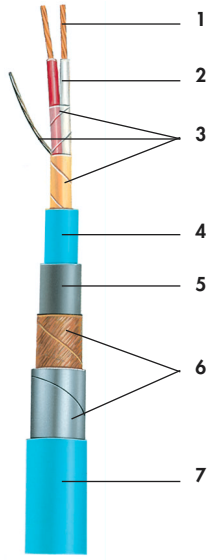
250 V

Instrumentation
Communication
Transmission of analogue or digital signals in measurement and process control for direct burial in ground, in moist areas, where chemical and mechanical protection by lead sheath and armour is required (refinery areas, chemical plants, etc...), when contact with aromatics hydrocarbons may happen.

Max core temperature: 70 °C

Design

1. **Conductor**
   Stranded 0.88 mm²
   (7 x 0.40mm)
2. **Insulation**
   PVC
   (polyvinyl chloride)
3. **Screen**
   Polyester tape
   Drain tinned copper wire
   Aluminium/Polyester tape
4. **Inner sheath**
   PVC
   (polyvinyl chloride)
5. **Lead Pipe**
6. **Armour**
   Paraffin-waxed crepe paper
   Double steel tape 0.2 mm thick
7. **Outer sheath**
   PVC
   (polyvinyl chloride)
   Colour: light-blue



Marking

Manufacturer's name
n x S mm² - construction
+ Metric Marking

Core Identification

Pair: white - red
Triple: white - red - blue
Quad: white - red - blue - yellow

Standards

AFNOR NF M 87-202
NF C 32-070-C2

Flame retardant
NF C 32-070-C2

Good

Oil resistant
Aliphalic hydrocarbons

-40 °C +65°C

EMI

AFNOR NF M 87-202 - Collective Screen Lead Covered Armoured - Single Pair/Triple/Quad cables

Section and Type of cables (mm^2)	Lead Diameter (mm)	Outer Diameter (mm)		Weight (kg/km)
		Minimum	Max	
01 - IP - 09 - EG - PF	8.8	11.7	13.4	500
01 - IT - 09 - EG - PF	9.1	12.0	13.7	530
01 - IQ - 09 - EG - PF	9.7	12.7	14.6	575

Product on request

• Minimum bending radius
= 10 x outer diameter

AFNOR NF M 87-202
Collective Screen Lead Covered Armoured Multipair/Multitriple cables

Applications

250 V

Instrumentation
Communication
Transmission of analogue or digital signals in measurement and process control for direct burial in ground, in moist areas, where chemical and mechanical protection by lead sheath and armour is required (refinery areas, chemical plants, etc...), when contact with aromatics hydrocarbons may happen.

Max core temperature: 70 °C

Design

1. Conductor
Solid copper 0.50 mm^2
(1 x 0.80 mm) or
Stranded 0.88 mm^2
(7 x 0.40mm)

2. Insulation
PVC
(polyvinyl chloride)

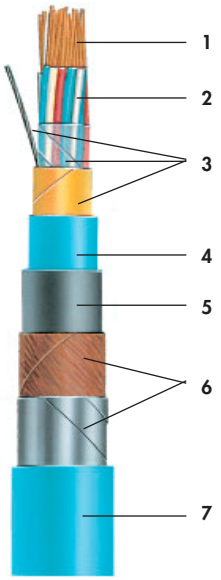
3. Screen
Polyester tape
Drain tinned copper wire
Aluminium/Polyester tape

4. Inner sheath
PVC
(polyvinyl chloride)

5. Lead Pipe

6. Armour
Paraffin-waxed crepe paper
Double steel tape 0.2 mm thick

7. Outer sheath
PVC
(polyvinyl chloride)
Colour: light-blue



Marking

Manufacturer's name
n x S mm^2 - construction
+ Metric Marking

Core Identification

Pair: white - red
Triple: white - red - blue
white cores printed with pair or triple number

Standards

AFNOR NF M 87-202
NF C 32-070-C2

Flame retardant
NF C 32-070-C2

Good

Oil resistant
Aliphalic hydrocarbons

-40 °C +65 °C

EMI

AFNOR NF M 87-202 - Collective Screen Lead Covered Armoured - Multipair/Multitriple cables

Section and Type of cables (mm^2)	Lead Diameter (mm)	Outer Diameter (mm)		Weight (kg/km)
		Minimum	Max	
03 - IP - 05 - EG - PF	10.7	13.7	15.7	635
07 - IP - 05 - EG - PF	13.3	16.3	18.7	840
12 - IP - 05 - EG - PF	16.5	19.4	22.2	1 160
19 - IP - 05 - EG - PF	20.0	22.9	26.3	1 550
27 - IP - 05 - EG - PF	23.0	25.9	29.8	1 855
07 - IT - 05 - EG - PF	15.0	18.0	20.6	1 050
12 - IT - 05 - EG - PF	18.5	21.5	24.6	1 440
03 - IP - 09 - EG - PF	13.2	16.2	18.6	825
07 - IP - 09 - EG - PF	17.1	19.9	22.9	1 205
12 - IP - 09 - EG - PF	21.4	24.2	27.8	1 740
19 - IP - 09 - EG - PF	26.0	28.8	33.0	2 300
27 - IP - 09 - EG - PF	30.2	33.0	37.8	2 910
07 - IT - 09 - EG - PF	19.4	22.3	25.6	1 525
12 - IT - 09 - EG - PF	24.1	27.0	31.0	2 145

Product on request

- Minimum bending radius = 10 x outer diameter

AFNOR NF M 87-202
Individual & Collective Screen Multipair/Multitriple cables

Applications

250 V

Instrumentation
Communication
Transmission of analogue or digital signals in measurement and process control where hydrocarbons may be present.

Max core temperature: 70 °C

Design

1. Conductor
Solid copper 0.50 mm²
(1 x 0.80 mm) or
Stranded 0.88 mm²
(7 x 0.40mm)

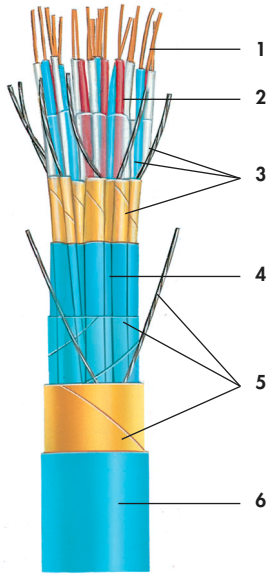
2. Insulation
PVC
(polyvinyl chloride)

3. Individual screen
Polyester tape
Drain tinned copper wire
Aluminium/Polyester tape

4. Individual sheath
PVC
(polyvinyl chloride)

5. Collective screen
Polyester tape
Drain tinned copper wire
Aluminium/Polyester tape

6. Outer sheath
PVC
(polyvinyl chloride)
Colour: light-blue



Marking

Manufacturer's name
n x S mm² - construction
+ Metric Marking

Core Identification

Cores: white - red or white - red - blue, blue individual sheath printed with pair or triple.

Standards

AFNOR NF M 87-202
NF C 32-070-C2

Flame retardant
NF C32-0707-C2

Oil resistant
Aliphalic hydrocarbons

-40 °C +65 °C

EMI

AFNOR NF M 87-202 - Individual & Collective Screen - Multipair/Multitriple cables

Section and Type of cables (mm^2)	Outer Diameter		Weight (kg/km)
	Minimum	Maximum	
03 - IP - 05 - EI - SF	11.1	12.8	180
07 - IP - 05 - EI - SF	15.4	17.7	335
12 - IP - 05 - EI - SF	19.8	22.8	545
19 - IP - 05 - EI - SF	24.5	28.1	820
27 - IP - 05 - EI - SF	28.9	33.2	1 135
07 - IT - 05 - EI - SF	16.9	19.4	425
12 - IT - 05 - EI - SF	21.4	24.5	680
03 - IP - 09 - EI - SF	13.5	15.5	270
07 - IP - 09 - EI - SF	19.0	21.8	500
12 - IP - 09 - EI - SF	24.5	28.1	820
19 - IP - 09 - EI - SF	30.3	34.8	1 120
27 - IP - 09 - EI - SF	35.8	41.1	1 700
07 - IT - 09 - EI - SF	20.9	24.0	655
12 - IT - 09 - EI - SF	26.5	30.4	1 050

Product on request

- Minimum bending radius = 9 x outer diameter

AFNOR NF M 87-202
Individual & Collective Screen Armoured Multipair/Multitriple cables

Applications

250 V

Instrumentation
Communication
Transmission of analogue or digital signals in measurement and process control for direct burial in ground where hydrocarbons may be present in the soil.

Max core temperature: 70 °C

Design

1. Conductor
Solid copper 0.50 mm²
(1 x 0.80 mm) or
Stranded 0.88 mm
(4 x 0.40 mm)

2. Insulation
PVC
(polyvinyl chloride)

3. Individual screen
Polyester tape
Drain tinned copper wire
Aluminium/Polyester tape

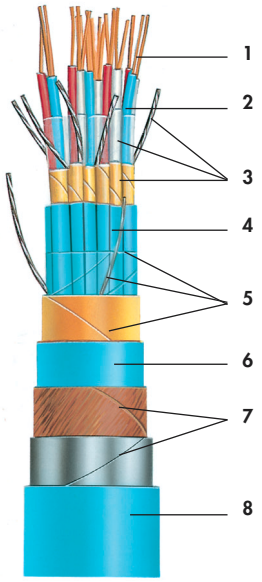
4. Individual sheath
PVC (polyvinyl chloride)

5. Collective screen
Polyester tape
Drain tinned copper wire
Aluminium/Polyester tape

6. Inner sheath
PVC
(polyvinyl chloride)

7. Armour
Paraffin-waxed crepe paper
(optional)
Double steel tape 0.2 mm thick

8. Outer sheath
PVC
(polyvinyl chloride)
Colour: light-blue



Marking

Manufacturer's name
n x S mm² - construction
+ Metric Marking

Core Identification

Cores: white - red or white -red - blue, blue individual sheath printed with pair or triple.

Standards

AFNOR NF M 87-202
NF C 32-070-C2

Flame retardant
NF C 32-070-C2

Good

Oil resistant
Aliphatic hydrocarbons

-40 °C +65 °C

EMI

AFNOR NF M 87-202 - Individual & Collective Screen Armoured - Multipair/Multitriple cables

Section and Type of cables (mm^2)	Outer Diameter		Weight (kg/km)
	Minimum	Maximum	
03 - IP - 05 - EI - FA	14.2	16.2	365
07 - IP - 05 - EI - FA	18.6	21.4	570
12 - IP - 05 - EI - FA	23.3	26.7	850
19 - IP - 05 - EI - FA	28.1	32.3	1 210
27 - IP - 05 - EI - FA	32.8	37.6	1 600
07 - IT - 05 - EI - FA	20.3	23.3	690
12 - IT - 05 - EI - FA	25.0	28.7	1 025
03 - IP - 09 - EI - FA	16.7	19.2	470
07 - IP - 09 - EI - FA	22.4	25.2	800
12 - IP - 09 - EI - FA	28.1	32.3	1 185
19 - IP - 09 - EI - FA	34.1	39.1	1 720
27 - IP - 09 - EI - FA	39.8	45.7	2 285
07 - IT - 09 - EI - FA	24.3	27.9	960
12 - IT - 09 - EI - FA	30.3	34.8	1 470

Product on request

• Minimum bending radius
= 9 x outer diameter

AFNOR NF M 87-202
Ind. & Collective Screen Lead Covered Armoured Multipair/Multitriple cables

Applications

250 V

Instrumentation
Communication
Transmission of analogue or digital signals in measurement and process control for direct burial in ground, in moist areas, where chemical and mechanical protection by lead sheath and armour is required (refinery areas, chemical plants, etc...), hydrocarbons may be present in the soil.

Max core temperature: 70 °C

Design

1. Conductor
Solid copper 0.50 mm²
(1 x 0.80 mm) or
Stranded 0.88 mm²
(7 x 0.40 mm)

2. Insulation
PVC
(polyvinyl chloride)

3. Individual screen
Polyester tape
Drain tinned copper wire
Aluminium/Polyester tape

4. Individual sheath
PVC
(polyvinyl chloride)

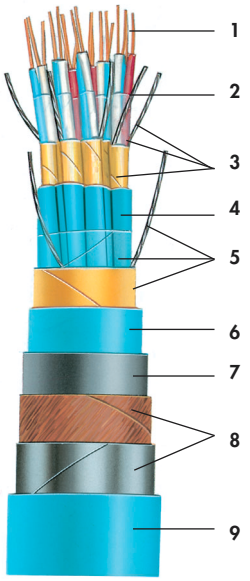
5. Collective screen
Polyester tape
Drain tinned copper wire
Aluminium/Polyester tape

6. Inner sheath
PVC
(polyvinyl chloride)

7. Lead Pipe

8. Armour
Paraffin-waxed crepe paper
Double steel tape 0.2 mm thick

9. Outer sheath
PVC
(polyvinyl chloride)
Colour: light-blue



Marking

Manufacturer's name
n x S mm² - construction
+ Metric Marking

Core Identification

Cores: white - red or white - red - blue, blue individual sheath printed with pair or triple.

Standards

AFNOR NF M 87-202
NF C 32-070-C2

Flame retardant
NF C32-070-C2

Good

Oil resistant
Aliphalic hydrocarbons

-40 °C +65 °C

EMI

AFNOR NF M 87-202 - Ind. & Coll. Screen Lead Covered Armoured - Multipair/Multitriple cables

Section and Type of cables (mm^2)	Lead Diameter (mm)	Outer Diameter (mm)		Weight (kg/km)
		Minimum	Max	
03 - IP - 05 - EI - PF	14.1	17.1	19.6	950
07 - IP - 05 - EI - PF	18.8	21.8	25.0	1 450
12 - IP - 05 - EI - PF	23.7	26.6	30.5	2 025
19 - IP - 05 - EI - PF	28.8	31.6	36.3	2 745
27 - IP - 05 - EI - PF	33.7	36.5	41.9	3 400
07 - IT - 05 - EI - PF	20.4	23.3	26.7	1 620
12 - IT - 05 - EI - PF	25.3	28.1	32.3	2 270
03 - IP - 09 - EI - PF	16.6	19.5	22.3	1 170
07 - IP - 09 - EI - PF	22.6	25.4	29.1	1 810
12 - IP - 09 - EI - PF	28.8	31.6	36.3	2 745
19 - IP - 09 - EI - PF	35.1	37.8	43.4	3 770
27 - IP - 09 - EI - PF	41.3	43.9	50.4	4 910
07 - IT - 09 - EI - PF	24.8	27.6	31.7	2 195
12 - IT - 09 - EI - PF	31.1	33.8	38.8	3 220

Product on request

- Minimum bending radius
  10 x outer diameter

BS 5308 - Part 1 / Type 1
Collective Screen

Applications

300/500 V

Instrumentation
Communication
Transmission of analogue or digital signals in measurement and process control for direct burial in ground.

