



Product Catalogue

Environment and quality policy



Draka Keila Cables Ltd. wishes to gain satisfaction of the customers, employees and owners without damaging of environment. In Draka Keila Cables Ltd. the decisions are made, which allow to develop the company and to save environment at the same time and on the assumption of this principle continuously to improve the system of management.

In Draka Keila Cables Ltd. there is used the multistage program of the quality control, which covers production process from development of the cables, purchasing of raw materials and production of installation and power cables to the documentation of supplemental examinations and tests.

The quality and environmental management system of Draka Keila Cables Ltd. has appraised and approved by Lloyd's Register Quality Assurance Limited, which performs regular audits according to standard of quality system ISO 9001 and ISO 14001.

Table of Contents

Introduction	2
General information.....	3
Basic cable data	3

Power cables

ACSR	8
HK.....	10
AS.....	11
A.....	12
AXMK-PLUS and XMK-PLUS 1-core	13
AXPK-PLUS	14
AXPK	16
EMC-Line 1 kV (IFSI).....	18
AMCMK 3 1/2-core	20
AMCMK 4 1/2-core	22
MCMK 3-core.....	24
MCMK 4-core.....	25
MCMK 5-core.....	26
MCCMK 4-core	28
MCCMK 5-core	29
MCMK 3 1/2-core.....	30
MCMK 4 1/2-core.....	32
MCMO.....	34
ARLC Aluminium Road Lighting Cable	35
EX	36
AMKA	37
AHXAMK-W 6/10 (12) kV	38
AHXAMK-W 12/20 (24) kV.....	39
AXLJ-TT 7/12 kV	40
AXLJ-TT 14/24 kV.....	41
AXLJ-TTCL TSLF 14/24 kV	42
AXLJ-TT 7/12 kV (3-core).....	43
AXLJ-TT 14/24 kV (3-core).....	44
AXLJ-RMF 7/12 kV	45
AXLJ-RMF 14/24 kV.....	46
AXQJ-RMF 7/12 kV	47
AXQJ-RMF 14/24 kV.....	48
AXQJ-F 7/12 kV	49
AXQJ-F 14/24 kV	50
PAS-W 20 kV.....	51

Installation cables and wires

PL / ML / H07V-U.....	53
PK / MK / H07V-R	54

MK 90 / H07V2-R.....	55
MKEM 90 / H07V2-K.....	56
MMO.....	57
EKLK 450/750 V	58
PPJ	59
MSK / H05VV-F	60
PROFIT.....	61

Automation, data and telecommunication cables

JAMAK.....	62
JAMAK ARM	63
NOMAK.....	64
KLMA	65
PULS 2,5 75V	66
MHS	67
VMOHBU	68
H05RN-F; RDO/05RN-F 300/500 V	69
DRAKAFLEX H07RN-F 450/750 V	70

Halogen-free and fire resistant cables

DRAKAFLEX-TARMO	
H07BN4-F 450/750 V LSZH	72
HULT(FLEX) LSOH FB 90 0,6/1 kV	74
HULT(FLEX) LSOH FB 30/60 0,6/1 kV	75
Signal cable type 2300 FB 30 (mbzh).....	76
Signal cable type 2300 FB 90 (mbzh)	78
Draka SF/UTP Cat."5" FB 90 (mbzh).....	80
BI(c) 250V	81
BFSI-EMC 1 kV.....	82
HULT(FLEX) LSOH 0,6/1 kV	83
EQQ-Light 300/500 V.....	84
EQLQ 450/750 V	85
FQLQ 450/750 V	86
AXQJ 0,6/1 kV.....	87
EXQJ 0,6/1 kV.....	88
FXQJ 0,6/1 kV.....	89

Drums

Drum handling guide.....	90
Drum dimensions and weights.....	92

Introduction

Draka Keila Cables was established in 1992. Company's equity holders are Draka NK Cables Ltd. (former Nokia Cables), with 66%, and an Estonian electrical equipment producing company AS Harju Elekter with 34%.

Through Draka NK Cables Keila Kaabel belongs to DRAKA Holding, one of the biggest cable producers in the world. The group consists of 59 entities located in 24 countries in Europe, Americas and Asia.

The headquarter and manufacturing facilities of Draka Keila Cables are located on territory of AS Harju Elekter in Keila, Estonia. Our major markets are Baltic countries. Representative offices have been set up in Riga and Vilnius to ensure proper communication with our customers in Latvia and Lithuania.

Draka Keila Cables is focused on the three main product groups: low-voltage and special purpose cables, power cables and telecommunication cables. Our

goal is to provide customers the best solutions for transmission of energy and information. Cables are produced in a wide range, according to needs of customers and current standards. Products are certified in internationally recognized certification authority SGS-FIMKO.

The quality of our products is assured by modern technology, high-quality raw material and well-trained professionals. Company's quality management system was declared to be in accordance with of ISO 9001 by LRQA in 1998. In 2001 Keila Kaabel environmental management system acquired certificate of accordance with the requirements of ISO 14 001.

Draka Keila Cables is a fast growing manufacturing company, the key to our success is ability to respond flexibly to rapidly changing business environment. Draka Keila Cables is open for co-operation possibilities coming from east as well as west.

Draka and Prysmian joined to form global Prysmian Group

A merger of two large cable corporations formed the Prysmian Group, the world's largest cable corporation, having active representations in 50 countries and a total of 90 factories with more than 20,000 employees. Both Draka and Prysmian are globally strong brands and have strong sides, so the brands will remain in parallel existence and development in the future. As a result of the merger, our product range is extended because both companies have numerous unique products that complement the previous product ranges of each other. Also, the availability and delivery security of products will improve. We can now serve our customers with the know-how and product development of both corporations, and we can better involve our customers in product and service development, taking into account the local specifics.

General information

Standards

All conductors and cables in this catalogue are manufactured according to valid international standards. The cable meets the requirements of the standards mentioned in the cable description.

Special conductors and cables

Also other types of conductors and cables, not included in this catalogue, are available by Draka, as agreed with the client.

Catalogue information

The dimensions and weights are nominal values. Due to continuous product research and development the listed data is subject to change. Our product development is a continuous process. We reserve the right to change the data without prior notice.

Rated voltage

The table below gives the common rated voltage for cables according to the international standard IEC 60038.

- U₀ Rated voltage between the conductor and the earth
- U Rated voltage between conductors
- U_m maximum operating voltage in any part of the network, excluding temporary fluctuations during switching, breaking and faults
- U_p peak value of the impulse withstand voltage between each conductor and the earth

U ₀ /U	kV	0,6/1	3,6/6	6/10	12/20	18/30	20,3/35	26/45
U _m	kV	1,2	7,2	12	24	36	42	52
U _p	kV	-	-	75	125	170	198	250

Basic cable data

Minimum bending radius

- Minimum permissible bending radius during cable pulling are given in section Basic cable data.
- Values may be reduced by about 30 % in the final installation, if the cables are bent carefully and evenly only once.

Maximum pulling force

- Maximum permissible pulling tension when pulling by the cable grip is given in the basic data on each cable type
 - cables with aluminium conductors 10 to 15 N/mm²
 - cables with copper conductors 10 to 20 N/mm² multiplied by the added-up cross section of the inner conductors, but max. value in both cases is 8,500 N.
- Pulling by the eye attached to the conductor
 - cables with aluminium conductors 50 N/mm²
 - cables with copper conductors 100 N/mm² however not more than about 20,000 N.
- Pulling by the armouring wires 130 N/mm², multiplied by the cross section of the armouring

Minimum permissible installation temperature

Minimum permissible cable temperature during laying: while laying power cables, the temperature of cables should not be below the following values:

- Plastic insulated power cables < 1 kV
 - PVC-sheathed -15 °C
- XLPE insulated power cables > 1 kV to < 30 kV
 - PVC-sheathed -5 °C
 - PE-sheathed -20 °C
- XLPE insulated power cables > 30 kV
 - PVC-sheathed -5 °C
 - PE-sheathed -15 °C

At lower temperature the cables must be adequately warmed up beforehand. This can be done by storing in a heated area for several days or by means of special hot air equipment.

Technical data

Resistance

The next pages give for each cable type the maximum direct current resistance (DC-resistance) of the conductors permitted by the standard at a temperature of +20 °C.

The DC-resistances of metal sheaths and screens are computed ratings.

The additional losses caused by the skin and proximity effects are taken into account in the alternating current resistances (AC-resistance) with the following assumptions:

- Frequency 50 Hz
- Closed screen circuit
- In the trefoil formation the single core cables touch one another, in the flat formation the clear space between the cables is equal to the external diameter of the cable.

The DC-resistance can be converted to match other temperatures, using the equation:

$$R_t = R_{20} (1 + \alpha_{20} (t - 20))$$

- where R_t resistance at temperature t
 R_{20} resistance at +20 °C
 t temperature of the conductor [°C]
 α_{20} temperature factor of resistivity [1/°C]
 0,00393 1/°C with copper conductors
 0,00403 1/°C with aluminium conductors/sheaths
 0,00400 1/°C with lead alloy sheaths

Capacitance

Capacitances are average values with the rated voltage at a temperature of +20 °C and at a frequency of 50 Hz. Especially with PVC-insulated cables, the capacitance will increase by 40 per cent if the temperature of the conductor rises from +20 °C to the maximum permissible continuous conductor temperature.

The earth fault current increases relatively as much as the capacitance. The charging currents and earth fault currents have been calculated at a frequency of 50 Hz.

Inductance

Inductance given for each cable type is approximate. Assumptions for the inductance of single core cables:

- Flat formation: the clear space between the cables = the external diameter of cable
- Trefoil formation: the cables touch one another

Current ratings

Basic assumptions:

1. Maximum permissible temperature of the conductor in continuous use:
 - PVC insulated 1 kV cables +70 °C
 - XLPE insulated cables (see further details) +90 °C
2. Clear space between single core cables:
 - flat formation: external diameter of the cable
 - trefoil formation: cables touch one another
3. Screen circuit:
 - open: screen circuits of the cables are connected together and earthed at one end only
 - closed: screen circuits are connected together at both ends and earthed at least at one end
4. Aerial installation
 - Ambient air temperature +25 °C
5. Underground installation
 - Ground temperature +15 °C
 - Depth: cables below 110 kV 0,7 m
 110 kV cables 1,0 m
 - Thermal resistivity of the ground 1,0 Km/W

If XLPE cables are laid underground, it is important to remember that a continuous conductor temperature of +90 °C may dry up the surrounding ground, causing an overload on the cable. For this reason, the continuous conductor temperature should not exceed +65 °C in XLPE insulated underground cables.

If conditions differ from the above-assumed premises, the maximum permissible loads must be multiplied by correction factors, which are given on next pages.

Correction factors for underground installation

The effect of several adjacent cables in the ground.

The factor of three core cables and for groups of three single core cables.

Clear space between the cables or between the groups of single core cables mm	Number of adjacent cables or groups of single core cables						
	2	3	4	5	6	8	10
0	0,79	0,69	0,63	0,58	0,55	0,50	0,46
70	0,85	0,75	0,68	0,64	0,60	0,55	0,53
250	0,87	0,79	0,75	0,72	0,69	0,66	0,64

Thermal resistivity in the ground

Thermal resistivity in the ground Km/W	0,7	1,0	1,2	1,5	2,0	2,5	3,0
Correction factor	1,10	1,00	0,92	0,85	0,75	0,69	0,63

Thermal resistivity in different types of soil:

- dry sand (moisture content 0%) 3.0 Km/W
- dry gravel and clay 1.5 Km/W
- semi-dry gravel, bog earth and sand (moisture 10%) ... 1.2 Km/W
- semi-dry clay and damp gravel..... 1.0 Km/W
- damp clay and sand (moisture content 25 %). 0.7 Km/W

Laying depth

Cable	Laying depth, m				
	0,50-0,70	0,71-0,90	0,91-1,10	1,11-1,30	1,31-1,50
0,61/1,0 kV	1,00	0,97	0,95	0,93	0,92
6/10-18/30 kV	1,00	0,99	0,98	0,96	0,95

Ground temperature

Conductor temperature °C	Ground temperature, °C										
	-5	0	5	10	15	20	25	30	35	40	45
90	1,13	1,10	1,06	1,03	1,00	0,96	0,93	0,89	0,86	0,82	0,77
80	1,14	1,11	1,07	1,04	1,00	0,96	0,92	0,88	0,83	0,78	0,73
70	1,17	1,13	1,09	1,04	1,00	0,95	0,90	0,85	0,80	0,73	0,67
65	1,18	1,14	1,10	1,05	1,00	0,95	0,89	0,84	0,77	0,71	0,63

Underground installation in PE or PVC tubes, with one three core cable or three single core cables. The cables are loaded at the same time. The tubes lie side by side. If the correction factors of this table are applied, the factors in the topmost table are not used

Clear distance of the tubes mm	Number of adjacent tubes							
	1	2	3	4	5	6	8	10
0	0,80	0,75	0,65	0,60	0,60	0,55	0,55	0,50
70	-	0,75	0,70	0,65	0,60	0,60	0,55	0,55
250	-	0,75	0,70	0,70	0,70	0,65	0,65	0,65

The tubes lie side by side. If the correction factors of this table applied, the factors in the topmost table are not used.

The effect of cable cover slabs and troughs

Type of covering	Correction factor
A concrete or brick slab more than 10 cm above the cable in well-compacted sandy ground	1,00
Bricks all around the cable, gaps sealed up tightly with sand	0,90
A concrete trough on the cable, compacted sand between the trough and the cable	0,90
A concrete or plastic trough on the cable, loose sand filler between the cable and the trough	0,80

Ambient air temperature

Conductor temperature, °C	Ambient air temperature, °C									
°C	10	15	20	25	30	35	40	45	50	55
90	1,12	1,08	1,04	1,00	0,95	0,90	0,85	0,80	0,74	0,68
80	1,14	1,09	1,05	1,00	0,95	0,89	0,48	0,77	0,69	0,61
70	1,18	1,12	1,06	1,00	0,95	0,86	0,79	0,71	0,62	0,52
65	1,20	1,14	1,07	1,00	0,95	0,85	0,77	0,68	0,57	0,45

CORRECTION FACTORS FOR AERIAL INSTALLATION OR FOR INSTALLATION TYPE B

Cables in air = the same cooling conditions as when freely in air

Installation type A

The cable is laid on the surface or so that between the cable and the surface of the covering material the thermal transmission factor is 11-50 W/°C m².

Installation type B includes one of the following:

- surface installation
- installation on a cable rack with short lead-through
- disaccording to installation type B

INSTALLATION TYPE B:

The cable is laid on the surface or so that between the cable and the surface of the covering material the thermal transmission factor is K>50 W/°C m².

Installation type B includes one of the following:

- surface installation (also in a tube) with short lead-through
- installation on a cable rack with short lead-through
- sunk installation in stone structures (concrete, brick, etc.)
- installation in a riser shaft or in a cable duct

The effect of grouping in aerial installation on the loading of Multicore alternating current cables and on single core direct current cables

The data is valid, provided that the ambient temperature does not rise significantly in result of the increasing heat by dissipation in the cable.

Arrangement of the cables	Clear space = cable diameter (d); distance from the wall ≥ 20 mm					Drawing	The cables touch one another and the wall					Drawing	
	1	2	3	6	9		1	2	3	6	9		
Number of adjacent cables	1	2	3	6	9		1	2	3	6	9		
On the floor or on the ceiling	Correction factor						Correction factor						
	0,95	0,90	0,88	0,85	0,84		0,90	0,84	0,80	0,75	0,73		
Unperforated trays	No. of racks												
	1	0,95	0,90	0,88	0,85	0,84		0,95	0,84	0,80	0,75	0,73	
	2	0,90	0,85	0,83	0,81	0,80		0,95	0,80	0,75	0,71	0,69	
	3	0,88	0,83	0,81	0,79	0,78		0,95	0,78	0,74	0,70	0,68	
Ladder supports, cleats, etc.	1	1,00	0,98	0,96	0,93	0,92	0,95	0,84	0,80	0,75	0,73		
	2	1,00	0,95	0,93	0,90	0,89	0,95	0,80	0,76	0,71	0,69		
	3	1,00	0,94	0,92	0,89	0,88	0,95	0,78	0,74	0,70	0,68		
	6	1,00	0,93	0,90	0,87	0,86	0,95	0,76	0,72	0,68	0,66		
Number of overlying cables	1	2	3	6	9		1	2	3	6	9		
On racks or on the wall	1,00	0,93	0,90	0,87	0,86		0,95	0,78	0,73	0,68	0,66		
Installation with no need to reduce the load current	Unrestricted number of overlying cables						Unrestricted number of adjacent cables						

The effect of grouping in aerial installation on the loading of single core alternating current cables

The data is valid, provided that the ambient temperature does not rise significantly in result of the increasing heat by dissipation in the cable.

Arrangement of the cables		Flat formation, clear space = cable diameter (d); distance from the wall >20 mm			Cables touch one another and the wall				
Number of adjacent systems		1	2	3	Drawing	1	2	3	Drawing
On the floor or on the ceiling		Correction factor				Correction factor			
		0,92	0,89	0,88		0,95	0,90	0,88	
Unperforated trays	No. of racks								
	1	0,92	0,89	0,88		0,95	0,80	0,73	
	2	0,87	0,84	0,83		0,95	0,76	0,69	
	3	0,84	0,82	0,81		0,95	0,74	0,68	
	6	0,82	0,80	0,79		0,95	0,72	0,66	
Ladder supports, cleats, etc.	1	1,00	0,97	0,96		1,00	0,98	0,96	
	2	0,97	0,94	0,93		1,00	0,95	0,93	
	3	0,96	0,93	0,92		1,00	0,94	0,92	
	6	0,94	0,91	0,90		1,00	0,93	0,90	
Number of overlying systems		1	2	3		1	2	3	
On racks or on the wall		0,94	0,91	0,89		0,89	0,88	0,84	
Installation with no need to the load current		With a longer distance, there are more reduce losses in the metal sheath and in the armouring, while cooling improves. Each case must be calculated separately.							