Max core temperature: 70 °C

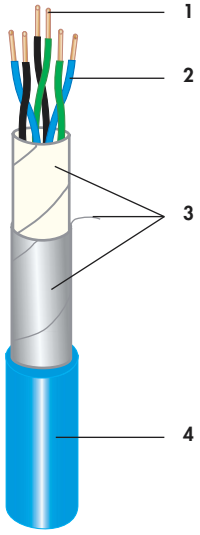
Design

1. Conductor
Solid, stranded or flexible bare copper

2. Insulation
PE
(polyethylene)

3. Screen
Aluminium-Mylar tape,
Tinned copper stranded drain wire

4. Outer sheath
PVC
(polyvinyl chloride)
Colour: blue or black
Other colour on request.



Marking

Factory number
n x S mm^2 - construction - year
Others marking on request

Core Identification

According to BS 5308 Part 1. (section 2) paragraph 8
Other colour on request

Standards

BS 5308
BS 6360
BS 6234
BS 6746
Other fire performances and aliphatic hydrocarbons resistant on request

Flame retardant IEC 60332-1

Good

-20 °C + 60 °C

EMI

BS 5308 - Part 1/Type 1 - Collective Screen

Cables (mm^2)	Thickness of sheath/bedding	Diameter over sheath bedding	Nominal overall diameter (mm)	Weight approx. (kg/km)
(0.5 mm^2 - 1/0.80 mm)				
1 P 0.5	0.8	6.3	6.3	44
2 P 0.5	0.8	7.1	7.1	58
5 P 0.5	1.1	11.6	11.6	150
10 P 0.5	1.2	15.0	15.0	256
20 P 0.5	1.3	19.4	19.4	441
30 P 0.5	1.3	23.0	23.0	621
50 P 0.5	1.5	28.9	28.9	965
(0.5 mm^2 - 16/0.20 mm)				
1 P 0.5	0.8	7.0	7.0	51
2 P 0.5	0.8	7.9	7.9	66
5 P 0.5	1.1	13.1	13.1	176
10 P 0.5	1.2	17.2	17.2	299
20 P 0.5	1.3	22.3	22.3	522
30 P 0.5	1.5	26.9	26.9	752
50 P 0.5	1.7	33.9	33.9	1 257
(1.0 mm^2 - 1/1.13 mm)				
1 P 1.0	0.8	7.4	7.4	65
2 P 1.0	0.8	8.4	8.4	93
5 P 1.0	1.2	14.2	14.2	246
10 P 1.0	1.2	18.4	18.4	418
20 P 1.0	1.5	24.4	24.4	777
30 P 1.0	1.5	29.0	29.0	1 095
50 P 1.0	2.0	37.3	37.3	1 768
(1.5 mm^2 - 7/0.53 mm)				
1 P 1.5	0.8	8.3	8.3	84
2 P 1.5	0.9	9.7	9.7	122
5 P 1.5	1.2	16.4	16.4	326
10 P 1.5	1.3	21.6	21.6	577
20 P 1.5	1.5	28.5	28.5	1 058
30 P 1.5	1.7	34.3	34.3	1 524
50 P 1.5	2.0	43.6	43.6	2 435

Product on request
*** For information only**

Installation shall be postponed if the temperature is lower than -5°C.
In such a case, cables shall be stored in a room where the temperature is higher than 10°C. and at least 24 hours before unreeling. Cables shall be unreeled as soon as they are removed from the room and the usual bending radius should be increased as far as possible.

• Minimum bending radius
= 10 x outer diameter

• Temperature range
During operation from -20°C to +60°C
During installation from 0°C to +50°C

BS 5308 - Part 1 / Type 1
Individual & Collective Screen

Applications

300/500 V

Instrumentation
Communication
Transmission of analogue or digital signals in measurement and process control for direct burial in ground.

Max core temperature: 70 °C

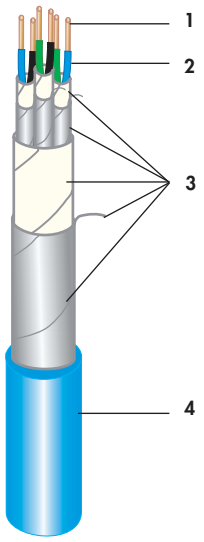
Design

1. Conductor
Solid, stranded or flexible bare copper

2. Insulation
PE
(polyethylene)

3. Screen
Individual and Collective
Aluminium-Mylar tape,
Tinned copper stranded drain wire

4. Outer sheath
PVC
(polyvinyl chloride)
Colour: blue or black
Other colour on request.



Marking

Factory number
n x S mm^2 - construction - year
Others marking on request

Core Identification

According to BS 5308 Part 1. (section 2) paragraph 8
Other colour on request

Standards

BS 5308
BS 6360
BS 6234
BS 6746
Other fire performances and aliphatic hydrocarbons resistant on request

Flame retardant IEC 60332-1

Good

-20 °C + 60 °C

EMI

BS 5308 - Part 1/Type 1 - Individual & Collective Screen

Cables (mm^2)	Thickness of sheath/bedding	Diameter over sheath bedding	Nominal overall diameter (mm)	Weight approx. (kg/km)
(0.5 mm^2 - 1/0.80 mm)				
2 P 0.5	0.9	10.3	10.3	113
5 P 0.5	1.2	13.5	13.5	196
10 P 0.5	1.2	18.3	18.3	331
20 P 0.5	1.3	23.5	23.5	584
30 P 0.5	1.5	27.9	27.9	860
50 P 0.5	2.0	36.1	36.1	1 400
(0.5 mm^2 - 16/0.20 mm)				
2 P 0.5	1.1	12.0	12.0	144
5 P 0.5	1.2	15.2	15.2	226
10 P 0.5	1.3	21.1	21.1	390
20 P 0.5	1.5	27.3	27.3	704
30 P 0.5	1.7	32.3	32.3	1 019
50 P 0.5	2.2	41.7	41.7	1 642
(1.0 mm^2 - 1/1.13 mm)				
2 P 1.0	1.1	12.8	12.8	178
5 P 1.0	1.2	16.2	16.2	289
10 P 1.0	1.3	22.6	22.6	510
20 P 1.0	1.7	29.8	29.8	962
30 P 1.0	2.0	35.4	35.4	1 411
50 P 1.0	2.2	44.9	44.9	2 200
(1.5 mm^2 - 7/0.53 mm)				
2 P 1.5	1.2	14.7	14.7	233
5 P 1.5	1.3	18.8	18.8	383
10 P 1.5	1.5	26.5	26.5	691
20 P 1.5	1.7	34.4	34.4	1 270
30 P 1.5	2.0	41.0	41.0	1 848
50 P 1.5	2.2	52.2	52.2	2 921

Product on request
*** For information only**

Installation shall be postponed if the temperature is lower than -5°C.
In such a case, cables shall be stored in a room where the temperature is higher than 10°C. and at least 24 hours before unreeling. Cables shall be unreeled as soon as they are removed from the room and the usual bending radius should be increased as far as possible.

• Minimum bending radius
= 10 x outer diameter

• Temperature range
During operation from -20°C to +60°C
During installation from 0°C to +50°C

BS 5308 - Part 1 / Type 2
Collective Screen

Applications

300/500 V

Instrumentation
Communication
Transmission of analogue or digital signals in measurement and process control for direct burial in ground.

Max core temperature: 70 °C

Design

1. Conductor
Solid, stranded or flexible bare copper

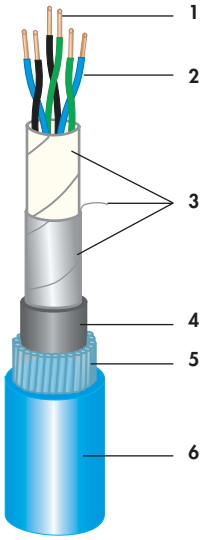
2. Insulation
PE
(polyethylene)

3. Screen
Aluminium-Mylar tape,
Tinned copper stranded drain wire

4. Bedding
PE
(polyethylene)

5. Armour
Galvanized steel wire
(SWA)

6. Outer sheath
PVC
(polyvinyl chloride)
Colour: blue or black
Other colour on request.



Marking

Factory number
n x S mm² - construction - year
Others marking on request

Core Identification

According to BS 5308 Part 1. (section 2) paragraph 8
Other colour on request

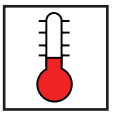
Standards

BS 5308
BS 6360
BS 6234
BS 6746
Other fire performances and aliphatic hydrocarbons resistant on request

Flame retardant
IEC 60332-1

Good

Good


-20 °C + 60 °C

BS 5308 - Part 1/Type 2 - Collective Screen

Cables (mm^2)	Thickness of sheath/ bedding	Diameter over sheath/ bedding	Size of armour wire	Diameter over armour	Thickness of over sheath	Nominal overall diameter*	Weight approx. (kg/km)
(0.5 mm^2 - 1/0.80 mm)							
1 P 0.5	0.8	6.3	0.9	8.1	1.3	10.7	193
2 P 0.5	0.9	10.3	0.9	12.1	1.4	14.9	227
5 P 0.5	1.2	13.5	1.25	16.0	1.5	19.0	433
10 P 0.5	1.2	18.3	1.25	20.8	1.7	24.2	747
20 P 0.5	1.3	23.5	1.6	26.7	1.8	30.3	1 220
30 P 0.5	1.5	27.9	1.6	31.1	1.9	34.9	1 555
50 P 0.5	2.0	36.1	2.0	40.1	2.2	44.5	2 164
(0.5 mm^2 - 16/0.20 mm)							
1 P 0.5	0.8	7.0	0.9	8.8	1.3	11.4	213
2 P 0.5	1.1	12.0	0.9	13.8	1.5	16.8	249
5 P 0.5	1.2	15.2	1.25	17.7	1.6	20.9	498
10 P 0.5	1.3	21.1	1.6	24.3	1.8	27.9	849
20 P 0.5	1.5	27.3	1.6	30.5	1.9	34.3	1 408
30 P 0.5	1.7	32.3	2.0	36.3	2.1	40.5	1 848
50 P 0.5	2.2	41.7	2.5	46.7	2.4	51.5	2 827
(1.0 mm^2 - 1/1.13 mm)							
1 P 1.0	0.8	7.4	0.9	9.2	1.3	11.8	239
2 P 1.0	1.1	12.8	0.9	14.6	1.5	17.6	801
5 P 1.0	1.2	16.2	1.25	18.7	1.6	21.9	701
10 P 1.0	1.3	22.6	1.6	25.8	1.8	29.4	1 027
20 P 1.0	1.7	29.8	2.0	33.8	2.0	37.8	1 773
30 P 1.0	2.0	35.4	2.0	39.4	2.2	43.8	2 301
50 P 1.0	2.2	44.9	2.5	49.9	2.5	54.9	3 644
(1.5 mm^2 - 7/0.53 mm)							
1 P 1.5	0.8	8.3	0.9	10.1	1.4	12.9	277
2 P 1.5	1.2	14.7	1.25	17.2	1.6	20.4	350
5 P 1.5	1.3	18.8	1.6	22.0	1.7	25.4	849
10 P 1.5	1.5	26.5	1.6	29.7	1.9	33.5	1 446
20 P 1.5	1.7	34.4	2.0	38.4	2.1	42.6	2 225
30 P 1.5	2.0	41.0	2.5	46.0	2.4	50.8	3 209
50 P 1.5	2.2	52.2	2.5	57.2	2.7	62.6	5 077

Product on request
*** For information only**

Installation shall be postponed if the temperature is lower than -5°C.
In such a case, cables shall be stored in a room where the temperature is higher than 10°C. and at least 24 hours before unreeling. Cables shall be unreeled as soon as they are removed from the room and the usual bending radius should be increased as far as possible.

• Minimum bending radius
= 10 x outer diameter

• Temperature range
During operation from -20°C to +60°C
During installation from 0°C to +50°C

BS 5308 - Part 1 / Type 2
Individual & Collective Screen

Applications

300/500 V

Instrumentation
Communication
Transmission of analogue or digital signals in measurement and process control for direct burial in ground.

Max core temperature: 70 °C

Design

1. Conductor
Solid, stranded or flexible bare copper

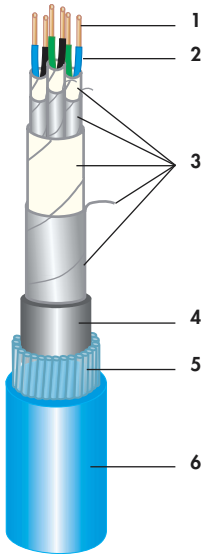
2. Insulation
PE
(polyethylene)

3. Screen
Individual and Collective
Aluminium-Mylar tape,
Tinned copper stranded drain wire

4. Bedding
PE
(polyethylene)

5. Armour
Galvanized steel wire
(SWA)

6. Outer sheath
PVC
(polyvinyl chloride)
Colour: blue or black
Other colour on request.



Marking

Factory number
n x S mm² - construction - year
Others marking on request

Core Identification

According to BS 5308
Part 1. (section 2)
Paragraph 8 Part A or B
Other colour on request

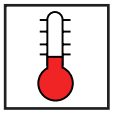
Standards

BS 5308
BS 6360
BS 6234
BS 6746
Other fire performances and aliphatic hydrocarbons resistant on request

Flame retardant
IEC 60332-1

Good

Good


-20 °C + 60 °C

BS 5308 - Part 1/Type 2 - Individual & Collective Screen

Cables (mm^2)	Thickness of sheath/ bedding	Diameter over sheath/ bedding	Size of armour wire	Diameter over armour	Thickness of over sheath	Nominal overall diameter*	Weight approx. (kg/km)
(0.5 mm^2 - 1/0.80 mm)							
2 P 0.5	0.9	10.3	0.9	12.1	1.4	14.9	341
5 P 0.5	1.2	13.5	1.25	16.0	1.5	19.0	595
10 P 0.5	1.2	18.3	1.25	20.8	1.7	24.2	859
20 P 0.5	1.3	23.5	1.6	26.7	1.8	30.3	1 426
30 P 0.5	1.5	27.9	1.6	31.1	1.9	34.9	1 894
50 P 0.5	2.0	36.1	2.0	40.1	2.2	44.5	2 987
(0.5 mm^2 - 16/0.20 mm)							
2 P 0.5	1.1	12.0	0.9	13.8	1.5	16.8	407
5 P 0.5	1.2	15.2	1.25	17.7	1.6	20.9	680
10 P 0.5	1.3	21.1	1.6	24.3	1.8	27.9	1 132
20 P 0.5	1.5	27.3	1.6	30.5	1.9	34.3	1 687
30 P 0.5	1.7	32.3	2.0	36.3	2.1	40.5	2 446
50 P 0.5	2.2	41.7	2.5	46.7	2.4	51.5	3 867
(1.0 mm^2 - 1/1.13 mm)							
2 P 1.0	1.1	12.8	0.9	14.6	1.5	17.6	459
5 P 1.0	1.2	16.2	1.25	18.7	1.6	21.6	779
10 P 1.0	1.3	22.6	1.6	25.8	1.8	29.4	1 309
20 P 1.0	1.7	29.8	2.0	33.8	2.0	37.8	2 283
30 P 1.0	2.0	35.4	2.0	39.4	2.2	43.8	2 975
50 P 1.0	2.2	44.9	2.5	49.9	2.5	54.9	4 672
(1.5 mm^2 - 7/53 mm)							
2 P 1.5	1.2	14.7	1.25	17.2	1.6	20.4	651
5 P 1.5	1.3	18.8	1.6	22.0	1.7	25.4	1 070
10 P 1.5	1.5	26.5	1.6	29.7	1.9	33.5	1 612
20 P 1.5	1.7	34.4	2.0	38.4	2.1	42.6	2 750
30 P 1.5	2.0	41.0	2.5	46.0	2.4	50.8	4 070
50 P 1.5	2.2	52.2	2.5	57.2	2.7	62.6	5 767

Product on request
*** For information only**

Installation shall be postponed if the temperature is lower than -5°C.
In such a case, cables shall be stored in a room where the temperature is higher than 10°C. and at least 24 hours before unreeling.
Cables shall be unreeled as soon as they are removed from the room and the usual bending radius should be increased as far as possible.

• Minimum bending radius
= 10 x outer diameter

• Temperature range
During operation from -20°C to +60°C
During installation from 0°C to +50°C

BS 5308 - Part 1 / Type 3
Collective Screen

Applications

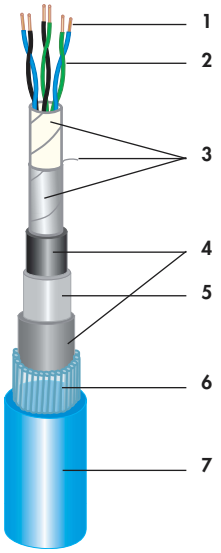
300/500 V

Instrumentation
Communication
Transmission of analogue or digital signals in measurement and process control for direct burial in ground, in moist areas, where chemical protection by lead sheath or armour is required (refinery areas, chemical plants, etc...), when contact with aromatics hydrocarbons may happen.

Max core temperature: 70 °C

Design

1. Conductor
Solid, stranded or flexible bare copper
2. Insulation
PE
(polyethylene)
3. Screen
Aluminium-Mylar tape,
Tinned copper stranded drain wire
4. Bedding
PVC
(polyvinyl chloride)
5. Lead covering
6. Armour
Galvanized steel wire (SWA)
7. Outer sheath
PVC
(polyvinyl chloride)
Colour: blue or black
Other colour on request.



Marking

Factory number
n x S mm² - construction - year
Others marking on request

Core Identification

According to BS 5308 Part 1. (section 2) paragraph 8
Other colour on request

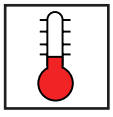
Standards

BS 5308
BS 6360
BS 6234
BS 6746
BS 801
BS 1442
Other fire performances and aliphatic hydrocarbons resistant on request

Flame retardant
IEC 60332-1

Good

Good


-20 °C + 60 °C

BS 5308 - Part 1/Type 3 - Collective Screen

Cables (mm^2)	Thickness of sheath/ bedding	Diameter over sheath/ bedding	Nominal Thickness of lead sheath	Diameter over lead sheath	Size of armour wire	Diameter over armour	Thickness of over sheath	Nominal overall diameter*	Weight approx. (kg/km)
(0.5 mm^2 - 1/0.80 mm)									
1 P 0.5	0.8	6.3	1.1	8.5	0.9	11.9	1.4	14.7	654
2 P 0.5	0.8	7.1	1.1	9.3	0.9	12.7	1.4	15.5	718
5 P 0.5	1.1	11.6	1.1	13.8	1.25	17.9	1.6	21.1	1 230
10 P 0.5	1.2	15.0	1.1	17.2	1.6	22.4	1.7	25.8	1 809
15 P 0.5	1.2	17.1	1.2	19.5	1.6	24.7	1.8	28.3	2 168
20 P 0.5	1.3	19.4	1.3	22.0	1.6	27.2	1.8	30.8	2 572
30 P 0.5	1.3	23.0	1.4	25.8	1.6	31.0	1.9	34.8	3 240
50 P 0.5	1.5	28.9	1.5	31.9	2.0	38.3	2.1	42.5	4 705
(0.5 mm^2 - 16/0.20 mm)									
1 P 0.5	0.8	7.0	1.1	9.2	0.9	12.6	1.4	15.4	704
2 P 0.5	0.8	7.9	1.1	10.1	0.9	13.5	1.4	16.3	780
5 P 0.5	1.1	13.1	1.1	15.3	1.25	19.4	1.5	22.6	1 374
10 P 0.5	1.2	17.2	1.2	19.6	1.6	24.8	1.8	28.4	2 116
15 P 0.5	1.3	19.8	1.3	22.4	1.6	27.6	1.8	31.2	2 572
20 P 0.5	1.3	22.3	1.3	24.9	1.6	30.1	1.9	33.9	2 936
30 P 0.5	1.5	26.9	1.5	29.9	2.0	36.3	2.1	40.5	4 225
50 P 0.5	1.7	33.9	1.7	37.3	2.5	45.1	2.3	49.7	6 259
(1.0 mm^2 - 1/1.13 mm)									
1 P 1.0	0.8	7.4	1.1	9.6	0.9	13.0	1.4	15.8	748
2 P 1.0	0.8	8.4	1.1	10.6	0.9	14.0	1.5	17.0	853
5 P 1.0	1.2	14.2	1.1	16.4	1.6	21.6	1.7	25.0	1 723
10 P 1.0	1.2	18.4	1.2	20.8	1.6	26.0	1.8	29.6	2 379
15 P 1.0	1.3	21.3	1.3	23.9	1.6	29.1	1.9	32.9	2 948
20 P 1.0	1.5	24.4	1.4	27.2	2.0	33.6	2.0	37.6	3 894
30 P 1.0	1.5	29.0	1.5	32.0	2.0	38.4	2.1	42.6	4 911
50 P 1.0	2.0	37.3	1.8	40.9	2.5	48.7	2.4	53.5	7 629
(1.5 mm^2 - 7/0.53 mm)									
1 P 1.5	0.8	8.3	1.1	10.5	0.9	13.9	1.5	16.9	832
2 P 1.5	0.9	9.7	1.1	11.9	1.25	16.0	1.5	19.0	1 050
5 P 1.5	1.2	16.4	1.2	18.8	1.6	24.0	1.7	27.4	2 041
10 P 1.5	1.3	21.6	1.3	24.2	1.6	29.4	1.9	33.2	2 910
15 P 1.5	1.5	25.2	1.4	28.0	2.0	34.4	2.0	38.4	3 965
20 P 1.5	1.5	28.5	1.5	31.5	2.0	37.9	2.1	42.1	4 714
30 P 1.5	1.7	34.3	1.7	37.7	2.5	45.5	2.3	50.1	6 683
50 P 1.5	2.0	43.6	2.0	47.6	2.5	55.8	2.6	61.0	9 585

Product on request
*** For information only**

Installation shall be postponed if the temperature is lower than -5°C.
In such a case, cables shall be stored in a room where the temperature is higher than 10°C. and at least 24 hours before unreeling. Cables shall be unreeled as soon as they are removed from the room and the usual bending radius should be increased as far as possible.

• Minimum bending radius
= 10 x outer diameter

• Temperature range
During operation from -20°C to +60°C
During installation from 0°C to +50°C

BS 5308 - Part 1 / Type 3
Individual & Collective Screen

Applications

300/500 V

Instrumentation
Communication
Transmission of analogue or digital signals in measurement and process control for direct burial in ground, in moist areas, where chemical protection by lead sheath or armour is required (refinery areas, chemical plants, etc...), when contact with aromatics hydrocarbons may happen.

Max core temperature: 70 °C

Design

1. Conductor
Solid, stranded or flexible bare copper

2. Insulation
PE
(polyethylene)

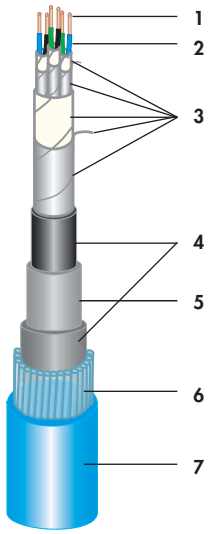
3. Screen
Individual an Collective
Aluminium-Mylar tape,
Tinned copper stranded drain wire

4. Bedding
PVC
(polyvinyl chloride)

5. Lead covering

6. Armour
Galvanized steel wire
(SWA)

7. Outer sheath
PVC
(polyvinyl chloride)
Colour: blue or black
Other colour on request.



Marking

Factory number
n x S mm² - construction - year
Others marking on request

Core Identification

According to BS 5308 Part 1.
(section 2) paragraph Part A or B
Other colour on request

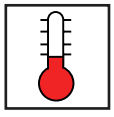
Standards

BS 5308
BS 6360
BS 6234
BS 6746
BS 801
BS 1442
Other fire performances and aliphatic hydrocarbons resistant on request

Flame retardant
IEC 60332-1

Good

Good


-20 °C + 60 °C

BS 5308 - Part 1/Type 3 - Individual & Collective Screen

Cables (mm^2)	Thickness of sheath/ bedding	Diameter over sheath/ bedding	Nominal Thickness of lead sheath	Diameter over lead sheath	Size of armour wire	Diameter over armour	Thickness of over sheath	Nominal overall diameter*	Weight approx. (kg/km)
(0.5 mm^2 - 1/0.80 mm)									
2 P 0.5	0.9	10.3	1.1	12.5	1.25	16.6	1.5	19.6	1 012
5 P 0.5	1.2	13.5	1.1	15.7	1.25	19.8	1.6	23.0	1 347
10 P 0.5	1.2	18.3	1.2	20.7	1.6	25.9	1.7	29.3	2 034
15 P 0.5	1.3	23.5	1.4	26.3	2.0	32.7	1.9	36.5	2 505
20 P 0.5	1.3	23.5	1.4	26.3	2.0	32.7	1.9	36.5	3 211
30 P 0.5	1.5	27.9	1.5	30.9	2.0	37.3	2.0	41.3	4 114
50 P 0.5	2.0	36.1	1.8	39.7	2.5	47.5	2.3	52.1	6 433
(0.5 mm^2 - 16/0.20 mm)									
2 P 0.5	1.1	12.0	1.1	14.2	1.25	18.3	1.6	21.3	1 172
5 P 0.5	1.2	15.2	1.1	17.4	1.6	22.6	1.7	26.0	1 658
10 P 0.5	1.3	21.1	1.3	23.7	1.6	28.9	1.9	32.2	2 414
15 P 0.5	1.5	24.5	1.4	27.3	2.0	33.7	2.0	37.7	3 252
20 P 0.5	1.5	27.3	1.5	30.3	2.0	36.7	2.1	40.9	3 867
30 P 0.5	1.7	32.3	1.6	35.5	2.0	41.9	2.2	46.3	4 911
50 P 0.5	2.2	41.7	1.9	45.5	2.5	53.3	2.6	58.5	7 571
(1.0 mm^2 - 1/1.13mm)									
2 P 1.0	1.1	12.8	1.1	15.0	1.25	19.1	1.6	22.3	1 266
5 P 1.0	1.2	16.2	1.2	18.6	1.6	23.8	1.7	27.2	1 899
10 P 1.0	1.3	22.6	1.3	25.2	1.6	30.4	1.9	34.2	2 686
15 P 1.0	1.5	26.2	1.5	29.2	2.0	35.6	2.1	39.8	3 752
20 P 1.0	1.7	29.8	1.6	33.0	2.0	39.4	2.2	43.8	4 551
30 P 1.0	2.0	35.4	1.7	38.8	2.5	46.5	2.4	51.4	6 273
50 P 1.0	2.2	44.9	2.0	48.9	2.5	57.1	2.7	62.5	8 944
(1.5 mm^2 - 7/0.53mm)									
2 P 1.5	1.2	14.7	1.1	16.9	1.6	22.1	1.7	25.5	1 618
5 P 1.5	1.3	18.8	1.2	21.2	1.6	26.4	1.8	30.0	2 196
10 P 1.5	1.5	26.5	1.5	29.5	2.0	35.9	2.1	40.1	3 663
15 P 1.5	1.7	30.8	1.6	34.0	2.0	40.4	2.2	44.8	4 589
20 P 1.5	1.7	34.3	1.7	37.8	2.5	45.6	2.3	50.2	5 883
30 P 1.5	2.0	41.0	1.9	44.8	2.5	52.6	2.5	57.6	7 656
50 P 1.5	2.2	52.2	2.2	56.6	2.5	64.8	2.9	70.6	10 945

Product on request
*** For information only**

Installation shall be postponed if the temperature is lower than -5°C.
In such a case, cables shall be stored in a room where the temperature is higher than 10°C. and at least 24 hours before unreeling.
Cables shall be unreeled as soon as they are removed from the room and the usual bending radius should be increased as far as possible.

• Minimum bending radius
= 10 x outer diameter

• Temperature range
During operation from -20°C to +60°C
During installation from 0°C to +50°C

BS 5308 - Part 2 / Type 1
Collective Screen

Applications

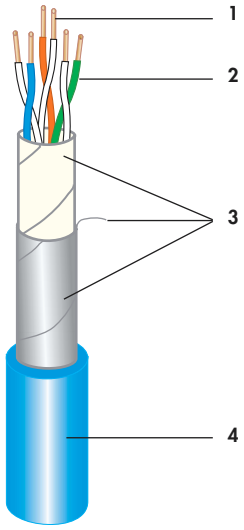
300/500 V

Instrumentation
Communication
Transmission of analogue or digital signals in measurement and process control for direct burial in ground.