Short circuit current capacity

Thermal stress

Taking into account the mechanical and electrical strength of the insulation, thermal stress by a short circuit is restricted by setting the maximum final conductor temperatures in a short circuit:

- XLPE-insulated cables +250 °C
- PVC-insulated 1 kV cables
 - ≤ 300 mm² +160 °C
 - > 300 mm² +140 °C

The given values for maximum permissible short circuit currents in cable data have been calculated assuming the initial conductor temperature to be the maximum operating temperature in continuous use.

The listed short circuit currents for duration of one second indicate the thermal capacity of the conductor. The maximum permissible thermal short circuit current for duration of 0.2 to 5 seconds can be computed by the equation:

$$I_t = I_{1s} / \sqrt{t}$$

where

I_{1s} = 1 s thermal short circuit current [kA]
 t = duration of the short circuit [s]

Dynamic stress

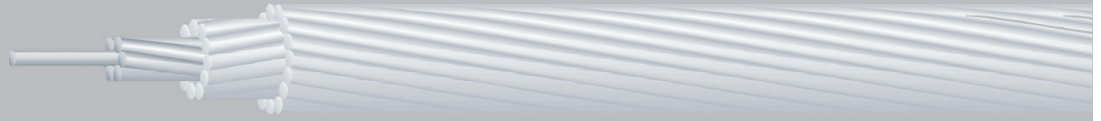
Short circuit currents cause a mechanical load on the cable as well as on the accessories.

The dynamic short circuit stress is much greater near the high voltage network and near large power plants than farther out in the network. That is why the dynamic capacity of the accessories as well as the cable fittings must be checked. This is especially important with high power systems and with several parallel cables in aerial installation.

Most important in a short circuit is the peak value of current, which is 2.5 times the short circuit current. To minimize dynamic stress, the installation must be made using the right accessories and the right technique.

ACSR

Aluminium conductor steel reinforced



Application

Bare conductor for overhead power transmission.

Standards

SFS 5701
IEC 61089
EN 50182

Temperature range

Highest permissible conductor temperature:

- in continuous operation80°C
- in a short circuit (duration up to 5 s) 200°C

Construction

A conductor consisting aluminium and galvanized steel wires, built up in concentric layers. The centre wires are steel and outer layer aluminium wires.

ACSR

Aluminium conductor steel reinforced

Basic data		ACSR 34/6	ACSR 42/25	ACSR 54/9	ACSR 85/14	ACSR 89/52	
		SPARROW	SAVO	RAVEN	PIGEON	DOTTEREL	
Product name according to IEC		34-A1/S1A-6/1	42-A1/S1A-12/7	54-A1/S1A-6/1	85-A1/S1A-6/1	89-A1/S1A-12/7	
EAN code		64 100+ 01 202 02-2	01 202 28-2	01 202 05-3	01 202 09-1	01 202 31-2	
Construction data							
Aluminium	No of wires	6	12	6	6	6	
	Diameter of wire	mm	2,68	2,12	3,37	4,25	3,08
	Cross section	mm ²	33,8	42,4	53,5	85,1	89,4
	Weight ⁽⁵⁾	kg/km	92,9	117	147	234,0	247,0
Steel	No of wires	1	7	1	1	7	
	Diameter of wire	mm	2,68	2,12	3,37	4,25	3,08
	Cross section	mm ²	5,64	24,7	8,92	14,2	52,2
	Weight ⁽⁵⁾	kg/km	43,9	193	69,4	110,0	408,0
Complete conductor	No of wires	7	19	7	7	19	
	Diameter of conductor	mm	8,04	10,6	10,1	12,8	15,4
	Cross section	mm ²	39,5	67,1	62,4	99,3	142
	Weight ⁽⁵⁾	kg/km	137	310	216	344,0	654,0
Delivery data							
Standard delivery length		m	2500	2500	2200	2000	2500
Standard delivery drum			K11	K12	K11	K12	K16
Total weight ⁽¹⁾		kg	390	860	560	770	1790
Mechanical data ⁽²⁾							
Minimum tensile strength of the conductor		kN	12,2	13,52	17,11	24,13	33,37
Initial modulus of elasticity of conductor		N/mm ²	64000	93000	64000	64000	93000
Final modulus of elasticity of conductor		N/mm ²	78000	102000	78000	78000	102000
Coefficient of linear expansion of conductor		1/K	19,2 x 10 ⁻⁶	15,6 x 10 ⁻⁶	19,2 x 10 ⁻⁶	19,2 x 10 ⁻⁶	15,6 x 10 ⁻⁶
Electrical data ⁽²⁾							
Max. DC resistance of conductor (20 °C) ^{(3) (5)}		Ω/km	0,848	0,682	0,536	0,337	0,323
Current ratings							
In air		A	210	250	280	360	400
Short circuit currents ⁽²⁾							
Max. permissible short circuit current for 1 sec. ⁽⁴⁾		kA	3,7	5,4	5,8	9,2	11,4

Basic data		ACSR 152/25	ACSR 242/39	ACSR 305/39	ACSR 402/52	ACSR 565/72	
		OSTRICH	HAWK	DUCK	CONDOR	FINCH	
Product name according to IEC		152-A1/S1A-26/7	242-A1/S1A-26/7	305-A1/S1A-54/7	402-AL1/52-ST1A	565-A1/S1A-54/19	
EAN code		64 100+ 01 202 15-2	01 202 18-3	01 202 21-3	01 054 07-2	01 202 24-4	
Construction data							
Aluminium	No of wires	26	26	54	54	54	
	Diameter of wire	mm	2,73	3,44	2,68	3,08	3,65
	Cross section	mm ²	152	242	305	402,3	565
	Weight ⁽⁵⁾	kg/km	420	668	842	1110,5	1562
Steel	No of wires	7	7	7	7	19	
	Diameter of wire	mm	2,12	2,68	2,68	3,08	2,19
	Cross section	mm ²	24,7	39,5	39,5	52,2	71,6
	Weight ⁽⁵⁾	kg/km	193	309	309	410	561
Complete conductor	No of wires	33	33	61	61	73	
	Diameter of conductor	mm	17,3	21,8	24,1	27,7	32,9
	Cross section	mm ²	177	281	344	454,5	637
	Weight ⁽⁵⁾	kg/km	613	976	1151	1520,5	2123
Delivery data							
Standard delivery length		m	2500	2500	2200	2300	1400
Standard delivery drum			K18	K20	K22	K22	K22
Total weight ⁽¹⁾		kg	1760	2780	3290	3908	3380
Mechanical data ⁽²⁾							
Minimum tensile strength of the conductor		kN	54,8	84,9	96,8	123,75	174
Initial modulus of elasticity of conductor		N/mm ²	61000	61000	50000	51000	46000
Final modulus of elasticity of conductor		N/mm ²	76000	76000	67000	68000	63000
Coefficient of linear expansion of conductor		1/K	19,2 x 10 ⁻⁶	19,2 x 10 ⁻⁶	19,3 x 10 ⁻⁶	19,3 x 10 ⁻⁶	19,3 x 10 ⁻⁶
Electrical data ⁽²⁾							
Maximum DC resistance of conductor (20 °C) ^{(3) (5)}		Ω/km	0,190	0,120	0,0949	0,0719	0,0512
Current ratings							
In air		A	550	745	845	1000	1250
Short circuit currents ⁽²⁾							
Maximum permissible short circuit current for 1 sec. ⁽⁴⁾		kA	16,5	26,1	32,5	43,7	60,1

1) Approximate value.

2) See the basic assumptions at general information of products.

3) Calculated with steel core.

4) Initial temperature of conductor before short circuit 40 °C, final temperature of conductor after short circuit 200 °C.

5) Nominal value according to standard.

HK

Copper conductor



Application

Grounding wire.

Standard

IEC 60228 Class 2

Certificate/approval

CE, RoHS

Temperature range

Highest permissible conductor temperature
short circuit (duration up to 5 s) 200 °C

Construction

Concentric stranded soft copper conductor.

Product name	HK	HK	HK	HK	HK	HK
	16/7x1.68	16/7x1.68	16/7x1.68	25/7x2.12	HK 16/7x1.68	HK 25/7x2.12
	coil/25 m	coil/50 m	coil/100 m	coil/100 m	drum	drum
EAN code	64 100+ 01 050 05-0	01 050 06-7	01 050 07-4	01 050 25-8	01 550 07-9	01 050 08-1
Customs code		74.13.00.91	74.13.00.91	74.13.00.91	74.13.00.91	74.13.00.91

Constructional data

Number of wires		7	7	7	7	7
Diameter of wire	mm	1,68	1,68	1,68	2,12	1,68
Diameter of conductor		5,04	5,04	5,04	6,36	5,04
Cross section	mm ²	15,5	15,5	15,5	24,7	15,5
Weight of conductor ⁽¹⁾	kg/km	140	140	140	222	140

Delivery data

Standard delivery length	m	25	50	100	50	500
Standard delivery drum		coil	coil	coil	coil	K6
Weight ⁽¹⁾ cable+drum	kg	3,5	7	14	11	82

Electrical data ⁽²⁾

Max DC resistance of conductor 20 °C	Ω/km	1,15	1,15	1,15	0,727	1,15
--------------------------------------	------	------	------	------	-------	------

Short circuit currents ⁽²⁾

Max permissible short circuit current for 1 second ⁽³⁾	kA	2,3	2,3	2,3	3,8	2,3
---	----	-----	-----	-----	-----	-----

Product name	HK	HK	HK	HK	HK
	35/7x2.50	50/19x1.77	70/19x2.12	95/19x2.50	120/37x2.01
	drum	drum	drum	drum	drum
EAN code	64 100+ 01 050 09-8	01 050 10-4	01 050 11-1	01 050 12-8	01 050 13-5
Customs code		74.13.00.91	74.13.00.91	74.13.00.91	74.13.00.91

Constructional data

Number of wires		7	19	19	19
Diameter of wire	mm	2,5	1,77	2,12	2,5
Diameter of conductor	mm	7,5	8,85	10,6	12,5
Cross section	mm ²	34,4	46,8	67,1	93,3
Weight of conductor ⁽¹⁾	kg/km	309	422	606	843

Delivery data

Standard delivery length	m	1000	1000	1000	1000
Standard delivery drum		K7	K7	K9	K11
Weight ⁽¹⁾ cable+drum	kg	329	642	640	898

Electrical data ⁽²⁾

Max DC resistance of conductor 20 °C	Ω/km	0,524	0,387	0,268	0,193
--------------------------------------	------	-------	-------	-------	-------

Short circuit currents ⁽²⁾

Max permissible short circuit current for 1 second ⁽³⁾	kA	5,3	7,2	10,3	14,3
---	----	-----	-----	------	------

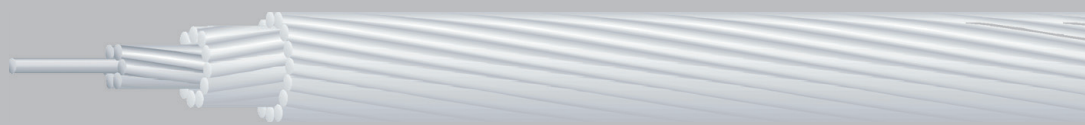
1) Approximate value

2) See the basic assumptions at general information of products.

3) Initial temperature of conductor before short circuit 40 °C, final temperature of conductor after short circuit 200 °C.

AS

Aluminium conductor steel reinforced AS

**Application**

Bare conductor.

Standard

GOST 889-80

Temperature range

Highest permissible conductor temperature:

- in continuous operation 80 °C
- in a short circuit (duration up to 5 s) 200 °C

Construction

Round, stranded aluminium steel reinforced conductor.

Basic data		AS 25	AS 35	AS 50	AS 70	AS 95	
EAN code	64 100+	01 203 25	01 203 35	01 203 50	01 203 70	01 203 95	
Construction data							
Aluminium	No of wires	6	6	6	6	6	
	Diameter over wire	mm	2,30	2,80	3,20	3,80	4,50
	Cross section	mm ²	24,9	36,9	48,2	68,0	95,4
	Weight ⁽⁵⁾	kg/km	68,3	101,3	132,3	188,0	261,0
Steel	No of wires	1	1	1	1	1	
	Diameter over wire	mm	2,30	2,80	3,20	3,80	4,50
	Cross section	mm ²	4,15	6,15	8,04	11,3	15,9
	Weight ⁽⁵⁾	kg/km	32,3	47,9	62,6	88,0	124,0
Conductor	No of wires	7	7	7	7	7	
	Diameter over conductor	mm	6,9	8,4	9,6	11,4	13,5
	Cross section	mm ²	29,05	43,05	56,24	79,3	111,3
	Weight ⁽⁵⁾	kg/km	100,7	149,2	194,9	276,0	385,0
Delivery data							
Standard delivery length	m	4000	4000	3500	2500	2500	
Drum		K9	K11	K11	K11	K14	
Total weight ⁽¹⁾	kg	430	645	740	745	1080	
Mechanical data ⁽²⁾							
Minimum tensile strength of the conductor	kN	9,13	13,52	17,11	24,13	33,37	
Initial modulus of elasticity of conductor	N/mm ²	64000	64000	64000	64000	64000	
Final modulus of elasticity of conductor	N/mm ²	78000	78000	78000	78000	78000	
Coefficient of linear expansion of conductor	1/K	19,2 x 10 ⁻⁶	19,2 x 10 ⁻⁶	19,2 x 10 ⁻⁶	19,2 x 10 ⁻⁶	19,2 x 10 ⁻⁶	
Electrical data ⁽²⁾							
Maximum DC resistance of conductor (20 °C) ^{(3) (5)}	Ω/km	1,1521	0,7774	0,5951	0,4218	0,3007	
Current ratings							
In air	A	142	175	210	265	330	
Short circuit currents ⁽²⁾							
Max. permissible short circuit current for 1 second ⁽⁴⁾	kA	2,7	4,0	5,3	7,5	10,5	

1) Approximate value.

2) See the basic assumptions at general information of products.

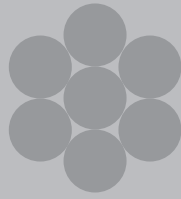
3) Calculated with steel.

4) Initial temperature of conductor before short circuit 40 °C, final temperature of conductor after short circuit 200 °C.

5) Standard based value.

A

Bare conductor A



Application

Bare conductor.

Standard

GOST 889-80

Temperature range

Highest permissible conductor temperature:
 - in continuous operation 80 °C
 - in a short circuit (duration up to 5 s) 200 °C

Construction

Round, stranded aluminium conductor.

Basic data		A 25	A 35	A 50	A 70	A 95
EAN code	64 100+	01 209 25	01 209 35	01 209 50	01 209 70	01 209 95
Construction data						
No of wires		7	7	7	7	7
Diameter over wire	mm	2,13	2,50	3,00	3,55	4,10
Cross section	mm ²	24,9	34,3	49,5	69,3	92,4
Weight ⁽⁵⁾	kg/km	68	94	135	189	252
Delivery data						
Standard delivery length	m	4000	4000	3500	2500	2500
Drum		K9	K11	K11	K11	K12
Total weight ⁽¹⁾	kg	300	425	520	520	720
Mechanical data ⁽²⁾						
Minimum tensile strength of the conductor	kN	4,50	5,91	8,19	11,28	14,78
Initial modulus of elasticity of conductor	N/mm ²	41000	41000	41000	41000	41000
Final modulus of elasticity of conductor	N/mm ²	60000	60000	60000	60000	60000
Coefficient of linear expansion of conductor	1/K	23,0 x 10 ⁻⁶	23,0 x 10 ⁻⁶	23,0 x 10 ⁻⁶	23,0 x 10 ⁻⁶	23,0 x 10 ⁻⁶
Electrical data ⁽²⁾						
Maximum DC resistance of conductor (20 °C) ^{(3) (5)}	Ω/km	1,1498	0,8347	0,5784	0,4131	0,3114
Current ratings						
In air	A	136	170	215	265	320
Short circuit currents ⁽²⁾						
Maximum permissible short circuit current for 1 second ⁽⁴⁾	kA	2,5	3,4	5,0	7,0	9,3

1) Approximate value.
 2) See the basic assumptions at general information of products.
 3) Calculated with steel.
 4) Initial temperature of conductor before short circuit 40 °C, final temperature of conductor after short circuit 200 °C.
 5) Standard based value.

AXMK-PLUS and XMK-PLUS 1-core

1 kV power cable with XLPE insulated aluminium conductors and halogen-free outersheath



Application

Designed for replacement of AXPk and AXPk-PE. The outer sheath is self-extinguishing and halogen-free. Cable is mechanically as strong as PE. For fixed installation indoors and outdoors, perfect for ploughing down. Suitable for cable ducts and house connections

Standards

SFS 4879, HD 603-5D S1, IEC 60502-1, IEC 60332-1 Cat. B

Certificate/approval

EEL, FI, CE

Rated voltage

$U_0/U = 0,6/1$ kV, $U_m = 1,2$ kV

Temperature range

Highest permissible conductor temperature:

- in continuous operation90 °C

- in a short circuit (duration up to 5 s)250 °C

Lowest recommended handling temperature -20 °C

Construction

Conductor . . AXMK - round, stranded and compacted aluminium conductor

XMK - round, stranded and compacted copper conductor

Insulation . . . black XLPE compound

Sheath black halogen-free self-extinguishing PE compound; insulation and sheath are UV⁽¹⁾ resistible and they don't need extra protection against sunlight.