Max core temperature: 70 °C

Design

1. **Conductor**
   Solid, stranded or flexible bare copper
2. **Insulation**
   PVC
   (polyvinyl chloride)
3. **Screen**
   Aluminium-Mylar tape,
   Tinned copper stranded drain wire
4. **Outer sheath**
   PVC
   (polyvinyl chloride)
   Colour: blue or black
   Other colour on request.



Marking

Factory number
n x S mm² - construction - year
Others marking on request

Core Identification

According to BS 5308 Part 2. (section2) paragraph 8
Other colour on request

Standards

BS 5308
BS 6360
BS 6746
Other fire performances and aliphatic hydrocarbons resistant on request

Flame retardant IEC 60332-1

Good

-20 °C + 60 °C

EMI

BS 5308 - Part 2/Type 1 - Collective Screen

Cables (mm^2)	Thickness of sheath/bedding	Diameter over sheath bedding	Nominal overall diameter	Weight approx. (kg/km)
(0.5 mm^2 - 16/0.20 mm)				
1 P 0.5	0.8	7.0	7.0	55
2 P 0.5	0.8	7.9	7.9	74
5 P 0.5	1.1	13.1	13.1	195
10 P 0.5	1.2	17.2	17.2	337
20 P 0.5	1.3	22.3	22.3	589
30 P 0.5	1.5	26.9	26.9	864
50 P 0.5	1.7	33.9	33.9	1 345
(0.75 mm^2 - 124/0.20 mm)				
1 P 0.75	0.8	7.3	7.3	65
2 P 0.75	0.8	8.3	8.3	89
5 P 0.75	1.2	14.3	14.3	243
10 P 0.75	1.3	18.7	18.7	423
20 P 0.75	1.5	24.5	24.5	765
30 P 0.75	1.7	29.5	29.5	1 110
50 P 0.75	2.0	37.4	37.4	1 751
(1.5 mm^2 - 7/0.53 mm)				
1 P 1.5	0.8	8.3	8.3	89
2 P 1.5	0.9	9.7	9.7	132
5 P 1.5	1.2	16.4	16.4	351
10 P 1.5	1.3	21.6	21.6	627
20 P 1.5	1.5	28.5	28.5	1 159
30 P 1.5	1.7	34.3	34.3	1 676
50 P 1.5	2.0	43.6	43.6	2 690

Product on request
*** For information only**

Installation shall be postponed if the temperature is lower than -5°C.
In such a case, cables shall be stored in a room where the temperature is higher than 10°C. and at least 24 hours before unreeling. Cables shall be unreeled as soon as they are removed from the room and the usual bending radius should be increased as far as possible.

• Minimum bending radius
= 10 x outer diameter

• Temperature range
During operation from -20°C to +60°C
During installation from 0°C to +50°C

BS 5308 - Part 2 / Type 1
Individual & Collective Screen

Applications

300/500 V

Instrumentation
Communication
Transmission of analogue or digital signals in measurement and process control for direct burial in ground.

Max core temperature: 70 °C

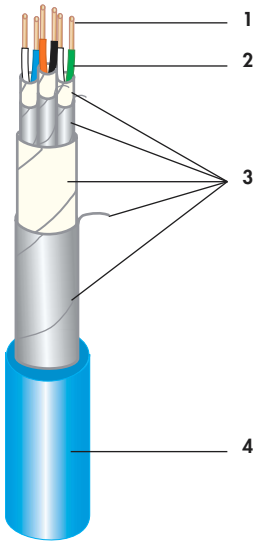
Design

1. Conductor
Solid, stranded or flexible bare copper

2. Insulation
PVC
(polyvinyl chloride)

3. Screen
Individual and Collective
Aluminium-Mylar tape,
Tinned copper stranded drain wire

4. Outer sheath
PVC
(polyvinyl chloride)
Colour: blue or black
Other colour on request.



Marking

Factory number
n x S mm^2 - construction - year
Others marking on request

Core Identification

According to BS 5308 Part 2. (section2) paragraph 8
Other colour on request

Standards

BS 5308
BS 6234
BS 6360
BS 6746
Other fire performances and aliphatic hydrocarbons resistant on request

Flame retardant IEC 60332-1

Good

-20 °C + 60 °C

EMI

BS 5308 - Part 2/Type 1 - Individual & Collective Screen

Cables (mm^2)	Thickness of sheath/bedding	Diameter over sheath bedding	Nominal overall diameter	Weight approx. (kg/km)
(0.5 mm^2 - 16/0.20 mm)				
2 P 0.5	1.1	12.0	12.0	151
5 P 0.5	1.2	15.2	15.2	245
10 P 0.5	1.3	21.1	21.1	429
20 P 0.5	1.5	27.3	27.3	773
30 P 0.5	1.7	32.3	32.3	1 819
50 P 0.5	2.2	41.7	41.7	1 831
(0.75 mm^2 - 24/0.20 mm)				
2 P 0.75	1.1	12.8	12.8	174
5 P 0.75	1.2	16.3	16.3	287
10 P 0.75	1.3	22.7	22.7	507
20 P 0.75	1.7	29.8	29.8	869
30 P 0.75	2.0	35.5	35.5	1 389
50 P 0.75	2.2	45.0	45.0	2 185
(1.5 mm^2 - 7/0.53 mm)				
2 P 1.5	1.2	14.7	14.7	244
5 P 1.5	1.3	18.8	18.8	410
10 P 1.5	1.5	26.5	26.5	745
20 P 1.5	1.7	34.4	34.4	1 271
30 P 1.5	2.0	41.0	41.0	2 000
50 P 1.5	2.2	52.2	52.2	3 175

Product on request
*** For information only**

Installation shall be postponed if the temperature is lower than -5°C.
In such a case, cables shall be stored in a room where the temperature is higher than 10°C. and at least 24 hours before unreeling. Cables shall be unreeled as soon as they are removed from the room and the usual bending radius should be increased as far as possible.

• Minimum bending radius
= 10 x outer diameter

• Temperature range
During operation from -20°C to +60°C
During installation from 0°C to +50°C

BS 5308 - Part 2 / Type 2
Collective Screen

Applications

300/500 V

Instrumentation
Communication
Transmission of analogue or digital signals in measurement and process control for direct burial in ground.

Max core temperature: 70 °C

Design

1. Conductor
Solid, stranded or flexible bare copper

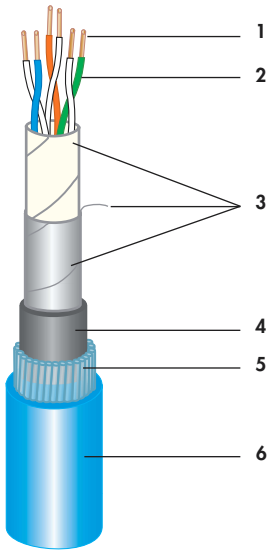
2. Insulation
PVC
(polyvinyl chloride)

3. Screen
Aluminium-Mylar tape or with Tinned copper stranded drain wire

4. Bedding
PVC
(polyvinyl chloride)

5. Armour
Galvanized steel wire (SWA)

6. Outer sheath
PVC
(polyvinyl chloride)
Colour: blue or black
Other colour on request.



Marking

Factory number
n x S mm² - construction - year
Others marking on request

Core Identification

According to BS 5308 Part 2. (section 2) paragraph 8
Other colour on request

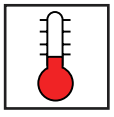
Standards

BS 5308
BS 6360
BS 6746
BS 1442
Other fire performances and aliphatic hydrocarbons resistant on request

Flame retardant
IEC 60332-1

Good

Good


-20 °C + 60 °C

BS 5308 - Part 2/Type 2 - Collective Screen

Cables (mm^2)	Thickness of sheath/ bedding	Diameter over sheath/ bedding	Size of armour wire	Diameter over armour	Thickness of over sheath	Nominal overall diameter*	Weight approx. (kg/km)
(0.5 mm^2 - 16/0.20 mm)							
1 P 0.5	0.8	7.0	0.9	8.8	1.3	11.4	229
2 P 0.5	0.8	7.9	0.9	9.7	1.3	12.3	269
5 P 0.5	1.1	13.1	0.9	14.9	1.5	16.2	553
10 P 0.5	1.2	17.2	1.25	19.7	1.6	22.9	1 016
20 P 0.5	1.3	22.3	1.6	25.5	1.8	29.1	1 668
30 P 0.5	1.5	26.9	1.6	30.1	1.9	33.9	2 076
50 P 0.5	1.7	33.9	2.0	37.9	2.1	42.1	3 175
(0.75 mm^2 - 24/0.20 mm)							
1 P 0.75	0.8	7.3	0.9	9.1	1.3	11.7	251
2 P 0.75	0.8	8.3	0.9	10.1	1.4	12.9	304
5 P 0.75	1.2	14.3	1.25	16.8	1.5	19.8	794
10 P 0.75	1.3	18.7	1.6	21.9	1.7	25.3	1 325
20 P 0.75	1.5	24.5	1.6	27.7	1.8	31.3	1 857
30 P 0.75	1.7	29.5	2.0	33.5	2.0	37.5	2 717
50 P 0.75	2.0	37.4	2.5	42.4	2.3	47.0	3 799
(1.5 mm^2 - 7/0.53 mm)							
1 P 1.5	0.8	8.3	0.9	10.1	1.4	12.9	298
2 P 1.5	0.9	9.7	0.9	11.5	1.4	14.3	377
5 P 1.5	1.2	16.4	1.25	18.9	1.6	22.1	1 009
10 P 1.5	1.3	21.6	1.6	24.8	1.8	28.4	1 697
20 P 1.5	1.5	28.5	1.6	31.7	2.0	35.7	2 455
30 P 1.5	1.7	34.3	2.0	38.3	2.1	42.5	3 534
50 P 1.5	2.0	43.6	2.5	48.6	2.4	53.4	5 580

Product on request
*** For information only**

Installation shall be postponed if the temperature is lower than -5°C.
In such a case, cables shall be stored in a room where the temperature is higher than 10°C. and at least 24 hours before unreeling. Cables shall be unreeled as soon as they are removed from the room and the usual bending radius should be increased as far as possible.

• Minimum bending radius
= 10 x outer diameter

• Temperature range
During operation from -20°C to +60°C
During installation from 0°C to +50°C

BS 5308 - Part 2 / Type 2
Individual & Collective Screen

Applications

300/500V

Instrumentation
Communication
Transmission of analogue or digital signals in measurement and process control for direct burial in ground.

Max core temperature: 70 °C

Design

1. Conductor
Solid, stranded or flexible bare copper

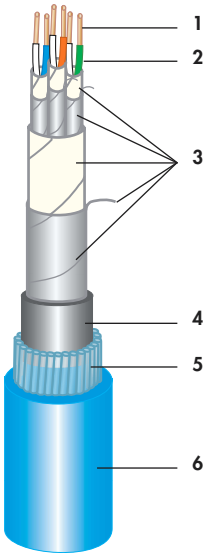
2. Insulation
PVC
(polyvinyl chloride)

3. Screen
Individual and Collective
Aluminium-Mylar tape or with
Tinned copper stranded drain wire

4. Bedding
PVC
(polyvinyl chloride)

5. Armour
Galvanized steel wire
(SWA)

6. Outer sheath
PVC
(polyvinyl chloride)
Colour: blue or black
Other colour on request.



Marking

Factory number
n x S mm² - construction - year
Others marking on request

Core Identification

According to BS 5308
Part 2. (section 2)
Paragraph 8. Part A or B
Other colour on request

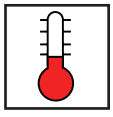
Standards

BS 5308
BS 6360
BS 6746
BS 1442
Other fire performances and aliphatic hydrocarbons resistant on request

Flame retardant
IEC 60332-1

Good

Good


-20 °C + 60 °C

BS 5308 - Part 2/Type 2 - Individual & Collective Screen

Cables (mm^2)	Thickness of sheath/ bedding	Diameter over sheath/ bedding	Size of armour wire	Diameter over armour	Thickness of over sheath	Nominal overall diameter*	Weight approx. (kg/km)
(0.5 mm^2 - 16/0.20 mm)							
2 P 0.5	1.1	12.0	0.9	13.8	1.5	16.8	451
5 P 0.5	1.2	15.2	1.25	17.7	1.6	20.9	748
10 P 0.5	1.3	21.1	1.6	24.3	1.8	27.9	1 242
20 P 0.5	1.5	27.3	1.6	30.5	1.9	34.3	1 832
30 P 0.5	1.7	32.3	2.0	36.3	2.1	40.5	2 702
50 P 0.5	2.2	41.7	2.5	46.7	2.4	51.5	4 270
(0.75 mm^2 - 24/0.20 mm)							
2 P 0.75	1.1	12.8	0.9	14.6	1.5	17.6	490
5 P 0.75	1.2	16.3	1.25	18.8	1.6	22.0	818
10 P 0.75	1.3	22.7	1.6	25.9	1.8	29.5	1 383
20 P 0.75	1.7	29.8	2.0	33.8	2.0	37.8	2 376
30 P 0.75	2.0	35.5	2.0	39.5	2.2	43.9	3 108
50 P 0.75	2.2	45.0	2.5	50.0	2.5	55.0	4 850
(1.5 mm^2 - 7/0.53 mm)							
2 P 1.5	1.2	14.7	1.25	17.2	1.6	20.4	714
5 P 1.5	1.3	18.8	1.6	22.0	1.7	25.4	1 167
10 P 1.5	1.5	26.5	1.6	29.7	1.9	33.5	1 768
20 P 1.5	1.7	34.4	2.0	38.4	2.1	42.6	3 000
30 P 1.5	2.0	41.0	2.5	46.0	2.4	50.8	4 432
50 P 1.5	2.2	52.2	2.5	57.2	2.7	62.6	6 310

Product on request
*** For information only**

Installation shall be postponed if the temperature is lower than -5°C.
In such a case, cables shall be stored in a room where the temperature is higher than 10°C. and at least 24 hours before unreeling. Cables shall be unreeled as soon as they are removed from the room and the usual bending radius should be increased as far as possible.

- Minimum bending radius = 10 x outer diameter

- Temperature range

During operation from -20°C to +60°C
During installation from 0°C to +50°C

BS 5308 Part 1
Polyethylene insulated cables

Electrical Characteristics

	0.5 mm² class 1			0.5 mm² class 5			1.0 mm² class 1			1.5 mm² class 2		
	Maximum mutual Capacitance at 1kHz - 20°C	Maximum D.C. resistance at 20°C	L/R ratio maximum	Maximum mutual Capacitance at 1kHz - 20°C	Maximum D.C. resistance at 20°C	L/R ratio maximum	Maximum mutual Capacitance at 1kHz - 20°C	Maximum D.C. resistance at 20°C	L/R ratio maximum	Maximum mutual Capacitance at 1kHz - 20°C	Maximum D.C. resistance at 20°C	L/R ratio maximum
	nf/km	*Ω/km*	*μH/Ω*	*nf/km*	*Ω/km*	*μH/Ω*	*nf/km*	*μH/Ω*	*μH/Ω*	*nf/km*	*Ω/km*	*μH/Ω*
Cables without screen	75	36.8	25	75	39.7	25	75	18.4	25	85	12.3	40
Cables with only collective screen (execpt one-pair or two-pair)	75	36.8	25	75	39.7	25	75	18.4	25	85	12.3	40
One-pair and two-pair cables collectively screened and all cables with individually screened pair	115	36.8	25	115	39.7	25	115	18.4	25	120	12.3	40

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BS 5308 Part 2
PVC insulated cables

Electrical Characteristics:

	0.5 mm² class 5	0.75 mm² class 5	1.5 mm² class 2
Maximum D.C. resistance at 20°C (Ω/km)	39.7	26.5	12.3
Maximum mutual Capacitance at 1 kHz - 20°C (nF/km)	250	250	250
L/R ratio maxi (µH/Ω)	25	25	40

INS 2000
Collective screen
Unarmoured cables

300/500V

Applications

Instrumentation
Communication
Transmission of analogue or digital signals in measurement and process control for direct burial in ground.

Max core temperature: 90°C

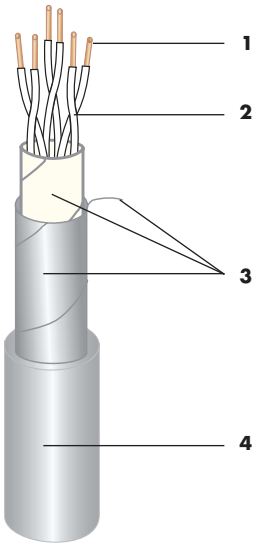
Design

1. Conductor
Plain copper wires
Class 2

2. Insulation
XLPE
(cross-linked polyethylene)

3. Collective Screen
Polyester tape
Drain solid tinned copper wire
Aluminium/Polyester tape

4. Outer sheath
PVC
(polyvinyl chloride)
Colour: grey



Marking

Manufacturer's name -
Manufacturing number
XLPE/OA.SCR/PVC LSLH
(Nb of pairs) x 2 x (Section) mm^2
IEC 60332.3 C -
Meter marking

Core Identification

black-white
(white core printred with pair number for multipair)

Standards

IEC 60228
IEC 60332-3 Cat. C

Flame retardant
IEC 60332.1
IEC 60332-3 Cat. C

Low smoke

Low Halogen

Low toxicity

-20 °C + 60 °C

EMI

INS 2000 - Collective Screen - Unarmoured cables

Cables (mm^2)	Outer Diameter		Weight (kg/km)
	Minimum	Maximum	
1 x 2 x 0.5	4.6	5.6	40
2 x 2 x 0.5	5.3	6.3	55
5 x 2 x 0.5	9.2	10.6	125
10 x 2 x 0.5	12.6	14.5	210
15 x 2 x 0.5	14.4	16.6	280
20 x 2 x 0.5	16.2	18.6	355
30 x 2 x 0.5	19.5	22.3	505
1 x 2 x 0.75	5.2	6.2	55
2 x 2 x 0.75	6.0	7.1	70
5 x 2 x 0.75	10.6	12.2	170
10 x 2 x 0.75	14.8	17.0	290
15 x 2 x 0.75	17.0	19.5	400
20 x 2 x 0.75	19.2	22.0	500
30 x 2 x 0.75	23.1	26.5	720
1 x 2 x 1.34	6.0	7.1	75
2 x 2 x 1.34	7.0	8.2	105
5 x 2 x 1.34	13.1	15.0	275
10 x 2 x 1.34	17.5	20.1	430
15 x 2 x 1.34	20.1	23.1	600
20 x 2 x 1.34	23.0	26.4	780
30 x 2 x 1.34	27.7	31.8	1 125

Product on request

- Minimum bending radius = 10 x outer diameter

INS 2000
Individual & Collective Screen
Unarmoured cables

Applications

300/500 V

Instrumentation
Communication
Transmission of analogue or digital signals in measurement and process control for direct burial in ground.

Max core temperature: 90°C

Design

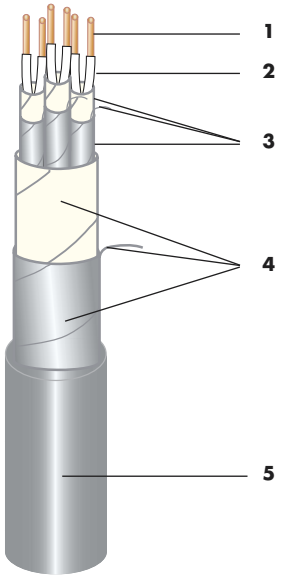
1. Conductor
Plain copper wires,
Class 2

2. Insulation
XLPE
(cross-linked polyethylene)

3. Individual Screen
Polyester tape
Drain wire solid tinned copper
Aluminium tape coated on one side with adhesive plastic

4. Collective screen
Polyester tape
Drain solid tinned copper wire
Aluminium/Polyester tape

5. Outer sheath
PVC
(polyvinyl chloride)
Colour: grey



Marking

Manufacturer's name -
Manufacturing number
XLPE/IND. +OA.SCR/PVC LSLH
(Nb of pairs) x 2 x (Section) mm^2
IEC 60332.3C - Meter marking

Core Identification

Black-white
(white core printed with pair number for multipair)

Standards

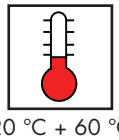
IEC 60228
IEC 60332-3 Cat. C

Flame retardant
IEC 60332.1
IEC 60332-3 Cat. C

Low smoke

Low Halogen

Low toxicity


-20 °C + 60 °C

INS 2000 - Individual & Collective Screen - Unarmoured cables

Cables (mm^2)	Outer Diameter		Weight (kg/km)
	Minimum	Maximum	
2 x 2 x 0.5	7.4	8.6	90
10 x 2 x 0.5	13.0	14.9	240
2 x 2 x 0.75	8.6	9.9	115
10 x 2 x 0.75	15.2	17.4	320
2 x 2 x 1.34	10.0	11.4	160
10 x 2 x 1.34	17.9	20.5	460

Product on request

• Minimum bending radius = 10 x outer diameter

INS 2000
Collective Screen
Armoured (SWA) cables

Applications

300/500V

Instrumentation
Communication
Transmission of analogue or digital signals in measurement and process control for direct burial in ground.

Max core temperature: 90°C

Design

1. Conductor
Plain copper wires
Class 2

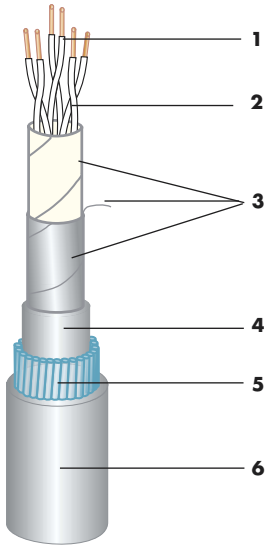
2. Insulation
XLPE
(cross-linked polyethylene)

3. Collective Screen
Polyester tape
Drain solid tinned copper wire
Aluminium/Polyester tape

4. Inner Sheath
PVC
(polyvinyl chloride)
Colour: grey

5. Armour
Galvanized steel wires

6. Outer Sheath
PVC
(polyvinyl chloride)
Colour: grey



Marking

Manufacturer's name -
Manufacturing number
XLPE/OA.SCR/PVC/SWA/PVC/LSLH
(Nb of pairs) x 2 x (Section) mm^2
IEC 60332.3C - Meter marking

Core Identification

Black-white
(white core printed with pair number for multipair)

Standards

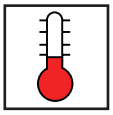
IEC 60228
IEC 60332-3 Cat. C

Flame retardant
IEC 60332.1
IEC 60332-3 Cat. C

Low smoke

Low Halogen

Low toxicity


-20 °C + 60 °C

INS 2000 - Collective Screen - Armoured (SWA) cables

Cables (mm^2)	Inner sheath (mm)	Armour (mm)	Outer diameter (mm)		Weight (kg/km)
			Minimum	Maximum	
1 x 2 x 0.5	5.2	7.0	8.8	10.1	195
2 x 2 x 0.5	5.8	7.6	9.7	11.1	235
5 x 2 x 0.5	9.7	11.5	13.6	15.6	400
10 x 2 x 0.5	12.7	14.5	16.4	18.9	565
15 x 2 x 0.5	14.6	16.4	18.4	21.1	695
20 x 2 x 0.5	16.7	18.5	20.6	23.7	845
30 x 2 x 0.5	20.1	23.3	25.4	29.1	1 400
1 x 2 x 0.75	5.8	7.6	9.6	11.0	230
2 x 2 x 0.75	6.5	8.3	10.4	11.9	265
5 x 2 x 0.75	11.2	13.0	15.0	17.2	480
10 x 2 x 0.75	14.8	16.6	18.6	21.4	705
15 x 2 x 0.75	17.2	20.4	22.4	25.7	1 155
20 x 2 x 0.75	19.7	23.0	25.1	28.8	1 400
30 x 2 x 0.75	23.9	27.1	29.2	33.5	1 805
1 x 2 x 1.34	6.6	8.4	10.4	11.9	265
2 x 2 x 1.34	7.5	9.3	11.3	13.0	320
5 x 2 x 1.34	13.2	15.0	17.1	19.6	625
10 x 2 x 1.34	17.8	21.0	22.9	26.3	1 215
15 x 2 x 1.34	20.7	23.9	25.9	29.8	1 525
20 x 2 x 1.34	23.8	27.0	29.1	33.4	1 865
30 x 2 x 1.34	28.7	31.9	34.1	39.1	2 455

Product on request

• Minimum bending radius = 10 x outer diameter

INS 2000
Individual & Collective Screen Armoured (SWA) cables

Applications

300/500V

Instrumentation
Communication
Transmission of analogue or digital signals in measurement and process control for direct burial in ground.

Max core temperature: 90°C

Design

1. Conductor
Plain copper wires
Class 2

2. Insulation
XLPE
(cross-linked polyethylene)

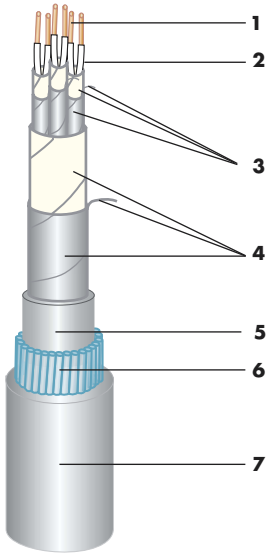
3. Individual Screen
Polyester tape
Drain solid tinned copper wire
Aluminium/Polyester tape

4. Individual Screen
Polyester tape
Drain solid tinned copper wire
Aluminium/Polyester tape

5. Inner Sheath
PVC
(polyvinyl chloride)
Colour: grey

6. Armour
Galvanized steel wires

7. Outer Sheath
PVC
(polyvinyl chloride)
Colour: grey



Marking

Manufacturer's name -
Manufacturing number
XLPE/IND. +OA.SCR/PVC
SWA/PVC LSLH
(Nb of pairs) x 2 x (Section) mm^2
IEC 60332.3C - Meter marking

Core Identification

black-white
(white core printred with pair number for multipair)

Standards

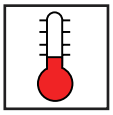
IEC 60228
IEC 60332-3 Cat. C

Flame retardant
IEC 60332.1
IEC 60332-3 Cat. C

Low smoke

Low Halogen

Low toxicity


-20 °C + 60 °C

INS 2000 - Individual & Collective Screen - Armoured (SWA) cables

Cables (mm^2)	Inner sheath (mm)	Armour (mm)	Outer diameter (mm)		Weight (kg/km)
			Minimum	Maximum	
2 x 2 x 0.5	7.9	9.7	11.7	13.4	315
10 x 2 x 0.5	13.1	14.9	16.8	19.3	605
2 x 2 x 0.75	9.1	10.9	12.8	14.7	370
10 x 2 x 0.75	15.2	17.0	19.0	21.8	745
2 x 2 x 1.34	10.5	12.3	14.3	16.5	460
10 x 2 x 1.34	18.2	21.4	23.4	26.8	1 275

Product on request

• Minimum bending radius = 10 x outer diameter

INS 2000
Collective Screen
Armoured (STA) cables

300/500V

Applications

Instrumentation
Communication
Transmission of analogue or digital signals in measurement and process control for direct burial in ground.