Marking

Manufacturer, product name, date of manufacture, outer sheath material designation, meter marking.

Basic data			AXMK	AXMK	AXMK	XMK
			1x300 1 kV	1x500 1 kV	1x800 1 kV	1x300 1 kV
EAN code		64 100+	06 261 02-4	06 210 27-5	06 261 05-5	06 211 77-7
Construction data						
External cable diameter ⁽²⁾		mm	29	36	44	29
Weight ⁽²⁾	aluminium	kg/km	795	1312	2160	-
	copper	kg/km	-	-	-	2620
	cable	kg/km	1150	1850	2950	3050
Delivery data						
Standard delivery length		m	1000	500	500	1000
Drum			K18	K18	K20	K16
Total weight ⁽²⁾	cable + drum	kg	1380	1155	1810	3240
Mechanical data ⁽³⁾						
Minimum permissible bending radius during laying		m	0,44	0,54	0,68	0,44
Minimum permissible bending radius at final installation ⁽⁴⁾		m	0,31	0,38	0,48	0,31
Maximum permissible pulling force with a pulling grip		kN	4,5	7,0	8,5	4,5
Maximum permissible pulling force with a pulling eye		kN	15,0	20,0	20,0	20,0
Electrical data ⁽³⁾						
Maximum DC resistance of conductor	conductor 20 °C	Ω/km	0,100	0,0605	0,0367	0,0601
Current ratings ⁽³⁾						
Flat formation (in earth)	conductor 70 °C	A	525	873	1000	665
Trefoil formation (in earth)	conductor 70 °C	A	460	636	830	580
Flat formation (in air)	conductor 90 °C	A	690		1300	845
Trefoil formation (in air)	conductor 90 °C	A	560		1050	735
Short circuit currents ⁽³⁾						
Maximum permissible short circuit current for 1 second ⁽⁵⁾		kA	28,3	47,0	75,6	42,8

1) UV - ultraviolet radiation

2) Approximate value.

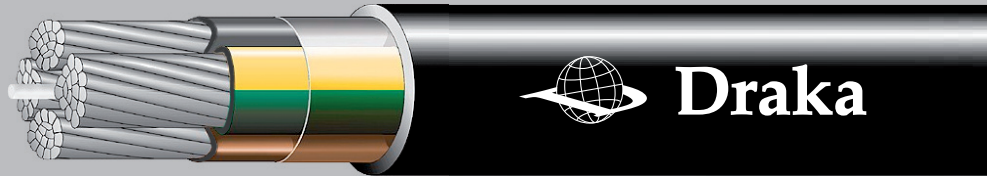
3) See the basic assumptions at general information of products.

4) Final installation with careful single bending.

5) Initial temperature of conductor before short circuit 90 °C, final temperature of conductor after short circuit 250 °C.

AXPK-PLUS

1 kV power cable with XLPE insulated aluminium conductors and halogen-free outersheath



Application

Designed for replacement of AXPk and AXPk-PE. The outer sheath is self-extinguishing and halogen-free. Cable is mechanically as strong as PE sheathed cable. For fixed installation indoors and outdoors, perfect for ploughing down. Suitable for cable ducts and house connections.

Standards

SFS 4879, HD 603-5D S1, IEC 60502-1, IEC 60332-1 Cat. B, HD 308 S2:2002

Certificate/approval

FI, CE

Rated voltage

$U_0/U = 0,6/1$ kV
 $U_m = 1,2$ kV

Temperature range

Highest permissible conductor temperature:
 - in continuous operation 90 °C
 - in a short circuit (duration up to 5 s) 250 °C
 Lowest recommended temp. during laying -20 °C

Construction

Conductor 16 mm² - solid round aluminium conductor;
 25-300 mm² - stranded, compacted and annealed sector shaped aluminium conductor
 Insulation black XLPE compound
 Laying up four insulated conductors stranded together
 Sheath black halogen-free self-extinguishing PE compound;
 insulation and sheath are UV⁽¹⁾ resistible and they don't need extra protection against sunlight.

Identification of cores

Phase conductors . . brown, black, grey
 PEN conductor . . . yellow-green

Marking

Manufacturer, product name, date of manufacture, outer sheath material designation, meter marking.

1) UV - ultraviolet radiation

AXPK-PLUS

1 kV power cable with XLPE insulated aluminium conductors and halogen-free outsheath

Basic cable data			4G16	4G25	4G35	4G50	4G70	4G95	
EAN code		64 100+	06 210 07-7	06 210 08-4	06 210 09-1	06 210 10-7	06 210 11-4	06 210 12-1	
Construction data									
External cable diameter ⁽¹⁾		mm	20	21	23	27	30	34	
Weight ⁽¹⁾	aluminium	kg/km	165	265	365	495	720	995	
	cable	kg/km	380	500	670	830	1170	1500	
Delivery data									
Standard delivery length		m	1000	1000	1000	1000	1000	1000	
Drum			K12	K14	K16	K16	K18	K20	
Total weight ⁽¹⁾		cable + drum	kg	470	615	865	1025	1400	1840
Mechanical data ⁽²⁾									
Minimum permissible bending radius during laying		m	0,24	0,26	0,28	0,31	0,36	0,41	
Minimum permissible bending radius at final installation ⁽³⁾		m	0,17	0,19	0,20	0,23	0,26	0,29	
Maximum permissible pulling force with a pulling grip		kN	0,9	1,5	2,1	3,0	4,2	5,7	
Maximum permissible pulling force with a pulling eye		kN	3,2	5,0	7,0	10,0	14,0	19,0	
Electrical data ⁽²⁾									
Maximum DC resistance of		conductor 20 °C	Ω/km	1,91	1,20	0,868	0,641	0,443	0,320
Maximum AC resistance of		conductor 70 °C	Ω/km	2,3	1,5	1,0	0,77	0,53	0,39
Current ratings ⁽²⁾									
In ground		conductor 70 °C	A	78	100	125	150	185	220
In air	conductor 70 °C	A	64	83	105	125	155	190	
	conductor 90 °C	A	75	105	130	165	205	245	
Short circuit currents ⁽²⁾									
Maximum permissible short circuit current for 1 second ⁽⁴⁾		kA	1,5	2,3	3,3	4,7	6,6	8,9	

Basic cable data			4G120	4G150	4G185	4G240	4G300	
EAN code		64 100+	06 21013-8	06 210 14-5	06 210 15-2	6 210 16-9		
Construction data								
External cable diameter ⁽¹⁾		mm	38	42	47	53	58	
Weight ⁽¹⁾	aluminium	kg/km	1260	1550	1950	2550	3190	
	cable	kg/km	1900	2300	2800	3700	4600	
Delivery data								
Standard delivery length		m	1000	500	500	500	500	
Drum			K22	K20	K20	K22	K24	
Total weight ⁽¹⁾		cable + drum	kg	2310	1490	1740	2260	2750
Mechanical data ⁽²⁾								
Minimum permissible bending radius during laying		m	0,46	0,51	0,57	0,64	0,70	
Minimum permissible bending radius at final installation ⁽³⁾		m	0,33	0,36	0,40	0,45	0,49	
Maximum permissible pulling force with a pulling grip		kN	7,2	8,5	8,5	8,5	8,5	
Maximum permissible pulling force with a pulling eye		kN	20,0	20,0	20,0	20,0	20,0	
Electrical data ⁽²⁾								
Maximum DC resistance of		conductor 20 °C	Ω/km	0,253	0,206	0,164	0,125	0,100
Maximum AC resistance of		conductor 70 °C	Ω/km	0,31	0,25	0,20	0,16	0,13
Current ratings ⁽²⁾								
In ground		conductor 70 °C	A	255	290	330	375	430
In air	conductor 70 °C	A	220	250	285	330	380	
	conductor 90 °C	A	280	320	365	430	480	
Short circuit currents ⁽²⁾								
Maximum permissible short circuit current for 1 second ⁽⁴⁾		kA	11,3	14,1	17,4	22,6	28,3	

1) Approximate value.

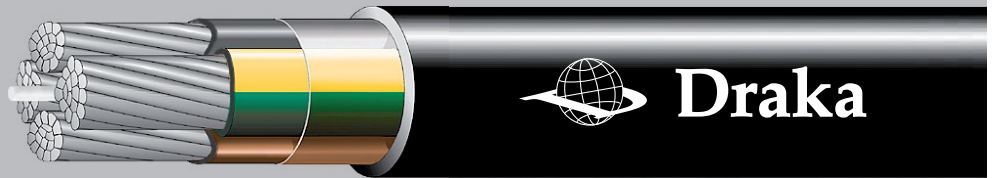
2) See the basic assumptions at general information of products.

3) Final installation with careful single bending.

4) Initial temperature of conductor before short circuit 90 °C, final temperature of conductor after short circuit 250 °C.

AXPK

1 kV power cable with XLPE insulated aluminium conductors



Application

Fixed indoor, outdoor and underground installations.

Standards

SFS 4879, HD 603-5D S1, IEC 60502-1, IEC 60332-1 Cat. B, HD 308 S2:2002

Certificate/approval

EEL, FI, CE

Rated voltage

$U_0/U = 0,6/1$ kV
 $U_m = 1,2$ kV

Temperature range

Highest permissible conductor temperature:
 - in continuous operation90 °C
 - in a short circuit (duration up to 5 s) 250 °C
 Lowest recommended temp. during laying -15 °C

Construction

Conductor 16 mm² - solid round aluminium conductor;
 25-300 mm² - stranded, compacted and annealed sector shaped aluminium conductor
 Insulation black XLPE compound
 Laying up four insulated conductors stranded together
 Sheath black PVC; plastics are UV⁽¹⁾ resistible and they don't need extra protection against sunlight.

Identification of cores

Phase conductors . . brown, black, grey
 PEN conductor . . . yellow-green

Marking

Manufacturer, product name, date of manufacture, outer sheath material designation, meter marking.

1) UV - ultraviolet radiation

AXPK

1 kV power cable with XLPE insulated aluminium conductors

Basic cable data			4G16	4G25	4G35	4G50	4G70	4G95	
EAN code		64 100+	06 210 07-7	06 210 08-4	06 210 09-1	06 210 10-7	06 210 11-4	06 210 12-1	
Construction data									
External cable diameter ⁽¹⁾		mm	20	21	23	27	30	34	
Weight ⁽¹⁾	aluminium	kg/km	165	265	365	495	720	995	
	cable	kg/km	380	500	670	830	1170	1500	
Delivery data									
Standard delivery length		m	1000	1000	1000	1000	1000	1000	
Drum			K12	K14	K16	K16	K18	K20	
Total weight ⁽¹⁾		cable + drum	kg	470	615	865	1025	1400	1840
Mechanical data ⁽²⁾									
Minimum permissible bending radius during laying		m	0,24	0,26	0,28	0,31	0,36	0,41	
Minimum permissible bending radius at final installation ⁽³⁾		m	0,17	0,19	0,20	0,23	0,26	0,29	
Maximum permissible pulling force with a pulling grip		kN	0,9	1,5	2,1	3,0	4,2	5,7	
Maximum permissible pulling force with a pulling eye		kN	3,2	5,0	7,0	10,0	14,0	19,0	
Electrical data ⁽²⁾									
Maximum DC resistance of		conductor 20 °C	Ω/km	1,91	1,20	0,868	0,641	0,443	0,320
Maximum AC resistance of		conductor 70 °C	Ω/km	2,3	1,5	1,0	0,77	0,53	0,39
Current ratings ⁽²⁾									
In ground		conductor 70 °C	A	78	100	125	150	185	220
In air	conductor 70 °C	A	64	83	105	125	155	190	
	conductor 90 °C	A	75	105	130	165	205	245	
Short circuit currents ⁽²⁾									
Maximum permissible short circuit current for 1 second ⁽⁴⁾		kA	1,5	2,3	3,3	4,7	6,6	8,9	

Basic cable data			4G120	4G150	4G185	4G240	4G300	
EAN code		64 100+	06 21013-8	06 210 14-5	06 210 15-2	6 210 16-9		
Construction data								
External cable diameter ⁽¹⁾		mm	38	42	47	53	58	
Weight ⁽¹⁾	aluminium	kg/km	1260	1550	1950	2550	3190	
	cable	kg/km	1900	2300	2800	3700	4600	
Delivery data								
Standard delivery length		m	1000	500	500	500	500	
Drum			K22	K20	K20	K22	K24	
Total weight ⁽¹⁾		cable + drum	kg	2310	1490	1740	2260	2750
Mechanical data ⁽²⁾								
Minimum permissible bending radius during laying		m	0,46	0,51	0,57	0,64	0,70	
Minimum permissible bending radius at final installation ⁽³⁾		m	0,33	0,36	0,40	0,45	0,49	
Maximum permissible pulling force with a pulling grip		kN	7,2	8,5	8,5	8,5	8,5	
Maximum permissible pulling force with a pulling eye		kN	20,0	20,0	20,0	20,0	20,0	
Electrical data ⁽²⁾								
Maximum DC resistance of		conductor 20 °C	Ω/km	0,253	0,206	0,164	0,125	0,100
Maximum AC resistance of		conductor 70 °C	Ω/km	0,31	0,25	0,20	0,16	0,13
Current ratings ⁽²⁾								
In ground		conductor 70 °C	A	255	290	330	375	430
In air	conductor 70 °C	A	220	250	285	330	380	
	conductor 90 °C	A	280	320	365	430	480	
Short circuit currents ⁽²⁾								
Maximum permissible short circuit current for 1 second ⁽⁴⁾		kA	11,3	14,1	17,4	22,6	28,3	

1) Approximate value.

2) See the basic assumptions at general information of products.

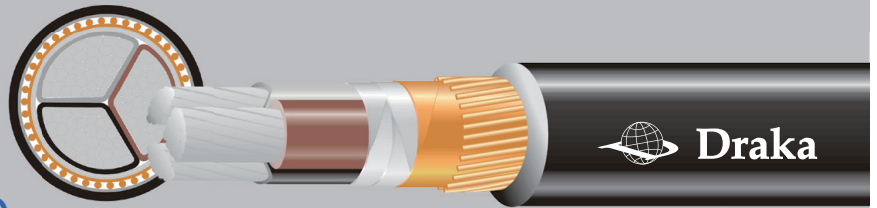
3) Final installation with careful single bending.

4) Initial temperature of conductor before short circuit 90 °C, final temperature of conductor after short circuit 250 °C.

EMC-Line 1 kV (IFSI)

Halogen-free EMC compatible power cable with aluminium conductor

EMCline



Application

Power cable with rated voltage up to 1 kV. Halogen-free cable for indoor and outdoor use, to secure areas from heavy smoke and corrosive gases in case of fire. Improved EMC screen according to EMC directive. National regulations for electrical installations must be followed.

Max conductor temperature..... 90 °C
 Rated voltage U₀/U 0,6/1 kV
 CENELEC designation..... N1ZCZ1-AR (AS)

Standards applied

- HD 604-5D Construction
- IEC 60502-1 Insulation
- IEC 60332-3C Flame Retardancy
- IEC 60754-1 and 2 Halogen-free
- IEC 61034 Low Smoke

Approvals

NEMKO CE-marked, acc. to LVD⁽¹⁾

Construction

- Conductor stranded aluminium
- Insulation..... cross-linked halogen-free polymer
- Bedding/tape halogen-free
- Concentric conductor .. (PE/PEN conductor) copperfoil with overlap and concentric screen of copper wires
- Outer sheath..... halogen-free polymer
- Colour..... black
- Mode of packing..... drum

Marking

Printed on outer sheath, designation and dimension. Meter marking and year of production.

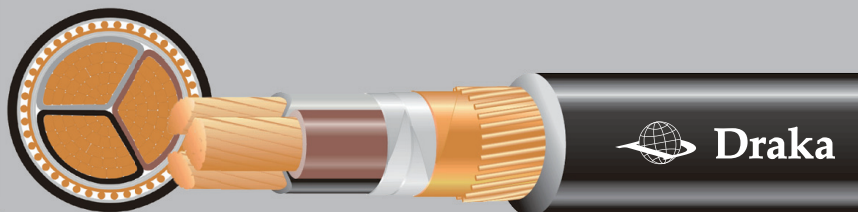
No. of cores and conductor area mm ²	Conductor type ⁽²⁾	Art. No.	Outer diameter approx. mm	Approx. weight kg/km	Normal delivery length m
3x25/10	AFR	478130	23	550	500
3 x 50/16	AFV	478170	26	850	500
3 x 95/35	AFV	478210	34	1590	500
3 x 150/50	AFV	478553	40	2290	500
3 x 240/70	AFV	478563	49	3520	400
4 x 25/10	AFR	478135	25	660	500
4 x 50/16	AFV	478175	29	1050	500
4 x 95/35	AFV	478215	36	1920	500
4 x 150/50	AFV	478556	45	2820	500
4 x 240/70	AFV	478566	55	4400	400

1) LVD - Low Voltage Directive
 2) ER - Solid round
 FR - Stranded round
 FV - Stranded sector shaped

EMC-Line 1 kV (IFSI)

Halogen-free EMC compatible power cable with copper conductor

EMCline



Application

Power cable with rated voltage up to 1 kV. Halogen-free cable for indoor and outdoor use, to secure areas from heavy smoke and corrosive gases in case of fire. Improved EMC screen according to EMC directive. National regulations for electrical installations must be followed.