Max core temperature: 90 °C

Design

1. Conductor
Plain copper wires
Class 2

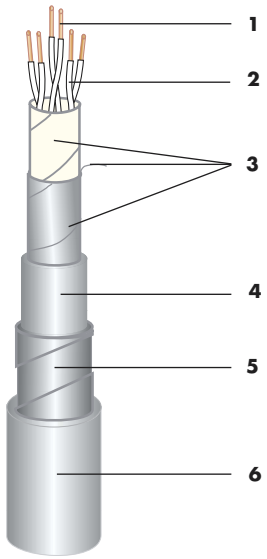
2. Insulation
XLPE
(cross-linked polyethylene)

3. Collective Screen
Polyester tape
Drain solid tinned copper wire
Aluminium/Polyester tape

4. Inner Sheath
PVC
(polyvinyl chloride)
Colour: grey

5. Armour
Galvanized or black steel tapes

6. Outer Sheath
PVC
(polyvinyl chloride)
Colour: grey



Marking

Manufacturer's name -
Manufacturing number
XLPE/OA.SCR/PVC/STA/PVC
LSLH (Nb of pairs) x 2 x
(Section) mm^2
IEC 60332.3C - Meter marking

Core Identification

Black-white
(white core printed with pair number for multipair)

Standards

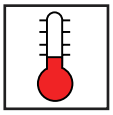
IEC 60228
IEC 60332-3 Cat. C

Flame retardant
IEC 60332.1
IEC 60332-3 Cat. C

Low smoke

Low Halogen

Low toxicity


-20 °C + 60 °C

INS 2000 - Collective Screen - Armoured (STA) cables

Cables (mm^2)	Inner sheath (mm)	Armour (mm)	Outer diameter (mm)		Weight (kg/km)
			Minimum	Maximum	
1 x 2 x 0.5	5.2	6.2	8.1	9.4	135
2 x 2 x 0.5	5.8	6.8	8.7	10.0	160
5 x 2 x 0.5	9.7	10.7	12.6	14.5	285
10 x 2 x 0.5	12.7	13.7	15.7	18.0	420
15 x 2 x 0.5	14.6	15.6	17.7	20.3	530
20 x 2 x 0.5	16.7	17.7	19.7	22.6	645
30 x 2 x 0.5	20.1	21.1	23.1	26.5	865
1 x 2 x 0.75	5.8	6.8	8.7	10.0	160
2 x 2 x 0.75	6.5	7.5	9.4	10.8	190
5 x 2 x 0.75	11.2	12.2	14.3	16.4	355
10 x 2 x 0.75	14.8	15.8	17.9	20.5	540
15 x 2 x 0.75	17.2	18.3	20.4	23.4	700
20 x 2 x 0.75	19.7	20.8	22.8	26.2	860
30 x 2 x 0.75	23.9	24.9	27.1	31.1	1 185
1 x 2 x 1.34	6.6	7.6	9.5	10.9	190
2 x 2 x 1.34	7.5	8.5	10.5	12.1	235
5 x 2 x 1.34	13.2	14.3	16.2	18.6	465
10 x 2 x 1.34	17.8	18.8	20.9	24.0	745
15 x 2 x 1.34	20.7	21.8	23.8	27.3	975
20 x 2 x 1.34	23.8	24.9	26.9	30.8	1 230
30 x 2 x 1.34	28.7	29.8	31.9	36.6	1 695

Product on request

- Minimum bending radius = 10 x outer diameter

INS 2000
Individual & Collective Screen Armoured (STA) cables

Applications

300/500V

Instrumentation
Communication
Transmission of analogue or digital signals in measurement and process control for direct burial in ground.

Max core temperature: 90 °C

Design

1. Conductor
Plain copper wires
Class 2

2. Insulation
XLPE
(cross-linked polyethylene)

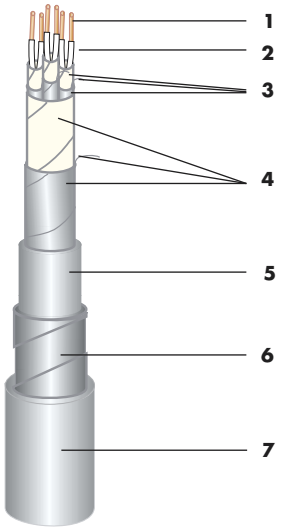
3. Individual Screen
Polyester tape
Drain solid tinned copper wire
Aluminium/Polyester tape

4. Collective screen
Polyester tape
Drain solid tinned copper wire
Aluminium/Polyester tape

5. Inner Sheath
PVC
(polyvinyl chloride)
Colour: grey

6. Armour
Galvanized or black steel tapes

7. Outer Sheath
PVC
(polyvinyl chloride)
Colour: grey



Marking

Manufacturer's name -
Manufacturing number
XLPE/IND.
+OA.SCR/PVC/STA/PVC LSLH
(Nb of pairs) x 2 x (Section) mm^2
IEC 60332.3C - Meter marking

Core Identification

Black-white
(white core printed with pair number for multipair)

Standards

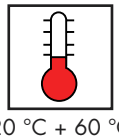
IEC 60228
IEC 60332-3 Cat. C

Flame retardant
IEC 60332.1
IEC 60332-3 Cat. C

Low smoke

Low Halogen

Low toxicity


-20 °C + 60 °C

INS 2000 - Individual & Collective Screen - Armoured (STA) cables

Cables (mm^2)	Inner sheath (mm)	Armour (mm)	Outer diameter (mm)		Weight (kg/km)
			Minimum	Maximum	
2 x 2 x 0.5	7.9	9.0	11.0	12.6	225
10 x 2 x 0.5	13.1	14.1	16.1	18.4	455
2 x 2 x 0.75	9.1	10.1	12.1	13.8	270
10 x 2 x 0.75	15.2	16.2	18.2	20.9	575
2 x 2 x 1.5	10.5	11.6	13.5	15.5	335
10 x 2 x 1.5	18.2	19.2	21.3	24.4	790

Product on request

- Minimum bending radius = 10 x outer diameter

INDUSTRIAL THERMOCOUPLES AND CABLES MEASUREMENT

Thermal Convertor:

If the ends of two metal wires of a different nature are soldered together and if the solder is heated there arises across the free ends of the wires a potential difference which is called "thermo-electromotive force". This electromotive force is expressed in millivolts. Provided that the thermo-electromotive force of the couple be a sufficient value and the unheated ends (cold solder) be at constant temperature, the measurement of this e.m.f will afford and easy method for the industrial measurement of temperature.

The maximum temperatures measured will only depend on substantially keeping the couple elements at these temperatures.

A constantan wire soldered with a pure copper wire or a pure iron wire constitutes excellent thermal convertors, the first one for measuring temperatures from -100 °C to 300 °C, the second one from 0 °C to 850 °C.

Cables:

As the ends of the thermocouple wires (cold solder) are not generally at the room temperature, it is important to extend the two thermocouple elements with conductors (cables) producing between themselves the same thermo-electromotive force between 0 °C and the temperature of the cold solder, which will be less expensive because they will be calibrated and checked 0 °C to 100 °C only, and their cross sections can be lower.

Measurement:

When the measuring instrument is at the room temperature and not a 0 °C, an accurate measurement can be obtained by applying the so-called "cold solder correction" i.e. by setting the zero of the instrument to the room temperature.

Poles:

The thermo-electromotive force of constantan versus platinum, copper or iron is negative.

A thermocouple constantan constitutes thus the negative pole and the other element the positive pole.

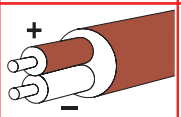
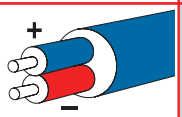
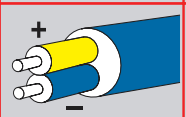
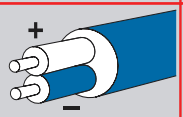
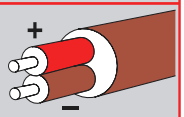
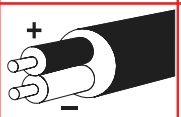
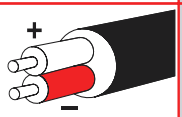
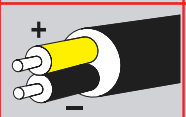
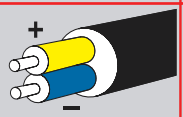
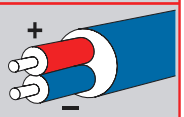
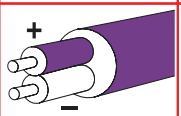
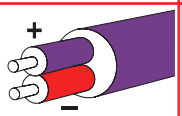
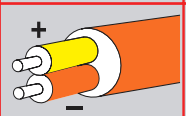
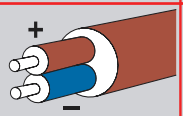
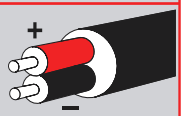
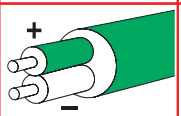
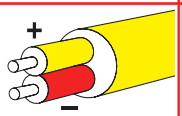
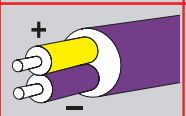
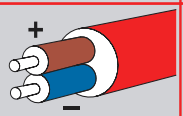
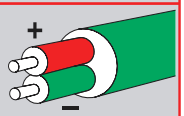
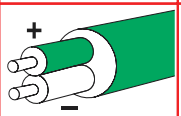
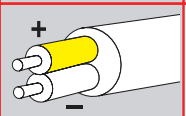
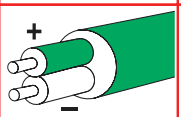
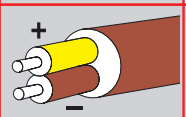
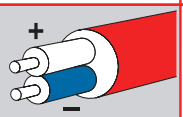
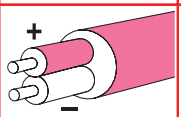
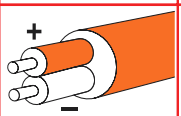
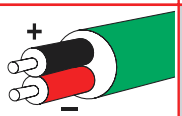
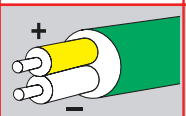
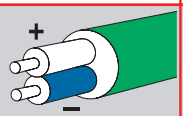
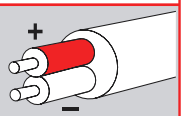
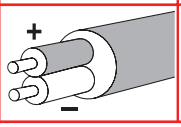
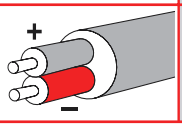
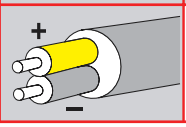
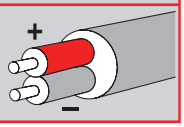
Types of cables:

Conductors are as a rule of the same nature as thermocouple wires. Nevertheless, the nickel chromium / nickel aluminium group can include several types of couples with different compositions and particular application characteristics.

They may fall into the same group only when they have the same curve of electromotive force against temperature.

Nickel chromiun / nickel aluminium couples can be compensated by copper and copper-nickel conductors or iron and copper-nickel conductors if the latter is specially calibrated according to the chromel v. alumel e.m.f. table.

EXTENSION AND COMPENSATING CABLES

Couple		Nature of conductors of extension or compensating cables		Symbol	Cenelec standard HD 446.3S1 / French standard NFC 42-324 / British standard BS4937 part 30 / German standard DIN IEC 584 / International standard IEC 60 584-3	American standard ANSI/MC96.1	Former standards		
							French	British	German
Nature	Symb.	Positive	Negative						
copper/ copper-nickel	T	copper	copper-nickel T	TX TC					
iron/ copper-nickel	J	pure iron	copper-nickel J	JX JC					
nickel-chromium/ copper-nickel	E	nickel-chromium	copper-nickel E	EX EC					
nickel-chromium/ nickel-aluminium/	K	nickel-chromium	nickel-aluminium	KX KC					
		iron	copper-nickel	KCA					
		copper	copper-nickel	KCB					
nickel-chromium silicium/ nickel-silicium	N	nickel chromium silicium	nickel-silicium	NX NC					
platinum-rhodium (10 or 13 %)/ platinum	S or R	copper	S or R copper-nickel	SCA SCB RCA RCB					
platinum-rhodium 30 %/ platinum-rhodium 6 %	B	copper	copper alloy	BC					

CORE IDENTIFICATION

- Collectively screened cables (EG) : the positive conductor of each pair is printed with the pair number
- Individually screened cables (EI) : the grey screen insulation is printed with the pair number

* Note : The letter C accompanying the letter defining the thermocouple indicates that it is a compensation cable. The letter X accompanied by T, J, E, K or N designates an extension cable.

DESIGNATION AND IDENTIFICATION

In order :

• Two figures corresponding to the number of pairs

• Two letters or three indicating the cable type – TC - JC - EC
KC - KCA - KCB - NC - RCA - RCB - SCA - SCB - BC

• Two figures corresponding to the cross-sectional area
10: 1.00sqmm (14 x 0.30mm) for single pair cables
14: 1.34sqmm (1 x 1.3mm) for single pair cables
05: 0.5sqmm (1 x 0.80mm) for multipair cables

• Two letters indicating screening
EG: Overall (collective) screen
EI: Individual screen. The individual screens are insulated with PVC and the cable also includes an overall screen

• Two letters indicating the exterior covering
SF : non-armoured with PVC sheath
FA : double steel tape armoured (paper bedded) with PVC sheath
PF : lead covered and armoured – lead tube, double steel tape armoured (paper bedded) with PVC sheath

TOLERANCE

Cable Type	Tolerance	Temperature range (see note)	Temperature max to be measured
JC	± 2,5 °C	– 25 °C à + 200 °C	500 °C
TC	± 1,0 °C	– 25 °C à + 100 °C	300 °C
EC	± 2,5 °C	– 25 °C à + 200 °C	500 °C
KC	± 2,5 °C	– 25 °C à + 200 °C	900 °C
KCA	± 2,5 °C	0 °C à + 150 °C	900 °C
KCB	± 2,5 °C	0 °C à + 100 °C	900 °C
NC	± 2,5 °C	0 °C à + 150 °C	900 °C
RCA	± 2,5 °C	0 °C à + 100 °C	1 000 °C
RCB	± 5,0 °C	0 °C à + 200 °C	1 000 °C
SCA	± 2,5 °C	0 °C à + 100 °C	1 000 °C
SCB	± 5,0 °C	0 °C à + 200 °C	1 000 °C
BC	± 3,5 °C	0 °C à + 100 °C	1 400 °C

Due to the non-linear correspondence deg°C function of the electromotive force for thermocouple cables R, S and B, the error expressed in deg°C introduced by the compensation cables varies according to the measured temperature. The values indicated above correspond to normal use of these couples (that is to say, generally at measured temperatures exceeding 850°C.

Note : the maximum temperatures indicated above are the limit for couple connections – compensation cables from a thermoelectric point of view take into account fixed tolerances. It is commonly accepted that couple-cable connections must not be heated to temperatures exceeding 80 °C ; this is the maximum admissible temperature for cables in our current catalogue.

TC - Copper/Copper Nickel for Copper/Copper Nickel thermocouple
JC - Iron/Copper Nickel for Iron/Copper Nickel thermocouple
EC - Nickel Chromium/Copper Nickel for Nickel Chromium/Copper Nickel thermocouple
KC - Nickel Chromium/Nickel Aluminium for Nickel Chromium/Nickel Aluminium thermocouple
KCA - Iron/Copper Nickel for Nickel Chromium/Nickel Aluminium thermocouple
KCB - Copper/Copper Nickel for Nickel Chromium/Nickel Aluminium thermocouple
NC - Nickel Chromium Silicium/Nickel Silicium for Nickel Chromium Silicium/Nickel Silicium thermocouple
SC RC - Copper/Copper Nickel for Platinium Rhodium thermocouple
BC - Copper/Copper Alloy for Platinium Rhodium/Platinium Rhodium thermocouple

The cables shown in our current catalogue are those defined by the NF M 87-201 standard which was revised following the publication of NF C 42-324 in December 1993 (HD 446.3 S1) taking into account the recommendations of IEC 60584.3.