Max conductor temp. 90 °C
Rated voltage U_0/U 0,6/1 kV

CENELEC designation

N1ZA5Z1-U, N1ZCZ1-U (R-S)

Standards applied

HD 604-5D Construction
IEC 60502-1 Insulation
IEC 60332-3C Flame Retardancy
IEC 60754-1 and 2 Halogen-free
IEC 61034 Low Smoke

Approvals

NEMKO, CE-marking, acc. to LVD ⁽¹⁾

Construction

Conductor solid or stranded copper
Insulation cross-linked Halogen-free polymer
Bedding/tape halogen-free
Concentric conductor .. (PE/PEN conductor) 1,5-2,5 mm² have aluminium tape with drain wire;
>4 mm² have copperfoil with overlap and concentric screen of copper wires
Outer sheath halogen-free polymer
Colour black
Mode of packing drum

Marking

Printed on outer sheath, designation and dimension. Meter marking and year of production.

No. of cores and conductor area	Conductor type ⁽²⁾	Art. No.	Outer diameter approx.	Approx. weight
mm ²			mm	kg/km
2 x 1,5/1,5	ER	422005	11	170
2 x 2,5/2,5	ER	422025	12	210
2 x 4/4	ER	422045	13	210
2 x 6/6	ER	422065	14	270
2 x 10/10	FR	422085	18	440
2 x 16/16	FR	422105	20	640
3 x 1,5/1,5	ER	422010	11	180
3 x 2,5/2,5	ER	422030	12	230
3 x 4/4	ER	422050	13	250
3 x 6/6	ER	422070	14	330
3 x 10/10	FR	422090	18	550
3 x 16/16	FR	422110	21	820
3 x 25/16	FR	422130	24	1110
3 x 35/16	FV	422150	24	1390
3 x 50/25	FV	422170	26	1800
3 x 70/35	FV	422190	30	2520
3 x 95/50	FV	422210	33	3450
3 x 120/70	FV	422230	38	4290

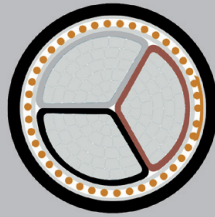
No. of cores and conductor area	Conductor type ⁽²⁾	Art. No.	Outer diameter approx.	Approx. weight
mm ²			mm	kg/km
3 x 150/70	FV	422250	40	5200
3 x 185/95	FV		48	7200
3 x 240/120	FV	422290	53	8500
4 x 1,5/1,5	ER	422015	12	210
4 x 2,5/2,5	ER	422035	13	280
4 x 4/4	ER	422055	14	300
4 x 6/6	ER	422075	16	400
4 x 10/10	FR	422095	20	660
4 x 25/16	FR	422135	26	1370
4 x 35/16	FV		28	1850
4 x 50/25	FV	422175	28	2270
4 x 70/35	FV	422195	35	3200
4 x 95/50	FV	422215	39	4380
4 x 120/70	FV	422235	42	5430
4 x 150/70	FV	422255	46	6590
4 x 185/95	FV	422275	53	8750
4 x 240/120	FV	422295	59	10900

1) LVD - Low Voltage Directive

2) ER - Solid round
FR - Stranded round
FV - Stranded sector shaped

AMCMK 3 1/2-core

1 kV power cable with PVC insulated aluminium conductors



Application

Fixed indoor, outdoor and underground installations.

Standards

SFS 4880
 HD 603-3F S1
 IEC 60502-1
 IEC 60332-3 category B

Certificate/approval

FI, CE

Rated voltage

$U_0/U = 0,6/1$ kV
 $U_m = 1,2$ kV

Temperature range

Highest permissible conductor temperature:
 - in continuous operation 70 °C
 - in a short circuit (duration up to 5 s) 160 °C
 Lowest recommended temperature during laying. . -15 °C

Fire resistance class

25 - 300 mm² IEC 60332-3 category B
 16 mm² IEC 60332-1

Construction

Conductor 16 mm² - solid round annealed aluminium conductor;
 25-300 mm² - stranded, compacted and annealed sector shaped aluminium conductor
 Insulation PVC
 Laying up three insulated phase conductors stranded together
 PE conductor concentric copper wire layer and copper wire or copper tape binding
 Sheath black PVC compound

Identification of cores

Phase conductors brown, black, grey (HD 308 S2:2002)

Marking

Manufacturer, product name, date of manufacture, outer sheath material designation, meter marking.

AMCMK 3 1/2-core

1 kV power cable with PVC insulated aluminium conductors

Basic cable data			AMCMK	AMCMK	AMCMK	AMCMK	AMCMK	AMCMK
			3x16Al/10Cu	3x25Al/16Cu	3x35Al/16Cu	3x50Al/16Cu	3x70Al/21Cu	3x95Al/29Cu
			AN 1 kV	AN 1 kV	AN 1 kV	AN 1 kV	AN 1 kV	AN 1 kV
Construction data								
External cable diameter ⁽¹⁾		mm	22	23	24	28	31	35
Weight ⁽¹⁾	aluminium	kg/km	125	200	275	370	540	750
	copper	kg/km	95	145	145	145	190	260
	cable	kg/km	560	620	730	975	1300	1750
Delivery data								
Standard delivery length		m	1000	500	500	500	500	500
Drum			15G	K11	K12	K12	K14	K14
Total weight ⁽¹⁾	cable + drum	kg	710	365	485	580	765	990
Mechanical data ⁽²⁾								
Minimum permissible bending radius during laying		m	0,25	0,28	0,30	0,34	0,38	0,42
Minimum permissible bending radius at final installation ⁽³⁾		m	0,18	0,20	0,21	0,24	0,27	0,30
Maximum permissible pulling force with a pulling grip		kN	0,7	1,1	1,6	2,2	3,1	4,3
Maximum permissible pulling force with a pulling eye		kN	2,4	3,7	5,2	7,5	10,5	14,2
Electrical data ⁽²⁾								
Maximum DC resistance of	conductor 20 °C	Ω/km	1,91	1,20	0,868	0,641	0,443	0,320
Maximum AC resistance of	conductor 70 °C	Ω/km	2,3	1,4	1,0	0,77	0,53	0,39
Maximum DC resistance of	PEN conductor 20 °C	Ω/km	1,91	1,91	1,91	1,20	0,868	0,641
Inductance ⁽¹⁾		mH/km	0,26	0,26	0,26	0,25	0,24	0,24
Operating capacitance ⁽¹⁾		μF/km	0,40	0,45	0,55	0,60	0,65	0,75
Current ratings ⁽²⁾								
In air	conductor 70 °C	A	64	83	105	125	155	190
In ground	conductor 70 °C	A	78	100	125	150	185	220
Short circuit currents ⁽²⁾								
Maximum permissible short circuit current for 1 second	phase conductor ⁽⁴⁾	kA	1,2	1,9	2,6	3,8	5,3	7,2
	PE conductor ⁽⁵⁾	kA	1,7	1,7	1,7	2,6	3,7	4,6

Basic cable data			AMCMK	AMCMK	AMCMK	AMCMK	AMCMK
			3x120Al/41Cu	3x150Al/41Cu	3x185Al/57Cu	3x240Al/72Cu	3x300Al/88Cu
			AN 1 kV	AN 1 kV	AN 1 kV	AN 1 kV	AN 1 kV
Construction data							
External cable diameter ⁽¹⁾		mm	39	42	48	53	58
Weight ⁽¹⁾	aluminium	kg/km	945	1160	1460	1910	2390
	copper	kg/km	370	370	525	660	790
	cable	kg/km	2150	2550	3250	4100	5000
Delivery data							
Standard delivery length		m	500	500	500	500	500
Drum			K16	K18	K20	K22	K24
Total weight ⁽¹⁾	cable + drum	kg	1270	1500	1950	2450	2950
Mechanical data ⁽²⁾							
Minimum permissible bending radius during laying		m	0,47	0,51	0,58	0,64	0,70
Minimum permissible bending radius at final installation ⁽³⁾		m	0,33	0,36	0,41	0,45	0,49
Maximum permissible pulling force with a pulling grip		kN	5,4	6,7	8,3	8,5	8,5
Maximum permissible pulling force with a pulling eye		kN	18,0	20,0	20,0	20,0	20,0
Electrical data ⁽²⁾							
Maximum DC resistance of	conductor 20 °C	Ω/km	0,253	0,206	0,164	0,125	0,100
Maximum AC resistance of	conductor 70 °C	Ω/km	0,31	0,25	0,20	0,15	0,13
Maximum DC resistance of	PEN conductor 20 °C	Ω/km	0,443	0,443	0,320	0,253	0,206
Inductance ⁽¹⁾		mH/km	0,23	0,23	0,23	0,23	0,23
Operating capacitance ⁽¹⁾		μF/km	0,80	0,80	0,85	0,85	0,90
Current ratings ⁽²⁾							
In air	conductor 70 °C	A	220	250	285	330	380
In ground	conductor 70 °C	A	255	290	330	375	430
Short circuit currents ⁽²⁾							
Maximum permissible short circuit current for 1 second	phase conductor ⁽⁴⁾	kA	9,1	11,4	14,0	18,2	22,8
	PE conductor ⁽⁵⁾	kA	6,7	6,7	8,8	11,4	13,9

1) Approximate value.

2) See the basic assumptions at general information of products.

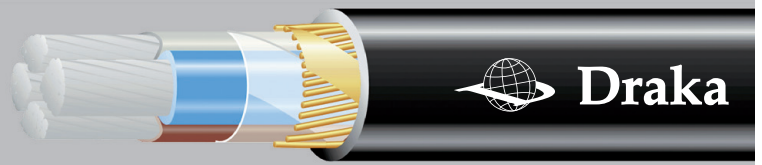
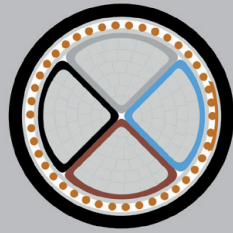
3) Final installation with careful single bending.

4) Initial temperature of conductor before short circuit 70 °C, final temperature of conductor after short circuit 160 °C.

5) Initial temperature of PE conductor before short circuit 65 °C, final temperature of PE conductor after short circuit 160 °C.

AMCMK 4 1/2-core

1 kV power cable with PVC insulated aluminium conductors



Application

Fixed indoor, outdoor and underground installations.

Standards

SFS 4880, HD 603-3F S1, IEC 60502-1

Certificate/approval

EEI, FI, CE

Rated voltage

$U_0/U = 0,6/1$ kV

$U_m = 1,2$ kV

Fire resistance class

IEC 60332-3 cat B

Temperature range

Highest permissible conductor temperature:

- in continuous operation 70 °C

- in a short circuit (duration up to 5 s) 160 °C

Lowest recommended temperature during laying . . -15 °C

Construction

Conductor stranded, compacted and annealed sector shaped aluminium conductor

Insulation PVC

Laying up three insulated phase conductors and neutral conductor stranded together

PE conductor concentric copper wire layer and copper wire or copper tape binding

Sheath black PVC compound

Identification of cores

Phase conductors brown, black, grey and neutral conductor blue (HD 308 S2:2002).

Marking

Manufacturer, product name, date of manufacture, outer sheath material designation, meter marking.

AMCMK 4 1/2-core

1 kV power cable with PVC insulated aluminium conductor

Basic cable data			AMCMK	AMCMK	AMCMK	AMCMK	AMCMK
			4x35Al/16Cu	4x50Al/16Cu	4x70Al/21Cu	4x95Al/29Cu	4x120Al/41Cu
			AN 1 kV	AN 1 kV	AN 1 kV	AN 1 kV	AN 1 kV
Construction data							
External cable diameter ⁽¹⁾		mm	28	32	35	40	44
Weight ⁽¹⁾	aluminium	kg/km	365	495	720	1000	1260
	copper	kg/km	145	145	195	270	370
	cable	kg/km	955	1250	1600	2200	2650
Delivery data							
Standard delivery length		m	500	500	500	500	500
Drum			K12	K14	K16	K18	K20
Total weight ⁽¹⁾	cable + drum	kg	570	740	995	1330	1670
Mechanical data ⁽²⁾							
Minimum permissible bending radius during laying		m	0,34	0,39	0,42	0,48	0,53
Minimum permissible bending radius at final installation ⁽³⁾		m	0,24	0,28	0,3	0,34	0,37
Maximum permissible pulling force with a pulling grip		kN	2,1	3,0	4,2	5,7	7,2
Maximum permissible pulling force with a pulling eye		kN	7,0	10,0	14,0	19,0	20,0
Electrical data ⁽²⁾							
Maximum DC resistance of	conductor 20 °C	Ω/km	0,868	0,641	0,443	0,32	0,253
Maximum AC resistance of	conductor 70 °C	Ω/km	1,00	0,77	0,53	0,39	0,31
Maximum DC resistance of	PE conductor 20 °C	Ω/km	1,15	1,15	0,868	0,641	0,443
Inductance ⁽¹⁾		mH/km	0,27	0,27	0,26	0,26	0,26
Operating capacitance ⁽¹⁾		μF/km	0,45	0,50	0,55	0,65	0,70
Current ratings ⁽²⁾							
In air	conductor 70 °C	A	105	125	155	190	220
In ground	conductor 70 °C	A	125	150	185	220	255
Short circuit currents ⁽²⁾							
Maximum permissible short circuit current for 1 second	phase conductor ⁽⁴⁾	kA	2,6	3,8	5,3	7,2	9,1
	PE conductor ⁽⁵⁾	kA	2,6	2,6	3,7	4,6	6,7

Basic cable data			AMCMK	AMCMK	AMCMK	AMCMK
			4x150Al/41Cu	4x185Al/57Cu	4x240Al/72Cu	4x300Al/88Cu
			AN 1 kV	AN 1 kV	AN 1 kV	AN 1 kV
Construction data						
External cable diameter ⁽¹⁾		mm	48	53	60	66
Weight ⁽¹⁾	aluminium	kg/km	1550	1950	2550	3190
	copper	kg/km	370	510	660	795
	cable	kg/km	3150	4000	5100	6300
Delivery data						
Standard delivery length		m	500	500	400	500
Drum			K20	K22	K22	K24
Total weight ⁽¹⁾	cable + drum	kg	3150	2400	3000	3600
Mechanical data ⁽²⁾						
Minimum permissible bending radius during laying		m	0,58	0,64	0,72	0,80
Minimum permissible bending radius at final installation ⁽³⁾		m	0,41	0,45	0,51	0,56
Maximum permissible pulling force with a pulling grip		kN	8,5	8,5	8,5	8,5
Maximum permissible pulling force with a pulling eye		kN	20,0	20,0	20,0	20,0
Electrical data ⁽²⁾						
Maximum DC resistance of	conductor 20 °C	Ω/km	0,206	0,164	0,125	0,1
Maximum AC resistance of	conductor 70 °C	Ω/km	0,25	0,20	0,15	0,13
Maximum DC resistance of	PE conductor 20 °C	Ω/km	0,443	0,320	0,253	0,206
Inductance ⁽¹⁾		mH/km	0,26	0,26	0,26	0,26
Operating capacitance ⁽¹⁾		μF/km	0,70	0,75	0,80	0,80
Current ratings ⁽²⁾						
In air	conductor 70 °C	A	250	285	330	380
In ground	conductor 70 °C	A	290	330	375	430
Short circuit currents ⁽²⁾						
Maximum permissible short circuit current for 1 second	phase conductor ⁽⁴⁾	kA	11,4	14,0	18,2	22,8
	PE conductor ⁽⁵⁾	kA	6,7	8,8	11,4	13,9

1) Approximate value.

2) See the basic assumptions at general information of products.

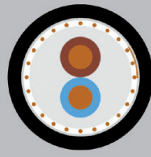
3) Final installation with careful single bending.

4) Initial temperature of conductor before short circuit 70 °C, final temperature of conductor after short circuit 160 °C.

5) Initial temperature of PE conductor before short circuit 65 °C, final temperature of PE conductor after short circuit 160 °C.

MCMK 3-core

1 kV power cable with PVC insulated copper conductors



Application

For fixed installation indoors, outdoors and underground as well as in building structures, e.g. directly in concrete. Not for installations subject to severe electrical interference (see MCKMK).

Standards

SFS 4880, HD 603-3F S1, IEC 60502-1, IEC 60332-1

Certificate/approval

CE, EEI, FI, S

Rated voltage

$U_0/U = 0,6/1$ kV, $U_m = 1,2$ kV

Temperature range

Highest permissible conductor temperature:
 - in continuous operation 70 °C
 - in a short circuit (duration up to 5 s) 160 °C
 Lowest recommended temperature during laying . . . -15 °C

Construction

Conductor annealed copper;
 1,5-6 mm² - solid;
 10 mm² - stranded, round (RM)
 Insulation lead-free PVC
 Laying up phase conductor and neutral conductor stranded together
 Filling filling compound
 PE conductor concentric layer of copper wires and an open helix of parallel copper wires
 Sheath black, lead-free PVC compound

Identification of cores

Colour marking . . . blue, brown
 According to HD 308 S2:2002.

Marking

Manufacturer, product name, FI-mark, year and week of manufacture, meter marking.