Standardisation

NF E 18-001 of 1958, made obsolete by the work of the EIC, has been progressively replaced by the following standards :

NF C 42-321
Thermoelectric Couples – tables of reference

NF C 42-322
Thermoelectric Couples – tolerances

NF C 43-323
Identification of Thermoelectric Couples

NF C 42-324
Extension and compensation cables for thermoelectric couples. This document conforms with HD 446.3 S1 CENELEC harmonisation document taking into account IEC 584.3 and consequently modifies conductor identification and sheath colours accordingly.

Definitions

Extension Cable :
A cable constructed with conductors of the same nature as the elements of the thermoelectric couple and extending this towards the "jonction de reference", that which implies the same electromotive force tolerances as that of the "fils constitutifs" of the corresponding couple over the complete intended temperature range of the cable.

Compensation Cable :
Cable constructed with conductors of a different nature or the quality of that of the thermoelectric couple, but with thermoelectric characteristics of which the resultant error would be low within the defined temperature range.

Note :
This manual only covers compensation cables. Please contact us concerning your extension cable requirements.

AFNOR NF M 87-201
Collective Screen Unarmoured Single Pair cables

Applications

250 V

See page 150

Max core temperature: 70 °C

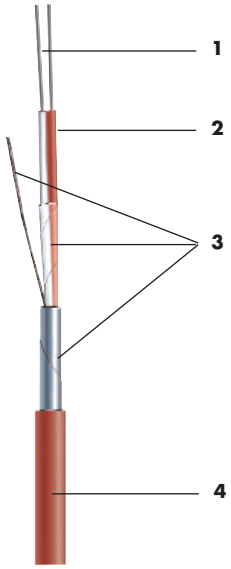
Design

1. Conductor
Metals in accordance with the thermocouple, either solid of cross-section 1.34 mm² (1 x 1.3 mm)
or stranded of cross-section 1 mm² (14 x 0.30 mm)

2. Insulation
PVC
(polyvinyl chloride)

3. Tape
Polyester tape
Drain tinned copper wire
Aluminium/Polyester tape

4. Outer sheath
PVC
(polyvinyl chloride)



Marking

Manufacturer's name
For type JC - TC - EC - KC - BC:
Type - Temperature - Class - n x s
For type KCA - KCB - NC - SCA - SCB - RCA - RCB:
IEC - Type - Temperature - Class - n x s

Core Identification

See page 151-152

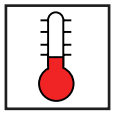
Standards

AFNOR NF M 87-201
NF C 42-324
IEC 60584.3

Flame retardant
NF C 32-070-C2

Good

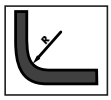
Good


-20 °C + 60 °C

AFNOR NF M 87-201 - Collective Screen Unarmoured - Single Pair cables

Number of Pair	Thermocouple	Section	Screen	No Armoured	Outer Diameter		Weight (kg/km)
					Minimum	Maximum	
01 -	*	- 10 -	EG	- SF	6.4	7.5	75
01 -	*	- 14 -	EG	- SF	6.4	7.5	80

Product on request



• Minimum bending radius = 10 x outer diameter

*** Thermocouple Type:**

TC - Copper/Copper Nickel for Copper/Copper Nickel thermocouple
JC - Iron/Copper Nickel for Iron/Copper Nickel thermocouple
EC - Nickel Chromium/Copper Nickel for Nickel Chromium/Copper Nickel thermocouple
KC - Nickel Chromium/Nickel Aluminium for Nickel Chromium/Nickel Aluminium thermocouple
KCA - Iron/Copper Nickel for Nickel Chromium/Nickel Aluminium thermocouple
KCB - Copper/Copper Nickel for Nickel Chromium/Nickel Aluminium thermocouple
NC - Nickel Chromium Silicium/Nickel Silicium for Nickel Chromium Silicium/Nickel Silicium thermocouple
SC RC - Copper/Copper Nickel for Platinium Rhodium thermocouple
BC - Copper/Copper Alloy for Platinium Rhodium/Platinium Rhodium thermocouple

AFNOR NF M 87-201
Collective Screen Unarmoured Multipair cables

250 V

Applications

See page 150

Max core temperature: 70 °C

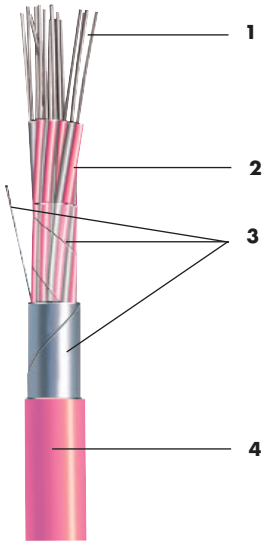
Design

1. Conductor
Metals in accordance with the thermocouple either solid of cross-section 0.50 mm² (1 x 0.8 mm)

2. Insulation
PVC
(polyvinyl chloride)

3. Screen
Polyester tape
Drain tinned copper wire
Aluminium / Polyester tape

4. Outer sheath
PVC
(polyvinyl chloride)



Marking

Manufacturer's name
For type JC - TC - EC - KC - BC:
Type - Temperature - Class - n x s
For type KCA - KCB - NC - SCA - SCB - RCA - RCB:
IEC - Type - Temperature - Class - n x s

Core Identification

See page151-152

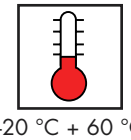
Standards

AFNOR NF M 87-201
NF C 42-324
IEC 60584.3

Flame retardant
NF C 32070-C2

Good

Good


-20 °C + 60 °C

AFNOR NF M 87-201 - Collective Screen Unarmoured - Multipair cables

Number of Pair	Thermocouple	Section	Screen	No Armoured	Outer Diameter		Weight (kg/km)
					Minimum	Maximum	
03 -	*	- 05 -	EG	- SF	8.0	9.3	95
07 -	*	- 05 -	EG	- SF	10.5	12.1	160
12 -	*	- 05 -	EG	- SF	13.4	15.4	255
19 -	*	- 05 -	EG	- SF	16.5	19.0	380
27 -	*	- 05 -	EG	- SF	19.2	22.0	510

Product on request

• Minimum bending radius = 10 x outer diameter

*** Thermocouple Type:**

TC - Copper/Copper Nickel for Copper/Copper Nickel thermocouple
JC - Iron/Copper Nickel for Iron/Copper Nickel thermocouple
EC - Nickel Chromium/Copper Nickel for Nickel Chromium/Copper Nickel thermocouple
KC - Nickel Chromium/Nickel Aluminium for Nickel Chromium/Nickel Aluminium thermocouple
KCA - Iron/Copper Nickel for Nickel Chromium/Nickel Aluminium thermocouple
KCB - Copper/Copper Nickel for Nickel Chromium/Nickel Aluminium thermocouple
NC - Nickel Chromium Silicium/Nickel Silicium for Nickel Chromium Silicium/Nickel Silicium thermocouple
SC RC - Copper/Copper Nickel for Platinium Rhodium thermocouple
BC - Copper/Copper Alloy for Platinium Rhodium/Platinium Rhodium thermocouple

AFNOR NF M 87-201
Collective Screen Armoured Single Pair cables

250 V

Applications

See page 150

Max core temperature: 70 °C

Design

1. Conductor
Metals in accordance with the thermocouple either solid of cross-section 1.34 mm² (1 x 1.3 mm) or stranded of cross-section 1 mm² (14 x 0.30 mm)

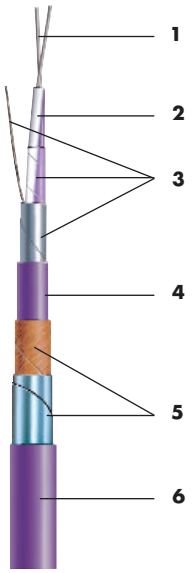
2. Insulation
PVC
(polyvinyl chloride)

3. Screen
Polyester tape
Drain tinned copper wire
Aluminium/Polyester tape

4. Inner sheath
PVC
(polyvinyl chloride)

5. Armour
Paraffin-waxed crepe paper
Double steel tape 0.2 mm thick

6. Outer sheath
PVC
(polyvinyl chloride)



Marking

Manufacturer's name
For type JC - TC - EC - KC - BC:
Type - Temperature - Class - n x s
For type KCA - KCB - NC - SCA - SCB - RCA - RCB:
IEC - Type - Temperature - Class - n x s

Core Identification

See page 151-152

Standards

AFNOR NF M 87-201
NF C 42-324
IEC 60584.3

Flame retardant
NF C 32-070-C2

Good

Good

-20 °C + 60 °C

EMI

AFNOR NF M 87-201 - Collective Screen Armoured - Single Pair cables

Number of Pair	Thermocouple	Section	Screen	Armoured	Outer Diameter		Weight (kg/km)
					Minimum	Maximum	
01 -	*	- 10 -	EG	- FA	9.8	11.2	180
01 -	*	- 14 -	EG	- FA	9.8	11.2	190

Product on request

• Minimum bending radius = 10 x outer diameter

*** Thermocouple Type:**

TC - Copper/Copper Nickel for Copper/Copper Nickel thermocouple
JC - Iron/Copper Nickel for Iron/Copper Nickel thermocouple
EC - Nickel Chromium/Copper Nickel for Nickel Chromium/Copper Nickel thermocouple
KC - Nickel Chromium/Nickel Aluminium for Nickel Chromium/Nickel Aluminium thermocouple
KCA - Iron/Copper Nickel for Nickel Chromium/Nickel Aluminium thermocouple
KCB - Copper/Copper Nickel for Nickel Chromium/Nickel Aluminium thermocouple
NC - Nickel Chromium Silicium/Nickel Silicium for Nickel Chromium Silicium/Nickel Silicium thermocouple
SC RC - Copper/Copper Nickel for Platinium Rhodium thermocouple
BC - Copper/Copper Alloy for Platinium Rhodium/Platinium Rhodium thermocouple

AFNOR NF M 87-201
Collective Screen Armoured Multipair cables

250 V

Applications

See page 150

Max core temperature: 70 °C

Design

1. Conductor
Metals in accordance with the thermocouple either solid of cross-section 0.50 mm² (1 x 0.80 mm)

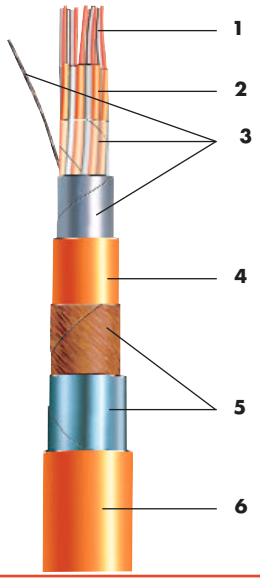
2. Insulation
PVC
(polyvinyl chloride)

3. Screen
Polyester Tape
Drain tinned copper wire
Aluminium/Polyester tape

4. Inner sheath
PVC
(polyvinyl chloride)

5. Armour
Paraffin-waxed crepe paper
Double steel tape 0.2 mm thick

6. Outer sheath
PVC
(polyvinyl chloride)



Marking

Manufacturer's name
For type JC - TC - EC - KC - BC:
Type - Temperature - Class - n x s
For type KCA - KCB - NC - SCA - SCB - RCA - RCB:
IEC - Type - Temperature - Class - n x s

Core Identification

See page 151-152

Standards

AFNOR NF M 87-201
NF C 42-324
IEC 60584.3

Flame retardant
NF C 32070-C2

Good

Good

-20 °C + 60 °C

EMI

AFNOR NF M 87-201 - Collective Screen Armoured - Multipair cables

Number of Pair	Thermocouple	Section	Screen	Armoured	Outer Diameter		Weight (kg/km)
					Minimum	Maximum	
03 -	*	- 05 -	EG	-FA	11.4	13.1	225
07 -	*	- 05 -	EG	-FA	14.1	16.2	330
12 -	*	- 05 -	EG	-FA	17.3	19.8	470
19 -	*	- 05 -	EG	-FA	20.6	23.7	650
27 -	*	- 05 -	EG	-FA	23.2	26.6	830

Product on request

• Minimum bending radius = 10 x outer diameter

*** Thermocouple Type:**

TC - Copper/Copper Nickel for Copper/Copper Nickel thermocouple
JC - Iron/Copper Nickel for Iron/Copper Nickel thermocouple
EC - Nickel Chromium/Copper Nickel for Nickel Chromium/Copper Nickel thermocouple
KC - Nickel Chromium/Nickel Aluminium for Nickel Chromium/Nickel Aluminium thermocouple
KCA - Iron/Copper Nickel for Nickel Chromium/Nickel Aluminium thermocouple
KCB - Copper/Copper Nickel for Nickel Chromium/Nickel Aluminium thermocouple
NC - Nickel Chromium Silicium/Nickel Silicium for Nickel Chromium Silicium/Nickel Silicium thermocouple
SC RC - Copper/Copper Nickel for Platinium Rhodium thermocouple
BC - Copper/Copper Alloy for Platinium Rhodium/Platinium Rhodium thermocouple

AFNOR NF M 87-201
Collective Screen Lead Covered Armoured Single Pair cables

Applications
250 V

See page 150

Max core temperature: 70 °C

Design

1. Conductor
Metals in accordance with the thermocouple either solid of cross-section 1.34 mm² (1 x 1.3 mm) or stranded of cross-section 1 mm² (14 x 0.30 mm)

2. Insulation
PVC
(polyvinyl chloride)

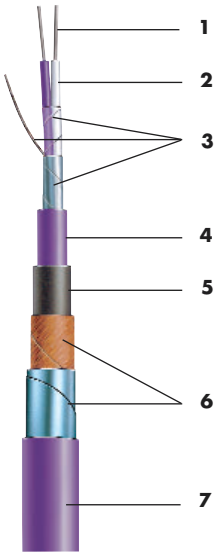
3. Screen
Polyester tape
Drain tinned copper wire
Aluminium / Polyester tape

4. Inner sheath
PVC
(polyvinyl chloride)

5. Lead Pipe

6. Armour
Paraffin-waxed crepe paper
Double steel tape 0.2 mm thick

7. Outer sheath
PVC
(polyvinyl chloride)



Marking

Manufacturer's name
For type: JC - TC - EC - KC - BC:
Type - Temperature - Class - n x s
For type KCA - KCB - NC - SCA - SCB - RCA - RCB:
IEC - Type - Temperature - Class - n x s

Core Identification

See page 151-152

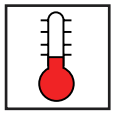
Standards

AFNOR NF M 87-201
NF C 42-324
IEC 60584.3

Flame retardant
NF C 32-070-C2

Good

Good


-20 °C + 60 °C

AFNOR NF M 87-201 - Collective Screen Lead Covered Armoured - Single Pair cables

Number of Pair	Thermocouple	Section	Screen	Lead + Armoured	Lead Diameter (mm)	Outer Diameter		Weight (kg/km)
						Minimum	Maximum	
01 -	*	- 10 -	EG	- PF	9.0	11.9	13.7	520
01 -	*	- 14 -	EG	- PF	9.0	11.9	13.7	530