Basic cable data			MCMK	MCMK	MCMK	MCMK
			2x1,5/1,5 1 kV	2x2,5/2,5 1 kV	2x6/6 1 kV	2x10/10 RM 1 kV
EAN code		64 100+	06 021 22-2	06 021 23-9	06 021 25-3	06 021 26-0
Construction data						
External cable diameter ⁽¹⁾		mm	11,5	12,5	16,5	19
Weight ⁽¹⁾	copper	kg/km	41	66	159	268
	cable	kg/km	165	200	370	550
Delivery data						
Standard delivery length		m	1000	1000	500	500
Drum			K8	K8	K8	K9
Total weight ⁽¹⁾	cable + drum	kg	210	225	220	320
Mechanical data ⁽²⁾						
Minimum permissible bending radius during laying		m	0,14	0,15	0,19	0,23
Minimum permissible bending radius at final installation ⁽³⁾		m	0,09	0,10	0,13	0,16
Maximum permissible pulling force, pulling by phase conductors		kN	0,15	0,25	0,60	1,00
Electrical data ⁽²⁾						
Maximum DC resistance of	conductor 20 °C	Ω/km	12,1	7,41	3,08	1,83
Maximum AC resistance of	conductor 70 °C	Ω/km	14,5	8,87	3,69	2,19
Maximum DC resistance of	PE conductor 20 °C	Ω/km	12,1	7,41	3,08	1,83
Inductance ⁽¹⁾		mH/km	0,34	0,32	0,30	0,28
Operating capacitance ⁽¹⁾		μF/km	0,25	0,30	0,35	0,40
Current ratings ⁽²⁾						
In ground	conductor 70 °C	A	26	35	57	77
In air	conductor 70 °C	A	14	20	33	62
Short circuit currents ⁽²⁾						
Maximum permissible short circuit current for 1 second	phase and neutral conductor ⁽⁴⁾	kA	0,18	0,30	0,70	1,1
	PE conductor ⁽⁵⁾	kA	0,24	0,42	1,0	1,7

1) Approximate value.
 2) See the basic assumptions at general information of products.
 3) Final installation with careful single bending.
 4) Initial temperature of conductor before short circuit 70 °C, final temperature of conductor after short circuit 160 °C.
 5) Initial temperature of PE conductor before short circuit 60 °C, final temperature of PE conductor after short circuit 160 °C.

MCMK 4-core

1 kV power cable with PVC insulated copper conductors



Application

For fixed installation indoors, outdoors and underground as well as in building structures, e.g. directly in concrete. Not for installations subject to severe electrical interference (see MCCMK).

Standards

SFS 4880, HD 603-3F S1, IEC 60502-1, IEC 60332-1

Certificate/approval

CE, FI, S, EEI

Rated voltage

$U_0/U = 0,6/1$ kV, $U_m = 1,2$ kV

Temperature range

Highest permissible conductor temperature:
 - in continuous operation 70 °C
 - in a short circuit (duration up to 5 s) 160 °C
 Lowest recommended temperature during laying . . . -15 °C

Construction

Conductor annealed copper;
 1,5-6 mm² - solid round;
 10 and 16 mm² - stranded, round (RM)
 Insulation lead-free PVC
 Laying up three phase conductors stranded together
 Filling filling compound
 PE conductor concentric layer of copper wires and an open helix of parallel copper wires
 Sheath black, lead-free PVC compound

Identification of cores

Colour marking . . brown, black, grey
 According to HD 308 S2:2002.

Marking

Manufacturer, product name, FI-mark, year and week of manufacture, meter marking

Basic cable data		MCMK	MCMK	MCMK	MCMK	MCMK	
		3x1,5/1,5 1 kV	3x2,5/2,5 1 kV	3x6/6 1 kV	3x10/10 RM 1 kV	3x16/16 RM 1 kV	
EAN code	64 100+	06 021 52-9	06 021 53-6	06 021 55-0	06 021 56-7	06 021 57-4	
Construction data							
External cable diameter ⁽¹⁾		mm	12	13	17	20	23
Weight ⁽¹⁾	copper	kg/km	54	88	212	357	570
	cable	kg/km	190	240	450	680	970
Delivery data							
Standard delivery length		m	1000	1000	500	500	500
Drum			K8	K9	K8	K9	K11
Total weight ⁽¹⁾	cable + drum	kg	220	290	260	390	570
Mechanical data ⁽²⁾							
Min permissible bending radius during laying		m	0,15	0,16	0,21	0,24	0,28
Min permissible bending radius at final installation ⁽³⁾		m	0,10	0,11	0,15	0,16	0,19
Max permissible pulling force, pulling by phase conductors		kN	0,22	0,37	0,90	1,5	2,4
Electrical data ⁽²⁾							
Maximum DC resistance of	conductor 20 °C	Ω/km	12,1	7,41	3,08	1,83	1,15
Maximum AC resistance of	conductor 70 °C	Ω/km	14,5	8,87	3,69	2,19	1,38
Maximum DC resistance of	PE conductor 20 °C	Ω/km	12,1	7,41	3,08	1,83	1,15
Inductance ⁽¹⁾		mH/km	0,34	0,32	0,30	0,28	0,26
Operating capacitance ⁽¹⁾		μF/km	0,25	0,30	0,35	0,40	0,40
Current ratings ⁽²⁾							
In ground	conductor 70 °C	A	26	35	57	77	100
In air	conductor 70 °C	A	14	20	33	62	82
Short circuit currents ⁽²⁾							
Max permissible short circuit current for 1 second	phase conductor ⁽⁴⁾	kA	0,18	0,30	0,7	1,1	1,8
	PE conductor ⁽⁵⁾	kA	0,24	0,42	1,0	1,7	2,7

1) Approximate value.

2) See the basic assumptions at general information of products.

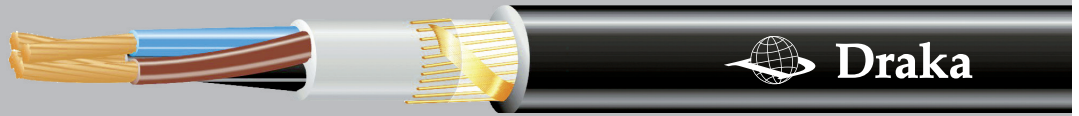
3) Final installation with careful single bending.

4) Initial temperature of conductor before short circuit 70 °C, final temperature of conductor after short circuit 160 °C.

5) Initial temperature of PE conductor before short circuit 60 °C, final temperature of PE conductor after short circuit 160 °C.

MCMK 5-core

1 kV power cable with PVC insulated copper conductors



Application

For fixed installation indoors, outdoors and underground as well as in building structures, e.g. directly in concrete. Not for installations subject to severe electrical interference (see MCCMK).

Standards

SFS 4880, HD 603-3F S1, IEC 60502-1, IEC 60332-1

Certificate/approval

EEI, CE, FI, S

Rated voltage

$U_0/U = 0,6/1$ kV, $U_m = 1,2$ kV

Temperature range

Highest permissible conductor temperature:
 - in continuous operation 70 °C
 - in a short circuit (duration up to 5 s) 160 °C
 Lowest recommended temperature during laying . . . -15 °C

Construction

Conductor annealed copper
 1,5-6 mm² - solid
 10 and 16 mm² - stranded, round (RM)
 Insulation lead-free PVC
 Laying up three phase conductors and neutral
 conductor stranded together
 Filling filling compound
 PE conductor concentric layer of copper wires and
 an open helix of parallel copper wires
 Sheath black, lead-free PVC compound

Identification of cores

Colour marking . . . blue, brown, black, grey
 According to HD 308 S2:2002.

Marking

Manufacturer, product name, FI-mark, year and week of
 manufacture, meter marking

MCMK 5-core

1 kV power cable with PVC insulated copper conductors

Basic cable data			MCMK	MCMK	MCMK	MCMK
			4x1,5/1,5 1 kV	4x1,5/1,5 1 kV	4x2,5/2,5 1 kV	4x2,5/2,5 1 kV
			drum	reel	drum	reel
EAN code		64 100+	06 021 72-7	06 021 92-5	06 021 43-7	06 021 93-2
Construction data						
External cable diameter ⁽¹⁾		mm	13	13	14	14
Weight ⁽¹⁾	copper	kg/km	68	68	110	110
	cable	kg/km	210	210	270	270
Delivery data						
Standard delivery length		m	1000	100	1000	100
Drum			K8	reel	K9	reel
Total weight ⁽¹⁾	cable + drum	kg	235	21	320	27
Mechanical data ⁽²⁾						
Minimum permissible bending radius during laying		m	0,16	0,16	0,17	0,17
Minimum permissible bending radius at final installation ⁽³⁾		m	0,11	0,11	0,12	0,12
Maximum permissible pulling force, pulling by phase conductors		kN	0,3	0,3	0,5	0,5
Electrical data ⁽²⁾						
Maximum DC resistance of	conductor 20 °C	Ω/km	12,1	12,1	7,41	7,41
Maximum AC resistance of	conductor 70 °C	Ω/km	14,5	14,5	8,87	8,87
Maximum DC resistance of	PE conductor 20 °C	Ω/km	12,1	12,1	7,41	7,41
Inductance ⁽¹⁾		mH/km	0,34	0,34	0,32	0,32
Operating capacitance ⁽¹⁾		μF/km	0,25	0,25	0,30	0,30
Current ratings ⁽²⁾						
In ground	conductor 70 °C	A	26	26	35	35
In air	conductor 70 °C	A	14	14	20	20
Short circuit currents ⁽²⁾						
Max permissible short circuit current for 1 second	phase and neutral conductor ⁽⁴⁾	kA	0,18	0,18	0,30	0,30
	PE conductor ⁽⁵⁾	kA	0,24	0,24	0,42	0,42

Basic cable data			MCMK	MCMK	MCMK
			4x6/6 1 kV	4x10/10 RM 1 kV	4x16/16 RM 1 kV
			drum	drum	drum
EAN code		64 100+	06 021 45-1	06 021 46-8	06 021 47-5
Construction data					
External cable diameter ⁽¹⁾		mm	18,5	22	25
Weight ⁽¹⁾	copper	kg/km	265	447	712
	cable	kg/km	520	790	1150
Delivery data					
Standard delivery length		m	500	500	500
Drum			K8	K11	K11
Total weight ⁽¹⁾	cable + drum	kg	285	480	630
Mechanical data ⁽²⁾					
Minimum permissible bending radius during laying		m	0,22	0,25	0,29
Minimum permissible bending radius at final installation ⁽³⁾		m	0,15	0,17	0,20
Maximum permissible pulling force, pulling by phase conductors		kN	1,2	2,0	3,2
Electrical data ⁽²⁾					
Maximum DC resistance of	conductor 20 °C	Ω/km	3,08	1,83	1,15
Maximum AC resistance of	conductor 70 °C	Ω/km	3,69	2,19	1,38
Maximum DC resistance of	PE conductor 20 °C	Ω/km	3,08	1,83	1,15
Inductance ⁽¹⁾		mH/km	0,30	0,28	0,26
Operating capacitance ⁽¹⁾		μF/km	0,35	0,40	0,40
Current ratings ⁽²⁾					
In ground	conductor 70 °C	A	57	77	100
In air	conductor 70 °C	A	33	62	82
Short circuit currents ⁽²⁾					
Max permissible short circuit current for 1 second	phase and neutral conductor ⁽⁴⁾	kA	0,70	1,1	1,8
	PE conductor ⁽⁵⁾	kA	1,0	1,7	2,7

1) Approximate value.

2) See the basic assumptions at general information of products.

3) Final installation with careful single bending.

4) Initial temperature of conductor before short circuit 70 °C, final temperature of conductor after short circuit 160 °C.

5) Initial temperature of PE conductor before short circuit 60 °C, final temperature of PE conductor after short circuit 160 °C.

MCCMK 4-core

1 kV EMC power cable with PVC-insulated copper conductor



Application

Fixed indoor, outdoor and underground installation where EMC properties are required.

Standards

SFS 4880, HD 603-3F S1, IEC 60502-1, IEC 60322-1

Certificate/approval

EEL, FI, CE

Rated voltage

$U_0/U = 0,6/1$ kV
 $U_m = 1,2$ kV

Temperature range

Highest permissible conductor temperature:
- in continuous operation 70 °C
- in a short circuit (duration up to 5 s) 160 °C
Lowest recommended temperature during laying... -15 °C

Construction

Conductor annealed copper;
2,5 and 6 mm² - solid round;
10 and 16 mm² - stranded round (RM)
Insulation..... lead-free PVC
Laying up..... three phase conductors stranded together
Filling filling compound
PE conductor ... copper foil and concentric layer of copper wires
Sheath black, lead-free PVC compound

Identification of cores

Colour marking... brown - black - grey
According to HD 308 S2:2002.

Marking

Manufacturer, product name, FI-mark, year and week of manufacture, meter marking

Basic cable data		MCCMK	MCCMK	MCCMK	MCCMK	
		3x2,5/2,5 1 kV	3x6/6 1 kV	3x10/10 RM 1 kV	3x16/16 RM 1 kV	
EAN code	64 100+	06 020 53-9	06 020 55-3	06 020 56-0	06 020 57-7	
Construction data						
External cable diameter ⁽¹⁾		mm	14	18	21	24
Weight ⁽¹⁾	copper	kg/km	88	212	357	570
	cable	kg/km	260	470	700	1050
Delivery data						
Standard delivery length		m	1000	1000	1000	1000
Drum			K9	K11	K12	15G
Total weight ⁽¹⁾	cable + drum	kg	320	560	820	1250
Mechanical data ⁽²⁾						
Minimum permissible bending radius during laying		m	0,16	0,22	0,25	0,30
Minimum permissible bending radius at final installation ⁽³⁾		m	0,11	0,15	0,17	0,20
Maximum permissible pulling force with a pulling grip		kN	0,37	0,90	1,5	2,4
Electrical data ⁽²⁾						
Maximum DC resistance of	conductor 20 °C	Ω/km	7,41	3,08	1,83	1,15
Maximum AC resistance of	conductor 70 °C	Ω/km	8,87	3,69	2,19	1,38
Maximum DC resistance of	PE conductor 20 °C	Ω/km	7,41	3,08	1,83	1,15
Inductance ⁽¹⁾		mH/km	0,32	0,30	0,26	0,26
Operating capacitance ⁽¹⁾		µF/km	0,30	0,35	0,40	0,40
Current ratings ⁽²⁾						
In ground	conductor 70 °C	A	35	57	77	100
In air	conductor 70 °C	A	20	33	62	82
Short circuit currents ⁽²⁾						
Maximum permissible short circuit current for 1 second	phase conductor ⁽⁴⁾	kA	0,18	0,30	0,7	1,1
	PE conductor ⁽⁵⁾	kA	0,24	0,42	1,0	1,7

1) Approximate value.
2) See the basic assumptions at general information of products.
3) Final installation with careful single bending.
4) Initial temperature of conductor before short circuit 70 °C, final temperature of conductor after short circuit 160 °C.
5) Initial temperature of PE conductor before short circuit 60 °C, final temperature of PE conductor after short circuit 160 °C.

MCCMK 5-core

1 kV EMC power cable with PVC-insulated copper conductor



Application

Fixed indoor, outdoor and underground installation where EMC properties are required.

Standards

SFS 4880, HD 603-3F S1, IEC 60502-1, IEC 60332-1

Certificate/approval

EEL, FI, CE

Rated voltage

$U_0/U = 0,6/1$ kV, $U_m = 1,2$ kV

Temperature range

Highest permissible conductor temperature:
 - in continuous operation 70 °C
 - in a short circuit (duration up to 5 s) 160 °C
 Lowest recommended temperature during laying . . . -15 °C

Construction

Conductor annealed copper
 2,5 and 6 mm² - solid round
 10 and 16 mm² - stranded round (RM)
 Insulation lead-free PVC
 Laying up three phase conductors and neutral conductor stranded together
 Filling filling compound
 PE conductor copper foil and concentric layer of copper wires
 Sheath black, lead-free PVC compound

Identification of cores

Colour marking . . . blue, brown, black, grey
 According to HD 308 S2:2002.

Marking

Manufacturer, product name, FI-mark, year and week of manufacture, meter marking.

Basic cable data			MCCMK	MCCMK	MCCMK	MCCMK
			4x2,5/2,5 1 kV	4x6/6 1 kV	4x10/10 RM 1 kV	4x16/16 RM 1 kV
EAN code		64 100+	06 020 73-7	06 020 75-1	06 020 76-8	06 020 77-5
Construction data						
External cable diameter ⁽¹⁾		mm	14,5	19	22	25
Weight ⁽¹⁾	copper	kg/km	110	265	447	712
	cable	kg/km	290	540	830	1200
Delivery data						
Standard delivery length		m	1000	1000	1000	1000
Drum			K9	K11	13G	15G
Total weight ⁽¹⁾	cable + drum	kg	350	640	970	1400
Mechanical data ⁽²⁾						
Minimum permissible bending radius during laying		m	0,18	0,23	0,27	0,30
Minimum permissible bending radius at final installation ⁽³⁾		m	0,12	0,16	0,18	0,20
Maximum permissible pulling force with a pulling grip		kN	0,50	1,2	2,0	3,2
Electrical data ⁽²⁾						
Maximum DC resistance of	conductor 20 °C	Ω/km	7,41	3,08	1,83	1,15
Maximum AC resistance of	conductor 70 °C	Ω/km	8,87	3,69	2,19	1,38
Maximum DC resistance of	PE conductor 20 °C	Ω/km	7,41	3,08	1,83	1,15
Inductance ⁽¹⁾		mH/km	0,32	0,30	0,28	0,26
Operating capacitance ⁽¹⁾		µF/km	0,30	0,35	0,40	0,40
Current ratings ⁽²⁾						
In ground	conductor 70 °C	A	35	57	77	100
In air	conductor 70 °C	A	20	33	62	82
Short circuit currents ⁽²⁾						
Maximum permissible short circuit current for 1 second	phase conductor and neutral conductor ⁽⁴⁾	kA	0,30	0,70	1,1	1,8
	PE conductor ⁽⁵⁾	kA	0,42	1,0	1,7	2,7

1) Approximate value.

2) See the basic assumptions at general information of products.

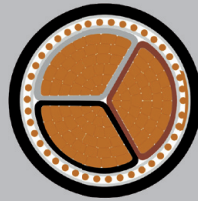
3) Final installation with careful single bending.

4) Initial temperature of conductor before short circuit 70 °C, final temperature of conductor after short circuit 160 °C.

5) Initial temperature of PE conductor before short circuit 60 °C, final temperature of PE conductor after short circuit 160 °C.

MCMK 3 1/2-core

1 kV power cable with PVC insulated copper conductors



Application

Fixed indoor, outdoor and underground installations.

Standards

SFS 4880, HD 603-3F S1, IEC 60502-1, IEC 60332-3

Certificate/approval

EEI, FI, CE

Rated voltage

$U_0/U = 0,6/1$ kV, $U_m = 1,2$ kV

Fire resistance class

IEC 60332-3 cat B

Temperature range

Highest permissible conductor temperature:
- in continuous operation 70 °C
- in a short circuit (duration up to 5 s) 160 °C
Lowest recommended temperature during laying . . . -15 °C

Construction

Conductor stranded, compacted and annealed sector shaped copper conductor
Insulation PVC
Laying up three insulated phase conductors stranded together
PE conductor concentric copper wire layer and copper wire or copper tape binding
Sheath black PVC compound

Identification of cores

Phase conductors brown, black, grey.
According to HD 308 S2:2002.

Marking

Manufacturer, product name, date of manufacture, outer sheath material designation, meter marking

MCMK 3 1/2-core

1 kV power cable with PVC insulated copper conductors

Basic cable data			3x25/16 AN 1 kV	3x35/16 AN 1 kV	3x50/25 AN 1 kV	3x70/35 AN 1 kV	3x95/50 AN 1 kV	
EAN code		64 100+	06 021 58-1	06 021 59-8	06 021 60-4	06 021 61-1	06 021 62-8	
Construction data								
External cable diameter ⁽¹⁾		mm	23	25	28	31	37	
Weight ⁽¹⁾	copper	kg/km	800	1050	1460	2080	2880	
	cable	kg/km	1150	1450	2000	2700	3700	
Delivery data								
Standard delivery length		m	500	500	500	500	500	
Drum			K12	K12	K12	K14	K16	
Total weight ⁽¹⁾		cable + drum	kg	630	815	1090	1470	2050
Mechanical data ⁽²⁾								
Minimum permissible bending radius during laying		m	0,28	0,30	0,34	0,38	0,45	
Minimum permissible bending radius at final installation ⁽³⁾		m	0,20	0,21	0,24	0,26	0,31	
Maximum permissible pulling force with a pulling grip		kN	1,1	1,5	2,2	3,1	4,2	
Maximum permissible pulling force with a pulling eye		kN	7,5	10,5	15,0	20,0	20,0	
Electrical data ⁽²⁾								
Maximum DC resistance of conductor 20 °C		Ω/km	0,727	0,524	0,387	0,268	0,193	
Maximum AC resistance of conductor 70 °C		Ω/km	0,87	0,63	0,47	0,32	0,23	
Maximum DC resistance of PE conductor 20 °C		Ω/km	1,15	1,15	0,727	0,524	0,387	
Inductance ⁽¹⁾		mH/km	0,26	0,26	0,25	0,24	0,24	
Operating capacitance ⁽¹⁾		μF/km	0,45	0,55	0,60	0,65	0,75	
Current ratings ⁽²⁾								
In air		conductor 70 °C	A	107	135	160	200	245
In ground		conductor 70 °C	A	130	160	190	240	285
Short circuit currents ⁽²⁾								
Maximum permissible short circuit current for 1 second		phase conductor ⁽⁴⁾	kA	2,8	4,0	5,7	8,0	10,9
		PE conductor ⁽⁵⁾	kA	2,7	2,7	4,4	5,7	7,2

Basic cable data			3x120/70 AN 1 kV	3x150/70 AN 1 kV	3x185/95 AN 1 kV	3x240/120 AN 1 kV	3x300/150 AN 1 kV	
EAN code		64 100+	06 021 63-5	06 021 64-2	06 021 65-9	06 021 66-6	06 021 75-8	
Construction data								
External cable diameter ⁽¹⁾		mm	39	43	48	59	59	
Weight ⁽¹⁾	copper	kg/km	3710	4430	5630	7350	9240	
	cable	kg/km	4650	5550	7000	9100	11500	
Delivery data								
Standard delivery length		m	500	500	500	500	500	
Drum			K18	K18	K20	K22	K24	
Total weight ⁽¹⁾		cable + drum	kg	2560	3000	3850	4950	6200
Mechanical data ⁽²⁾								
Minimum permissible bending radius during laying		m	0,47	0,52	0,58	0,64	0,71	
Minimum permissible bending radius at final installation ⁽³⁾		m	0,33	0,37	0,41	0,45	0,50	
Maximum permissible pulling force with a pulling grip		kN	5,4	6,7	8,3	8,5	8,5	
Maximum permissible pulling force with a pulling eye		kN	20,0	20,0	20,0	20,0	20,0	
Electrical data ⁽²⁾								
Maximum DC resistance of conductor 20 °C		Ω/km	0,153	0,124	0,0991	0,0754	0,0601	
Maximum AC resistance of conductor 70 °C		Ω/km	0,19	0,15	0,12	0,097	0,081	
Maximum DC resistance of PE conductor 20 °C		Ω/km	0,268	0,268	0,193	0,153	0,124	
Inductance ⁽¹⁾		mH/km	0,23	0,23	0,23	0,23	0,23	
Operating capacitance ⁽¹⁾		μF/km	0,80	0,80	0,85	0,85	0,90	
Current ratings ⁽²⁾								
In air		conductor 70 °C	A	280	320	365	425	490
In ground		conductor 70 °C	A	325	370	420	480	550
Short circuit currents ⁽²⁾								
Maximum permissible short circuit current for 1 second		phase conductor ⁽⁴⁾	kA	13,7	17,2	21,2	27,5	34,4
		PE conductor ⁽⁵⁾	kA	10,4	10,4	13,4	16,6	19,2

1) Approximate value.

2) See the basic assumptions at general information of products.

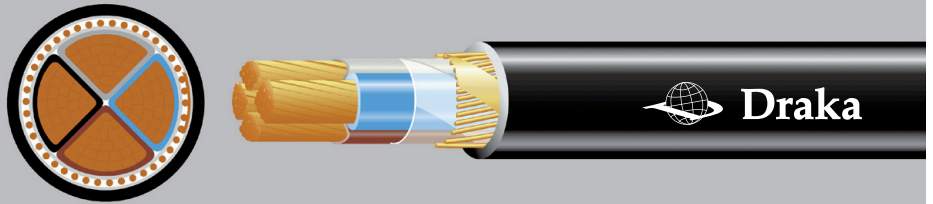
3) Final installation with careful single bending.

4) Initial temperature of conductor before short circuit 70 °C, final temperature of conductor after short circuit 160 °C.

5) Initial temperature of PE conductor before short circuit 65 °C, final temperature of PE conductor after short circuit 160 °C.

MCMK 4 1/2-core

1 kV power cable with PVC insulated copper conductors



Application

Fixed indoor, outdoor and underground installations.

Fire resistance class

IEC 60332-3 cat B

Standards

SFS 4880, HD 603-3F S1, IEC 60502-1, IEC 60332-3

Certificate/approval

FI, CE

Rated voltage

$U_0/U = 0,6/1$ kV, $U_m = 1,2$ kV

Temperature range

Highest permissible conductor temperature:

- in continuous operation 70 °C

- in a short circuit (duration up to 5 s) 160 °C

Lowest recommended temperature during laying . . -15 °C

Construction

Conductor stranded, compacted and annealed sector shaped copper conductor

Insulation PVC

Laying up three insulated phase conductors and neutral conductor stranded together

PE conductor concentric copper wire layer and copper wire or copper tape binding

Sheath black PVC compound

Identification of cores

Phase conductors brown, black, grey and neutral conductor blue. According to HD 308 S2:2002.

Marking

Manufacturer, product name, date of manufacture, outer sheath material designation, meter marking

MCMK 4 1/2-core

1 kV power cable with PVC insulated copper conductors

Basic cable data			4x25/16 AN	4x35/16 AN	4x50/25 AN	4x70/35 AN	4x95/50 AN
			1 kV	1 kV	1 kV	1 kV	1 kV
EAN code		64 100+	06 018 58-1	06 018 59-8	06 018 60-4	06 018 61-1	06 018 62-8
Construction data							
External cable diameter ⁽¹⁾		mm	26	28	32	35	41
Weight ⁽¹⁾	copper	kg/km	1020	1350	1870	2670	3700
	cable	kg/km	1450	1850	2500	3450	4750
Delivery data							
Standard delivery length		m	500	500	500	500	500
Drum			K11	K12	K14	K16	K18
Total weight ⁽¹⁾	cable + drum	kg	780	1020	1370	1920	2610
Mechanical data ⁽²⁾							
Minimum permissible bending radius during laying		m	0,32	0,34	0,39	0,42	0,50
Minimum permissible bending radius at final installation ⁽³⁾		m	0,22	0,24	0,28	0,30	0,35
Maximum permissible pulling force with a pulling grip		kN	1,5	2,1	3,0	4,2	5,7
Maximum permissible pulling force with a pulling eye		kN	10,0	14,0	20,0	20,0	20,0
Electrical data ⁽²⁾							
Maximum DC resistance of	conductor 20 °C	Ω/km	0,727	0,524	0,387	0,268	0,193
Maximum AC resistance of	conductor 70 °C	Ω/km	0,87	0,63	0,46	0,32	0,23
Maximum DC resistance of	PE conductor 20 °C	Ω/km	1,15	1,15	0,727	0,524	0,387
Inductance ⁽¹⁾		mH/km	0,28	0,27	0,27	0,26	0,26
Operating capacitance ⁽¹⁾		μF/km	0,40	0,45	0,50	0,55	0,65
Current ratings ⁽²⁾							
In air	conductor 70 °C	A	107	135	160	200	245
In ground	conductor 70 °C	A	130	160	190	240	285
Short circuit currents ⁽²⁾							
Maximum permissible short circuit current for 1 second	phase and neutral conductor ⁽⁴⁾	kA	2,8	4,0	5,7	8,0	10,9
	PE conductor ⁽⁵⁾	kA	2,7	2,7	4,4	5,7	7,2

Basic cable data			4x120/70 AN	4x150/70 AN	4x185/95 AN	4x240/120 AN	4x300/150 AN
			1 kV	1 kV	1 kV	1 kV	1 kV
EAN code		64 100+	06 018 63-5	06 018 64-2	06 018 65-9	06 018 66-6	06 018 67-3
Construction data							
External cable diameter ⁽¹⁾		mm	44	49	54	60	66
Weight ⁽¹⁾	copper	kg/km	4740	5710	7230	9450	11900
	cable	kg/km	5900	7150	8950	12000	14500
Delivery data							
Standard delivery length		m	500	500	500	500	500
Drum			K20	K22	K22	K24	K24
Total weight ⁽¹⁾	cable + drum	kg	3300	4000	4900	6500	7750
Mechanical data ⁽²⁾							
Minimum permissible bending radius during laying		m	0,53	0,59	0,65	0,72	0,8
Minimum permissible bending radius at final installation ⁽³⁾		m	0,37	0,42	0,46	0,51	0,56
Maximum permissible pulling force with a pulling grip		kN	7,2	8,5	8,5	8,5	8,5
Maximum permissible pulling force with a pulling eye		kN	20,0	20,0	20,0	20,0	20,0
Electrical data ⁽²⁾							
Maximum DC resistance of	conductor 20 °C	Ω/km	0,153	0,124	0,0991	0,0754	0,0601
Maximum AC resistance of	conductor 70 °C	Ω/km	0,19	0,15	0,12	0,097	0,080
Maximum DC resistance of	PE conductor 20 °C	Ω/km	0,268	0,268	0,193	0,153	0,124
Inductance ⁽¹⁾		mH/km	0,26	0,26	0,26	0,26	0,26
Operating capacitance ⁽¹⁾		μF/km	0,70	0,70	0,85	0,80	0,80
Current ratings ⁽²⁾							
In air	conductor 70 °C	A	280	320	365	425	490
In ground	conductor 70 °C	A	325	370	420	480	550
Short circuit currents ⁽²⁾							
Maximum permissible short circuit current for 1 second	phase and neutral conductor ⁽⁴⁾	kA	13,7	17,2	21,2	27,5	34,4
	PE conductor ⁽⁵⁾	kA	10,4	10,4	13,4	16,6	19,2

1) Approximate value.

2) See the basic assumptions at general information of products.

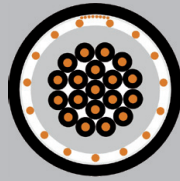
3) Final installation with careful single bending.

4) Initial temperature of conductor before short circuit 70 °C, final temperature of conductor after short circuit 160 °C.

5) Initial temperature of PE conductor before short circuit 65 °C, final temperature of PE conductor after short circuit 160 °C.

MCMO

Control cable



Application

Cables for control, measuring and signal circuits of electrical equipment for fixed surface or flush-mounted installations, indoors, outdoors and protected underground. The concentric copper conductor forms a good electromechanical protection and a moderate protection against electrical interference.

Maximum permissible tensile stress during installation Ax50 N/mm²

Standard

SFS 3713

Certificate / approval

CE, FI (FIMKO)

Temperature range

Maximum permissible temperature of conductor
 - in continuous use 70 °C
 - in a short circuit (max. 5 s) 160 °C
 Lowest recommended handling temperature -15 °C

Bending radius

Minimum recommended bending radius
 - during installation 10D
 - in a final installation if bent only once 8D

Construction

Conductor annealed copper wire
 Insulation black lead-free PVC, core identification by numbers
 Filling filling compound
 Concentric conductor .. a layer of copper wires and an open helix of parallel copper wires
 Sheath black lead-free PVC

Number of conductors and cross section n x mm ²			7 x 1,5	12 x 1,5	19 x 1,5	27 x 1,5	37 x 1,5
EAN code (SSTL code)		64 100+	06 019 01-4	06 019 02-1	06 019 03-8	06 019 04-5	06 019 05-2
Nominal overall diameter		mm	15	19	22	26	28
Total weight		kg/km	350	500	680	900	1150
Direct current resistance at +20 °C max.	conductor	Ω/km	12,1	12,1	12,1	12,1	12,1
	concentric conductor	Ω/km	3,08	3,08	3,08	3,08	2,6
Standard delivery length	drum	m	500/8E	400/8E	500/11G	500/11G	400/11G

Electrical properties

Capacitance between two adjacent conductors at +20 °C and 50 Hz	μF/km	130 - 160	130 - 160	130 - 160	130 - 160	130 - 160
Capacitance between one conductor and earth at +20 °C and 50 Hz	μF/km	200 - 270	200 - 270	200 - 270	200 - 270	200 - 270

Number of conductors and cross section n x mm ²			7 x 2,5	12 x 2,5	19 x 2,5	27 x 2,5
EAN code (SSTL code)		64 100+	06 019 21-2	06 019 22-9	06 019 23-6	06 019 24-3
Nominal overall diameter		mm	18	22	25	29
Total weight		kg/km	450	690	950	1300
Direct current resistance at +20 °C max.	conductor	Ω/km	7,41	7,41	7,41	7,41
	concentric conductor	Ω/km	3,08	3,08	3,08	2,6
Standard delivery length	drum	m	500/8E	500/11G	500/11G	400/11G

Electrical properties

Capacitance between two adjacent conductors at +20 °C and 50 Hz	μF/km	130 - 160	130 - 160	130 - 160	130 - 160
Capacitance between one conductor and earth at +20 °C and 50 Hz	μF/km	210 - 280	210 - 280	210 - 280	210 - 280

ARLC Aluminum Road Lighting Cable

1 kV outdoor lighting power cable with aluminum conductors and copper signal conductor



Application

Fixed outdoor installations, ideal for laying in soil.

Highest permissible conductor temperature upon continuous load90 °C
 Highest permissible conductor temperature upon short circuit (up to 5 s).....250 °C
 Lowest permissible temperature during laying ... -15 °C

Construction

Conductor 16 mm² - round single-wire aluminium conductor;
 25-35 mm² - round stranded, compacted and annealed aluminium conductor
 Signal conductor .. 2,5 mm² - round single-wire copper conductor
 Insulation..... black
 Laying up..... four insulated conductors stranded together
 Sheath black halogen-free self-extinguishing PE compound;
 insulation and sheath are UV⁽¹⁾ resistible and they don't need extra protection against sunlight.

Certificate/approval

CE

Identification of cores

Phase conductors..... brown, black, grey
 PEN conductor yellow-green
 Signal conductor black

Standards

HD 603-5D S1, IEC 60502-1,
 IEC 60332-1 Cat. B, HD 308 S2:2002

Rated voltage

$U_0/U = 0,6/1$ kV
 $U_m = 1,2$ kV

Marking

Manufacturer, product name, year/week of manufacture, outer sheath material, meter marking

1) UV - ultraviolet radiation

EX

1 kV aerial bundled cable



Application

Overhead distribution cable.