Product on request

• Minimum bending radius = 10 x outer diameter

*** Thermocouple Type:**

TC - Copper/Copper Nickel for Copper/Copper Nickel thermocouple
JC - Iron/Copper Nickel for Iron/Copper Nickel thermocouple
EC - Nickel Chromium/Copper Nickel for Nickel Chromium/Copper Nickel thermocouple
KC - Nickel Chromium/Nickel Aluminium for Nickel Chromium/Nickel Aluminium thermocouple
KCA - Iron/Copper Nickel for Nickel Chromium/Nickel Aluminium thermocouple
KCB - Copper/Copper Nickel for Nickel Chromium/Nickel Aluminium thermocouple
NC - Nickel Chromium Silicium/Nickel Silicium for Nickel Chromium Silicium/Nickel Silicium thermocouple
SC RC - Copper/Copper Nickel for Platinium Rhodium thermocouple
BC - Copper/Copper Alloy for Platinium Rhodium/Platinium Rhodium thermocouple

AFNOR NF M 87-201
Collective Screen Lead Covered Armoured Multipair cables

Applications

250 V

See page 150

Max core temperature: 70 °C

Design

1. Conductor
Metals in accordance with the thermocouple either solid of cross-section 0.50 mm² (1 x 0.80 mm)

2. Insulation
PVC
(polyvinyl chloride)

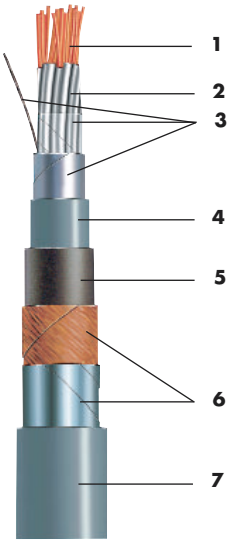
3. Collective screen
Polyester tape
Drain tinned copper wire
Aluminium/Polyester tape

4. Inner sheath
PVC
(polyvinyl chloride)

5. Lead Pipe

6. Armour
Paraffin-waxed crepe paper
Double steel tape 0.2 mm thick

7. Outer sheath
PVC
(polyvinyl chloride)



Marking

Manufacturer's name
For type JC - TC - EC - KC - BC:
Type - Temperature - Class - n x s
For type KCA - KCB - NC - SCA - SCB - RCA - RCB:
IEC - Type - Temperature - Class - n x s

Core Identification

See page 151-152

Standards

AFNOR NF M 87-201
NF C 42-324
IEC 60584.3

Flame retardant
NF C 32070-C2

Good

Good

-20 °C + 60 °C

EMI

AFNOR NF M 87-201 - Collective Screen Lead Covered Armoured - Multipair cables

Number of Pair	Thermocouple	Section	Screen	Lead + Armoured	Lead Diameter (mm)	Outer Diameter		Weight (kg/km)
						Minimum	Maximum	
03 -	*	- 05 -	EG	- PF	10.7	13.7	15.7	635
07 -	*	- 05 -	EG	- PF	13.3	16.3	18.7	840
12 -	*	- 05 -	EG	- PF	16.5	19.4	22.2	1 160
19 -	*	- 05 -	EG	- PF	20.0	22.9	26.3	1 550
27 -	*	- 05 -	EG	- PF	23.0	25.9	29.8	1 855

Product on request

• Minimum bending radius = 10 x outer diameter

*** Thermocouple Type:**

TC - Copper/Copper Nickel for Copper/Copper Nickel thermocouple
JC - Iron/Copper Nickel for Iron/Copper Nickel thermocouple
EC - Nickel Chromium/Copper Nickel for Nickel Chromium/Copper Nickel thermocouple
KC - Nickel Chromium/Nickel Aluminium for Nickel Chromium/Nickel Aluminium thermocouple
KCA - Iron/Copper Nickel for Nickel Chromium/Nickel Aluminium thermocouple
KCB - Copper/Copper Nickel for Nickel Chromium/Nickel Aluminium thermocouple
NC - Nickel Chromium Silicium/Nickel Silicium for Nickel Chromium Silicium/Nickel Silicium thermocouple
SC RC - Copper/Copper Nickel for Platinium Rhodium thermocouple
BC - Copper/Copper Alloy for Platinium Rhodium/Platinium Rhodium thermocouple

AFNOR NF M 87-201
Individual & Collective Screen Unarmoured Multipair cables

Applications

250 V

See page 150

Max core temperature: 70 °C

Design

1. Conductor
Metals in accordance with the thermocouple either solid of cross-section 0.50 mm² (1 x 0.80 mm)

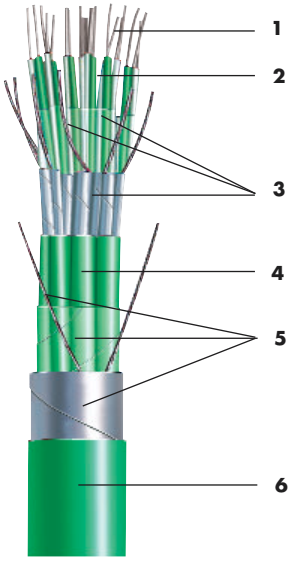
2. Insulation
PVC
(polyvinyl chloride)

3. Individual screen
Polyester tape
Drain tinned copper wire
Aluminium/Polyester tape

4. Individual sheath
PVC
(polyvinyl chloride)

5. Collective screen
Polyester tape
Drain tinned copper wire
Aluminium/Polyester tape

6. Outer sheath
PVC
(polyvinyl chloride)



Marking

Manufacturer's name
For type JC - TC - EC - KC - BC:
Type - Temperature - Class - n x s
For type KCA - KCB - NC - SCA - SCB - RCA - RCB:
IEC - Type - Temperature - Class - n x s

Core Identification

See page 151-152

Standards

AFNOR NF M 87-201
NF C 42-324
IEC 60584.3

Flame retardant
NF C 32070-C2

Good

Good

-20 °C + 60 °C

EMI

AFNOR NF NF M 87-201 - Individual & Collective Screen Unarmoured - Multipair cables

Number of Pair	Thermocouple	Section	Screen	No Armoured	Outer Diameter		Weight (kg/km)
					Minimum	Maximum	
03 -	*	- 05 -	EI	- SF	11.1	12.8	180
07 -	*	- 05 -	EI	- SF	15.4	17.7	335
12 -	*	- 05 -	EI	- SF	19.8	22.8	545
19 -	*	- 05 -	EI	- SF	24.5	28.1	820
27 -	*	- 05 -	EI	-SF	28.9	33.2	1 135

Product on request

• Minimum bending radius = 10 x outer diameter

*** Thermocouple Type:**

TC - Copper/Copper Nickel for Copper/Copper Nickel thermocouple
JC - Iron/Copper Nickel for Iron/Copper Nickel thermocouple
EC - Nickel Chromium/Copper Nickel for Nickel Chromium/Copper Nickel thermocouple
KC - Nickel Chromium/Nickel Aluminium for Nickel Chromium/Nickel Aluminium thermocouple
KCA - Iron/Copper Nickel for Nickel Chromium/Nickel Aluminium thermocouple
KCB - Copper/Copper Nickel for Nickel Chromium/Nickel Aluminium thermocouple
NC - Nickel Chromium Silicium/Nickel Silicium for Nickel Chromium Silicium/Nickel Silicium thermocouple
SC RC - Copper/Copper Nickel for Platinium Rhodium thermocouple
BC - Copper/Copper Alloy for Platinium Rhodium/Platinium Rhodium thermocouple

AFNOR NF M 87-201
Individual & Collective Screen Armoured Multipair cables

250 V

Applications

See page 150

Max core temperature: 70 °C

Design

1. Conductor
Metals in accordance with the thermocouple either solid of cross-section 0.50 mm² (1 x 0.80 mm)

2. Insulation
PVC
(polyvinyl chloride)

3. Individual screen
Polyester tape
Drain tinned copper wire
Aluminium/Polyester tape

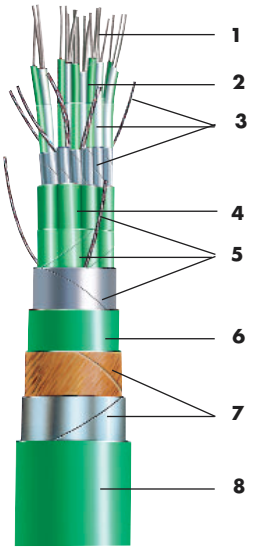
4. Individual sheath
PVC (polyvinyl chloride)

5. Collective screen
Polyester tape
Drain tinned copper wire
Aluminium/Polyester tape

6. Inner sheath
PVC
(polyvinyl chloride)

7. Armour
Paraffin-waxed crepe paper optional
Double steel tape 0.2 mm thick

8. Outer sheath
PVC
(polyvinyl chloride)



Marking

Manufacturer's name
For type JC - TC - EC - KC - BC:
Type - Temperature - Class - n x s
For type KCA - KCB - NC - SCA - SCB - RCA - RCB:
IEC - Type - Temperature - Class - n x s

Core Identification

See page 151-152

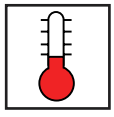
Standards

AFNOR NF M 87-201
NF C 42-324
IEC 60584.3

Flame retardant
NF C 32070-C2

Good

Good


-20 °C + 60 °C

AFNOR NF M 87-201 - Individual & Collective Screen Armoured - Multipair cables

Number of Pair	Thermocouple	Section	Screen	Armoured	Outer Diameter		Weight (kg/km)
					Minimum	Maximum	
03 -	*	- 05 -	EI	- FA	14.6	16.8	370
07 -	*	- 05 -	EI	- FA	19.1	22.0	590
12 -	*	- 05 -	EI	- FA	23.8	27.3	880
19 -	*	- 05 -	EI	- FA	28.6	32.8	1 250
27 -	*	- 05 -	EI	- FA	33.2	38.2	1 700

Product on request

• Minimum bending radius = 10 x outer diameter

*** Thermocouple Type:**

TC - Copper/Copper Nickel for Copper/Copper Nickel thermocouple
JC - Iron/Copper Nickel for Iron/Copper Nickel thermocouple
EC - Nickel Chromium/Copper Nickel for Nickel Chromium/Copper Nickel thermocouple
KC - Nickel Chromium/Nickel Aluminium for Nickel Chromium/Nickel Aluminium thermocouple
KCA - Iron/Copper Nickel for Nickel Chromium/Nickel Aluminium thermocouple
KCB - Copper/Copper Nickel for Nickel Chromium/Nickel Aluminium thermocouple
NC - Nickel Chromium Silicium/Nickel Silicium for Nickel Chromium Silicium/Nickel Silicium thermocouple
SC RC - Copper/Copper Nickel for Platinium Rhodium thermocouple
BC - Copper/Copper Alloy for Platinium Rhodium/Platinium Rhodium thermocouple

AFNOR NF M 87-201
Ind. & Collective Screen Lead Covered Armoured Multipair cables

250 V

Applications

See page 150

Max core temperature: 70 °C

Design

1. Conductor
Metals in accordance with the thermocouple either solid of cross-section 0.50 mm² (1 x 0.80 mm)

2. Insulation
PVC
(polyvinyl chloride)

3. Individual screen
Polyester tape
Drain tinned copper wire
Aluminium/Polyester tape

4. Individual sheath
PVC
(polyvinyl chloride)

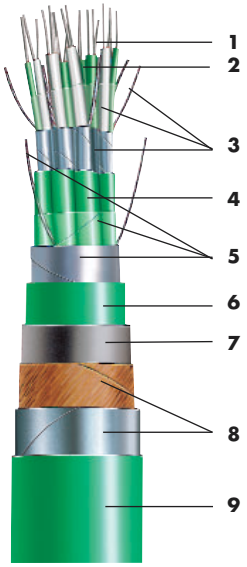
5. Collective screen
Polyester tape
Drain tinned copper wire
Aluminium/Polyester tape

6. Inner sheath
PVC
(polyvinyl chloride)

7. Lead pipe

8. Armour
Paraffin-waxed crepe paper
Double steel tape 0.2 mm thick

9. Outer sheath
PVC
(polyvinyl chloride)



Marking

Manufacturer's name
For type JC - TC - EC - KC - BC:
Type - Temperature - Class - n x s
For type KCA - KCB - NC - SCA - SCB - RCA - RCB:
IEC - Type - Temperature - Class - n x s

Core Identification

See page 151-152

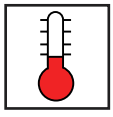
Standards

AFNOR NF M 87-201
NF C 42-324
IEC 60584.3

Flame retardant
NF C 32070-C2

Good

Good


-20 °C + 60 °C

AFNOR NF M 87-201 - Ind. & Collective Screen Lead Covered Armoured - Multipair cables

Number of Pair	Thermocouple	Section	Screen	Lead + Armoured	Lead Diameter (mm)	Outer Diameter		Weight (kg/km)
						Minimum	Maximum	
03 -	*	- 05 -	EI	- PF	14.1	17.1	19.6	950
07 -	*	- 05 -	EI	- PF	18.8	21.8	25.0	1 450
12 -	*	- 05 -	EI	- PF	23.7	26.6	30.5	2 025
19 -	*	- 05 -	EI	- PF	28.8	31.6	36.3	2 745
27 -	*	- 05 -	EI	- PF	33.7	36.5	41.9	3 400

Product on request

• Minimum bending radius = 10 x outer diameter

*** Thermocouple Type:**

TC - Copper/Copper Nickel for Copper/Copper Nickel thermocouple
JC - Iron/Copper Nickel for Iron/Copper Nickel thermocouple
EC - Nickel Chromium/Copper Nickel for Nickel Chromium/Copper Nickel thermocouple
KC - Nickel Chromium/Nickel Aluminium for Nickel Chromium/Nickel Aluminium thermocouple
KCA - Iron/Copper Nickel for Nickel Chromium/Nickel Aluminium thermocouple
KCB - Copper/Copper Nickel for Nickel Chromium/Nickel Aluminium thermocouple
NC - Nickel Chromium Silicium/Nickel Silicium for Nickel Chromium Silicium/Nickel Silicium thermocouple
SC RC - Copper/Copper Nickel for Platinium Rhodium thermocouple
BC - Copper/Copper Alloy for Platinium Rhodium/Platinium Rhodium thermocouple

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Nexans

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