Standards

HD 626-3I

Certificate/approval

CE

Rated voltage

$U_0/U = 0,6/1$ kV, $U_m = 1,2$ kV

Temperature range

Highest permissible conductor temperature:
 - in continuous operation 70 °C
 - in a short circuit (duration up to 5 s) 135 °C

Construction

Conductor round, stranded and compacted aluminium conductor
 Insulation black UV⁽¹⁾ and weather resistant PE compound
 Laying up insulated conductors are stranded together

Identification of cores

Phase conductors 1, 2 or 3 longitudinal ridges
 Neutral conductor no ridges

Marking

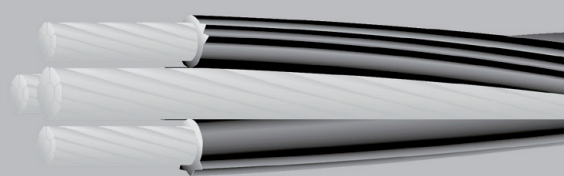
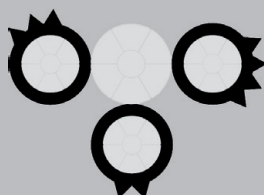
Manufacturer, year of manufacture.

Basic cable data			2x25 1 kV	4x25 1 kV	4x50 1 kV	4x95 1 kV
Construction data						
Insulation thickness	mm		1,3	1,3	1,4	1,6
Diameter ⁽¹⁾	mm		19	22	28	38
Weight ⁽¹⁾	aluminium	kg/km	205	405	700	1350
Delivery data						
Standard delivery length	m		500	500	500	500
Drum			K8	K9	K11	K14
Mechanical data ⁽²⁾						
Minimum tensile strength	kN		4,1	4,1	7,3	13,7
Electrical data ⁽²⁾						
Maximum DC resistance of conductor	20 °C	Ω/km	1,20	1,20	0,641	0,320

1) UV - ultraviolet radiation

AMKA

1 kV aerial bundled self supporting cable



Application

For overhead distribution as part of AMKA system. Messenger is used as PEN conductor. The cable can have one optional conductor for street lighting.

Standards

SFS 2200, HD 626-5D S1

Certificate/approval

FI (SGS FIMKO), CE

Rated voltage

$U_0/U = 0,6/1$ kV, $U_m = 1,2$ kV

Temperature range

Highest permissible conductor temperature:
 - in continuous operation 70 °C
 - in a short circuit (duration up to 5 s) 135 °C
 Lowest recommended temperature during laying... -20 °C

Construction

Conductor 16 mm² - round and solid aluminium conductor;
 25-120 mm² - round, stranded and compacted aluminium conductor

Insulation black UV⁽¹⁾ and weather resistant PE compound

Messenger round, stranded and compacted aluminium alloy conductor

Laying up insulated conductors are laid up around the messenger

Identification of cores

Phase conductors.... 2, 3 or 4 longitudinal ridges

Optional conductor ... no ridges

Marking

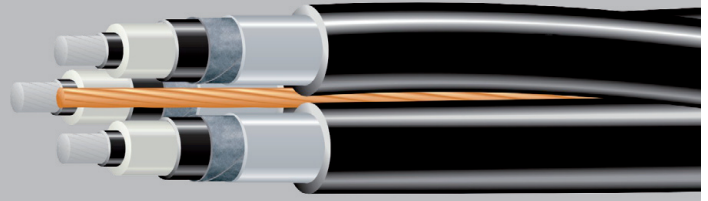
Manufacturer, year of manufacture.

Basic cable data			1x16+25	3x16+25	4x16+25	3x25+35	3x35+50	3x50+70	3x70+95	3x120+95
			1 kV	1 kV	1 kV	1 kV	1 kV	1 kV	1 kV	1 kV
Construction data										
Diameter over bare conductor	mm		4,4	4,4	4,4	5,8	6,8	8,0	9,6	12,7
Diameter over messenger	mm		5,8	5,8	5,8	6,8	8,0	9,6	11,3	11,3
Effective diameter in wind	mm		11	20	22	23	27	31	36	42
Weight	aluminium	kg/km	100	185	225	285	390	540	775	1185
	cable	kg/km	135	270	330	390	530	700	1000	1500
Delivery data										
Standard delivery length	m		2000	1000	1000	1000	1000	1000	500	500
Drum			K11	K12	K14	K14	K16	K18	K14	K18
Total weight	cable + drum	kg	325	360	445	505	725	930	695	980
Mechanical data										
Minimum permissible bending radius during laying	m		0,28	0,42	0,42	0,50	0,58	0,66	0,78	0,92
Minimum permissible bending radius at final installation	m		0,20	0,30	0,30	0,35	0,41	0,47	0,55	0,65
Minimum tensile strength of the messenger	kN		7,4	7,4	7,4	10,3	14,2	20,6	27,9	27,9
Initial modulus of elasticity of messenger	N/mm ²		55000							
Final modulus of elasticity of messenger	N/mm ²		63000							
Coefficient of linear expansion of messenger	1/K		23x10 ⁻⁶							
Electrical data										
Maximum DC resistance of phase	conductor 20 °C	Ω/km	1,91	1,91	1,91	1,20	0,868	0,641	0,443	0,253
AC resistance of phase	conductor 70 °C	Ω/km	2,3	2,3	2,3	1,4	1,0	0,77	0,53	0,30
Maximum DC resistance of messenger	conductor 20 °C	Ω/km	1,38	1,38	1,38	0,986	0,720	0,493	0,363	0,363
Inductance		mH/km	0,29	0,35	0,35	0,34	0,34	0,33	0,31	0,30
Current ratings										
In air	conductor 70 °C	A	75	70	70	95	115	140	180	250
Short circuit currents										
Maximum permissible short circuit current for 1 second	phase conductor	kA	1,0	1,0	1,0	1,6	2,3	3,2	4,5	7,8
	messenger	kA	1,5	1,5	1,5	2,1	3,0	4,3	5,9	5,9

1) UV - ultraviolet radiation

AHXAMK-W 6/10 (12) kV

10 kV power cable



Application fields

Suitable for cable ducts, outdoors, underground and in water. Radial and longitudinal water sealed. Cable can be installed by ploughing.

Standard

CENELEC HD 620 Part 5 Section F

Impulse voltage

75 kV

Flame propagation class

The PE jacket is not flame-resistant.

Temperature range

Highest permissible conductor temperature in continuous operation90 °C
 Lowest temperature during installation.....-20 °C
 below 0 °C special precaution shall be taken

Bending radius

At laying..... 15D
 When installed 10D

Design

Conductor stranded, round and compacted aluminium acc. to IEC 60228 class 2 longitudinal watertight
 Conductor screen... extruded
 Insulation..... XLPE, nominal thickness = 3,4 mm
 Insulation screen... extruded, bonded
 Bedding semiconductive water-blocking tape
 Screen aluminium foil bonded tightly to sheath
 Sheath black UV⁽¹⁾ resistant LLD PE
 Centre conductor... round, stranded and compacted copper conductor, acc. to IEC 60228 class 2
 Laying up..... three cores are stranded around the centre conductor

Marking

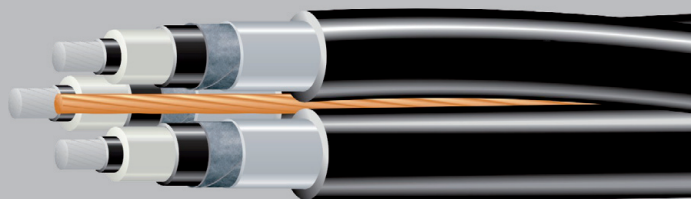
E.g. AHXAMK-W 6/10kV 3X240+70Cu DRAKA SE "year".

Number of cores x cross section of conductor	mm ²	3x95Al+35Cu	3x120Al+35Cu	3x150Al+35Cu	3x185Al+35Cu	3x240Al+35Cu
Diameter over insulation	mm	19,5	21	22,5	25	27,1
Single cable diameter (approx.)	mm	28	29	31	33	35
Complete cable diameter (approx.)	mm	60	62	66	71	88
Weight (approx.)	kg/100 m	250	275	315	355	405
Standard delivery length	m	500	500	500	500	500
Standard drum size		K24	K26	K26	K26	K26
Electrical data						
Resistance of conductor	Ω/km	0,320	0,253	0,206	0,164	0,125
Resistance of centre conductor	Ω/km	0,524	0,524	0,524	0,524	0,524
Inductance	mH/km	0,31	0,30	0,29	0,28	0,27
Reactance	Ω/km	0,10	0,10	0,09	0,09	0,09
Capacitance	µF/km	0,30	0,32	0,35	0,40	0,43
Charging current	A/km	0,7	0,7	0,8	0,9	0,9

1) UV - ultraviolet radiation
 Nominal values unless otherwise specified.

AHXAMK-W 12/20 (24) kV

20 kV power cable



Application fields

Suitable for cable ducts, outdoors, underground and in water. Radial and longitudinal water sealed. Can be installed by ploughing.

Standard

CENELEC HD 620 Part 5 Section F

Flame propagation class

The PE-jacket is not flame-resistant.

Temperature range

Highest permissible conductor temperature in continuous operation90 °C
Lowest temperature during installation.....-20 °C
below 0 °C special precaution shall be taken

Bending radius

At laying..... 15D
When installed 10D

Impulse voltage

125 kV

Design

Conductorstranded, round and compacted aluminium acc. to IEC 60228 class 2 longitudinal watertight

Conductor screen...extruded

Insulation.....XLPE, nominal thickness 5,5 mm

Insulation screen...extruded, bonded

Beddingsemiconductive water-blocking tape

Screenaluminium foil bonded tightly to sheath

Sheathblack UV ⁽¹⁾ resistant LLD PE

Centre conductor...round, stranded and compacted copper conductor, acc. to IEC 60228 class 2

Laying up.....three cores are stranded around the centre conductor

Marking

Eg. AHXAMK-W 12/20kV 3X240+70Cu DRAKA SE "year".

Number of cores x cross section of conductor	mm ²	3x50Al+35Cu	3x70Al+35Cu	3x95Al+35Cu	3x120Al+35Cu	3x150Al+35Cu
Diameter over insulation	mm	20,5	22,8	24,5	25,8	26,6
Single cable diameter (approx.)	mm	28	29	32	33	34
Complete cable diameter (approx.)	mm	60	65	70	72	75
Weight (approx.)	kg/100 m	240	265	305	330	375
Standard delivery length	m	500	500	500	500	500
Standard drum size		K24	K24	K24	K26	K26

Electrical data

Resistance of conductor	Ω/km	0,641	0,443	0,320	0,253	0,206
Resistance of centre conductor	Ω/km	0,524	0,524	0,524	0,524	0,524
Inductance	mH/km	0,39	0,42	0,40	0,39	0,37
Reactance	Ω/km	0,12	0,13	0,13	0,12	0,12
Capacitance	μF/km	0,16	0,18	0,21	0,22	0,24
Charging current	A/km	0,7	0,7	0,8	0,8	0,9

Number of cores x cross section of conductor	mm ²	3x185Al+35Cu	3x240Al+35Cu	3x240Al+70Cu	3x300Al+70Cu
Diameter over insulation	mm	29,0	30,5	31,3	33
Single cable diameter (approx.)	mm	36	39	39	43
Complete cable diameter (approx.)	mm	80	86	88	94
Weight (approx.)	kg/100 m	420	500	530	625
Standard delivery length	m	500	500	500	500
Standard drum size		K26	K28	K28	K28

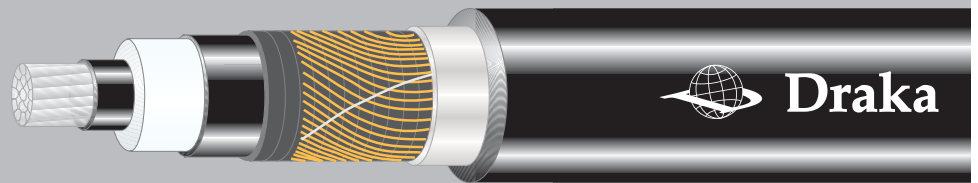
Electrical data

Resistance of conductor	Ω/km	0,164	0,125	0,125	0,100
Resistance of centre conductor	Ω/km	0,524	0,524	0,268	0,268
Inductance	mH/km	0,36	0,35	0,35	0,34
Reactance	Ω/km	0,11	0,11	0,11	0,11
Capacitance	μF/km	0,26	0,29	0,29	0,32
Charging current	A/km	1,0	1,1	1,1	1,2

1) UV - ultraviolet radiation
Nominal values unless otherwise specified.

AXLJ-TT 7/12 kV

10 kV power cable



Application fields

Single core distribution cable suitable for laying outdoors in 1- or 3-phase formation. Installation in pipes and in ground/water. Both radial and longitudinal water sealed. Can be installed by ploughing.

Alternative designation

SE-N10XC7A5T5E-AR

Standard

SS 424 14 16 CENELEC HD 620 Part 5 Section K

Fire propagation class

F1 acc. to SS 424 14 75

Material declaration

AXLJ-TT

Impulse voltage

75 kV

Temperature range

In continuous operation max. conductor temp. . . . 90 °C
 Lowest cable temperature under installation -20 °C
 below 0 °C special precaution shall be taken

Bending radius

At fixed mounting 10D
 At pulling in 15D
 At ploughing down 8D

Design

Conductor stranded, round and compacted aluminium acc. to IEC 60228 class 2, longitudinal water sealed
 Conductor screen extruded
 Insulation XLPE, min. thickness= 2,96 mm
 Insulation screen extruded bonded
 Longitudinal water sealing swellable conducting tape
 Concentric conductor annealed copper wires
 Radial water sealing aluminium PE laminate
 Sheath black UV⁽¹⁾ resistant LLD PE

Marking

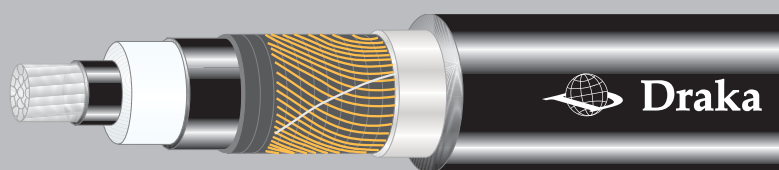
E.g. AXLJ-TT 08DRAKA TSLE 12kV 1X240 AFR/25
 "Date", meter marked.

Number of cores x cross section of conductor	mm ²	1x50/16	1x95/16	1x150/25	1x240/25
Diameter over insulation	mm	16,0	19,3	22,2	26,1
Overall diameter (approx.)	mm	23,3	26,6	29,7	33,8
Weight (approx.)	kg/100 m	59,7	79,4	107,4	141,4
Standard delivery length	m	500	500	500	500
Standard drum size		K11	K12	K12	K14
Article number		0070410	0070420	0070440	0070460
Electrical data at +20 °C					
Conductor resistance	Ω/km	0,641	0,320	0,206	0,125
Screen resistance	Ω/km	1,2	1,2	0,8	0,8
Inductance in trefoil/flat formation ^{(2) (3)}	mH/km	0,40/0,73	0,36/0,66	0,34/0,63	0,31/0,58
Reactance	Ω/km	0,29	0,21	0,20	0,18
Capacitance	µF/km	0,23	0,30	0,35	0,43
Earth fault current	A/km	1,5	2,0	2,3	2,8
Electrical data					
Current rating at core temp. 65 °C in ground ⁽³⁾	A	170	250	315	395
Current rating at core temp. 65 °C in air ⁽³⁾	A	165	255	325	420
Current rating at core temp. 90 °C in air ⁽³⁾	A	205	310	395	515
Max. short circuit current on the conductor during 1 s at initial temp. 70 °C	kA	5,1	9,7	15,3	24,4
Max. short circuit current on the conductor during 1 s at initial temp. 90 °C	kA	4,7	9,0	14,2	22,7

Nominal values unless otherwise specified.
 1) UV – ultraviolet radiation
 2) Cable distance, installation flat formation = 70 mm.
 3) Trefoil with screen grounded in both ends.

AXLJ-TT 14/24 kV

20 kV power cable



Application fields

Single core, distribution cable for outdoors use in 3-phase formation. Installation in pipes and ground/water. Both radial and longitudinal water sealed. Can be installed by ploughing.

Alternative designation

SE-N20XC7A5T5E-AR

Standard

CENELEC HD 620 Part 5 Section K

Fire propagation class

F1 acc. to SS 424 14 75

Material declaration

AXLJ-TT

Impulse voltage

125 kV

Temperature range

In continuous operation max. conductor temp.90 °C
Lowest cable temperature under installation -20 °C
and below 0 °C special precaution shall be taken.

Bending radius

At fixed mounting 10D
At pulling in 15D
At ploughing down 8D

Design

Conductor stranded, round and compacted aluminium acc. to IEC 60228 class 2, longitudinal water sealed
Conductor screen extruded
Insulation XLPE, min. thickness = 4,85 mm
Insulation screen extruded bonded
Longitudinal water sealing swellable conducting tape
Concentric conductor annealed copper wires
Radial water sealing aluminium PE laminate
Sheath black UV ⁽¹⁾ resistant LLD PE

Marking

E.g. AXLJ-TT 08DRAKA TSLE 24 kV 1X150 AFR/25 "year", meter marked.

Number of cores x cross section of conductor	mm ²	1x50/16	1x95/16	1x150/25	1x240/25
Diameter over insulation	mm	20,4	23,7	26,6	30,5
Overall diameter (approx.)	mm	27,7	31,2	34,3	38,6
Weight (approx.)	kg/100 m	70,6	98,5	120,5	165,2
Standard delivery length	m	500	500	500	500
Standard drum size		K12	K12	K14	K16
Article number		1205011702	0070520	1205012102	0070560
Electrical data at +20 °C					
Conductor resistance	Ω/km	0,641	0,320	0,206	0,125
Screen resistance	Ω/km	1,2	1,2	0,8	0,8
Inductance in trefoil/flat formation ⁽²⁾ ⁽³⁾	mH/km	0,44/0,74	0,39/0,67	0,37/0,63	0,34/0,59
Reactance	Ω/km	0,23	0,21	0,20	0,19
Capacitance	μF/km	0,17	0,20	0,24	0,29
Earth fault current	A/km	2,2	2,6	3,2	3,8
Electrical data					
Current rating at core temp. 65 °C in ground ⁽³⁾	A	170	250	315	395
Current rating at core temp. 65 °C in air ⁽³⁾	A	165	255	325	420
Current rating at core temp. 90 °C in air ⁽³⁾	A	205	310	395	515
Max. short circuit current on the conductor during 1 s at initial temp. 70 °C	kA	5,1	9,7	15,3	24,4
Max. short circuit current on the conductor during 1 s at initial temp. 90 °C	kA	4,7	9,0	14,2	22,7

Nominal values unless otherwise specified.

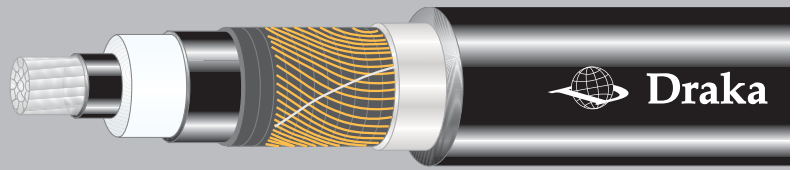
1) UV - ultraviolet radiation

2) Cable distance, installation flat formation = 70 mm

3) Trefoil with screen grounded in both ends

AXLJ-TTCL TSLF 14/24 kV

20 kV power cable



Application fields

Single core and three core, distribution cable for outdoors use in three phase formation. Installation in pipes and ground/water. Both radial and longitudinal water sealed. Can be ploughed down. Possibility for electric testing of sheath and detecting of damages due to semiconductive outer layer.

Alternative designation

SE-N20XC7A5T5E-AR

Standard

CENELEC HD 620 Part 5 Section K

Fire propagation class

F1 acc. to SS 424 14 75

Material declaration

AXLJ-TT

Impulse voltage

125 kV

Temperature range

In continuous operation max. conductor temp.90 °C
 Lowest cable temperature during laying-20 °C
 and below 0 °C special precaution shall be taken

Bending radius

At fixed mounting 10D
 At pulling in 15D
 At ploughing down 8D

Design

Conductor stranded, round and compacted aluminium acc. to IEC 60228 class 2, longitudinal water sealed
 Conductor screen extruded
 Insulation XLPE, nom. thickness = 5,5 mm
 Insulation screen extruded bonded
 Longitudinal water sealing swellable conducting tape
 Concentric conductor annealed copper wires
 Radial water sealing aluminium PE laminate, bonded to sheath
 Sheath LLD PE, natural
 Semiconductive layer black UV ⁽¹⁾ resistant, extruded bonded to the outer sheath
 Laying up 3-core three stranded single core cables

Marking

E.g. AXLJ-TTCL O8DRAKA TSLF 24 kV 1X150 AFR/25 "year", meter marked.

Number of cores x cross section of conductor	mm ²	1x50/16	1x95/25	1x150/25	1x240/35	1x400/35	3x1x50/16	3x1x95/25	3x1x150/25	3x1x240/35
Diameter over insulation	mm	20,4	23,7	26,6	30,5	36,0	20,4	23,7	26,6	30,5
Thickness of sheath	mm	1,8	1,9	2,0	2,2	2,3	1,8	1,9	2,0	2,2
Overall diameter (approx.)	mm	29	32	35	40	45	60	69	75	84
Weight (approx.)	kg/100 m	71	100	121	167	228	210	295	360	510
Standard delivery length	m	500	500	500	500	500	500	500	500	500
Standard drum size		K12	K12	K14	K16	K18	K24	K26	K26	K28
Electrical data at +20 °C										
Conductor resistance	Ω/km	0,641	0,320	0,206	0,125	0,0778	0,641	0,320	0,206	0,125
Screen resistance	Ω/km	1,15	0,727	0,727	0,524	0,524	1,15	0,727	0,727	0,524
Inductance in trefoil/flat formation ^{(2) (3)}	mH/km	0,44/0,74	0,39/0,67	0,37/0,63	0,34/0,59	0,32/0,55	0,44	0,39	0,37	0,34
Reactance in trefoil/flat formation ^{(2) (3)}	Ω/km	0,14/0,23	0,12/0,21	0,12/0,20	0,11/0,19	0,10/0,17	0,14	0,12	0,12	0,11
Capacitance	μF/km	0,17	0,20	0,24	0,29	0,36	0,17	0,20	0,24	0,29
Charging current	A/km	0,6	0,8	0,9	1,1	1,4	0,6	0,8	0,9	1,1
Current ratings										
Current rating at core										
- temp. 65 °C in ground ⁽³⁾	A	170	250	315	395	525	170	250	315	395
- temp. 65 °C in air ⁽³⁾	A	160	230	300	400	555	160	230	300	400
- temp. 90 °C in air ⁽³⁾	A	195	280	370	490	680	195	280	370	490
Max. short circuit current on the conductor										
- during 1 s at initial temp. 65 °C	kA	5,2	9,9	15,6	25,0	41,6	5,2	9,9	15,6	25,0
- during 1 s at initial temp. 90 °C	kA	4,7	8,9	14,2	22,7	37,8	4,7	8,9	14,2	22,7

1) UV - ultraviolet radiation
 2) Cable distance, installation flat formation = 70 mm
 3) Trefoil with screen grounded in both ends

AXLJ-TT 7/12 kV (3-core)

10 kV power cable



Application fields

Three core cable designed for replacement of bare overhead lines outdoors. Primary developed to be ploughed down but thanks to the robust design the cable can stand the stresses that appears when laying in lake with calm water and limited deep. The design with water swellable yarn and aluminium foil bonded to the sheath makes the cable radial and longitudinal water sealed.

Alternative designation

SE-N10XC7A5T5E-AR

Standards

SS 424 14 16, CENELEC HD 620 Part 6 Section M

Fire propagation class

F1 acc. to SS 424 14 75

Material declaration

AXLJ-TT

Impulse voltage

75 kV

Temperature range

In continuous operation max. conductor temp.90°C
 Lowest cable temperature under installation-20°C
 and below 0°C special precaution shall be taken

Bending radius

At fixed mounting8D
 At pulling in12D
 At ploughing down8D

Design

Conductor stranded, round and compacted aluminium acc. to IEC 60228 class 2, longitudinal water sealed

Conductor screen extruded

Insulation XLPE, min. thickness = 2,96 mm

Insulation screen extruded bonded

Longitudinal water

sealing swellable conducting tape and water swellable yarn

Concentric conductor annealed copper wires

Radial water sealing aluminium foil bonded to the sheath

Sheath black UV ⁽¹⁾ resistant LLD PE

Marking

E.g. AXLJ-TT 7/12kV 3X95/16 DRAKA SE "Date", meter marked.

Number of cores x cross section of conductor	mm ²	3x25/16	3x50/16	3x95/16	3x150/25	3x240/25
Diameter over insulation	mm	13,9	16,0	19,3	22,2	26,1
Overall diameter single core (approx.)	mm	14,9	17	20,3	23,2	27,1
Overall diameter whole cable (approx.)	mm	37,6	42,3	49,8	56,7	65,5
Weight (approx.)	kg/100 m	108,1	142,0	202,9	279,3	384,2
Standard delivery length	m	500	500	500	500	500
Standard drum size		K16	K18	K20	K22	K24
Article number		0071000	0071010	0071020	0071030	0071040
Electrical data at +20°C						
Conductor resistance	Ω/km	1,2	0,641	0,320	0,206	0,125
Screen resistance	Ω/km	1,2	1,2	1,2	0,8	0,8
Inductance	mH/km	0,37	0,34	0,31	0,29	0,27
Reactance	Ω/km	0,12	0,11	0,10	0,09	0,09
Capacitance	μF/km	0,19	0,23	0,30	0,35	0,43
Charging current	A/km	0,4	0,4	0,6	0,7	0,8
Electrical data						
Current rating at core temp. 65°C in ground	A	100	145	205	260	340
Current rating at core temp. 65°C in air	A	90	130	190	250	330
Current rating at core temp. 90°C in air	A	110	160	230	305	400
Max. short circuit current on the conductor during 1 s at initial temp. 70°C	kA	2,5	5,1	9,7	15,3	24,4
Max. short circuit current on the conductor during 1 s at initial temp. 90°C	kA	2,3	4,7	9,0	14,2	22,7
Max. impulse current	kA	-	55	65	70	70

1) UV - ultraviolet radiation
 Nominal values unless otherwise specified.

AXLJ-TT 14/24 kV (3-core)

20 kV power cable



Application fields

Three core cable designed for replacement of bare overhead lines outdoors. Primary developed to be ploughed down but thanks to the robust design the cable can stand the stresses that appears when laying in lake with calm water and limited deep. The design with water swellable yarn and aluminium foil bonded to the sheath makes the cable radial and longitudinal water sealed.

Alternative designation

SE-N20XC7A5T5E-AR

Standard

CENELEC HD 620 Part 6 Section M

Fire propagation class

F1 acc. to SS 424 14 75

Temperature range

In continuous operation max. conductor temp. 90 °C
 Lowest cable temperature under installation -20 °C
 and below 0 °C special precaution shall be taken

Material declaration

AXLJ-TT

Impulse voltage

125 kV

Bending radius

At fixed mounting 8D
 At pulling in 12D
 At ploughing down 8D

Design

Conductor stranded, round and compacted aluminium acc. to IEC 60228 class 2, longitudinal water sealed
 Conductor screen extruded
 Insulation XLPE, min. thickness = 4,85 mm
 Insulation screen extruded bonded
 Longitudinally water sealed swellable conducting tape and water swellable yarn
 Concentric conductor ... annealed copper wires
 Radial water sealing ... aluminium foil bonded to the sheath
 Sheath black UV ⁽¹⁾ resistant LLD PE

Marking

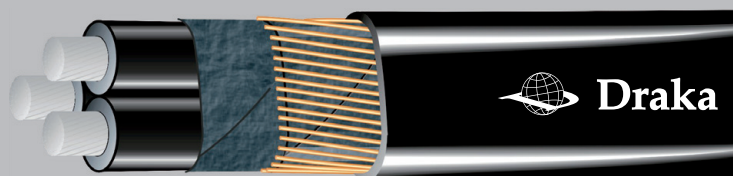
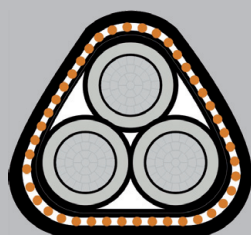
E.g. AXLJ-TT 14/24 kV 3x95/16 DRAKA SE "Date", meter marked.

Number of cores x cross section of conductor	mm ²	3x25/16	3x50/16	3x95/16	3x150/25	3x240/25
Diameter over insulation	mm	18,1	20,2	23,5	26,4	30,3
Overall diameter single core (approx.)	mm	18,9	21,0	24,3	27,2	31,1
Overall diameter whole cable (approx.)	mm	47,2	52,2	59,7	66,3	75,3
Weight (approx.)	kg/100 m	155,4	194,6	266,9	344,2	461,5
Standard delivery length	m	500	500	500	500	500
Standard drum size		K20	K20	K24	K24	K26
Article number		0071050	0071060	0071070	0071080	0071090
Electrical data at +20 °C						
Conductor resistance	Ω/km	1,2	0,641	0,320	0,206	0,125
Screen resistance	Ω/km	1,2	1,2	1,2	0,8	0,8
Inductance	mH/km	0,42	0,38	0,34	0,32	0,30
Reactance	Ω/km	0,13	0,12	0,11	0,10	0,09
Capacitance	µF/km	0,14	0,17	0,20	0,24	0,29
Charging current	A/km	0,5	0,6	0,8	0,9	1,1
Electrical data						
Current rating at core temp. 65 °C in ground	A	100	145	205	260	340
Current rating at core temp. 65 °C in air	A	90	130	190	250	330
Current rating at core temp. 90 °C in air	A	110	160	230	305	400
Max. short circuit current on the conductor during 1 s at initial temp. 70 °C	kA	2,5	5,1	9,7	15,3	24,4
Max. short circuit current on the conductor during 1 s at initial temp. 90 °C	kA	2,3	4,7	9,0	14,2	22,7
Max. impulse current	kA	-	55	65	70	70

1) UV - ultraviolet radiation
 Nominal values unless otherwise specified.

AXLJ-RMF 7/12 kV

10 kV power cable



Application fields

Three core cable designed for replacement of bare overhead lines outdoors. Primary developed to be ploughed down but thanks to the robust design it can stand the stresses that appears when laying in water.

Alternative designation

SE-N10XC7V-AR

Standards

S 424 14 16
CENELEC HD 620 Part 6 Section M

Fire propagation class

F1 acc. to SS 424 14 75

Material declaration

AXLJ LT, -F, -RMF

Temperature range

In continuous operation max. conductor temp. 90 °C
Lowest cable temperature under installation -20 °C
and below 0 °C special precaution shall be taken

Impulse voltage

75 kV

Bending radius

At fixed mounting 8D
At pulling in 12D
At ploughing down 8D

Design

Conductor stranded, round and compacted aluminium acc. to IEC 60228 class 2, longitudinal water sealed

Conductor screen extruded

Insulation XLPE, min. thickness = 2,96 mm

Insulation screen extruded bonded

Taping conductive tape

Concentric conductor annealed copper wires

Sheath black UV⁽¹⁾ resistant LLD PE

Marking

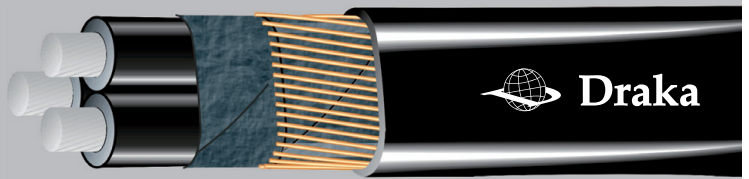
E.g. AXLJ-RMF 7/12 KV 3X150/25 LT DRAKA SE "year".

Number of cores x cross section of conductor	mm ²	3x25/16	3x50/16	3x95/16	3x150/25	3x240/25
Diameter over insulation	mm	14,0	16,2	19,5	22,4	26,3
Overall diameter (approx.)	mm	39,1	44,0	51,6	58,4	67,2
Weight (approx.)	kg/100 m	103,5	135,4	195,1	267,1	372,8
Standard delivery length	m	500	500	500	500	500
Standard drum size		K16	K18	K20	K22	K24
Article number		1040031502	1040031702	1040031902	1040032102	1040032302
Electrical data at +20 °C						
Conductor resistance	Ω/km	1,2	0,641	0,320	0,206	0,125
Screen resistance	Ω/km	1,2	1,2	1,2	0,8	0,8
Inductance	mH/km	0,38	0,34	0,31	0,29	0,27
Reactance	Ω/km	0,12	0,11	0,10	0,09	0,09
Capacitance	μF/km	0,19	0,23	0,30	0,35	0,42
Charging current	A/km	0,4	0,4	0,6	0,7	0,8
Electrical data						
Current rating at core temp. 65 °C in ground	A	100	145	205	260	340
Current rating at core temp. 65 °C in air	A	90	130	190	250	330
Current rating at core temp. 90 °C in air	A	110	160	230	305	400
Max. short circuit current on the conductor during 1 s at initial temp. 70 °C	kA	2,5	5,1	9,7	15,3	24,4
Max. short circuit current on the conductor during 1 s at initial temp. 90 °C	kA	2,3	4,7	9,0	14,2	22,7
Max. impulse current	kA	-	55	65	70	70

¹⁾ UV - ultraviolet radiation
Nominal values unless otherwise specified.

AXLJ-RMF 14/24 kV

20 kV power cable



Application fields

Three core cable designed for replacement of bare overhead lines outdoors. Primary developed to be ploughed down but thanks to the robust design it can stand the stresses that appears when laying in water.

Alternative designation

SE-N20XC7V-AR

Standards

S 424 14 16, CENELEC HD 620 Part 6 Section M

Fire propagation class

F1 acc. to SS 424 14 75

Temperature range

In continuous operation max. conductor temp.90 °C
 Lowest cable temperature under installation-20 °C
 and below 0 °C special precaution shall be taken

Material declaration

AXLJ LT, -F, -RMF

Impulse voltage

125 kV

Bending radius

At fixed mounting8D
 At pulling in 12D
 At ploughing down 8D

Design

Conductor stranded, round and compacted aluminium acc. to IEC 60228 class 2, longitudinal water sealed
 Conductor screen extruded
 Insulation XLPE, min. thickness = 4,85 mm
 Insulation screen extruded bonded
 Taping conductive tape
 Concentric conductor annealed copper wires
 Sheath black UV⁽¹⁾ resistant LLD PE

Marking

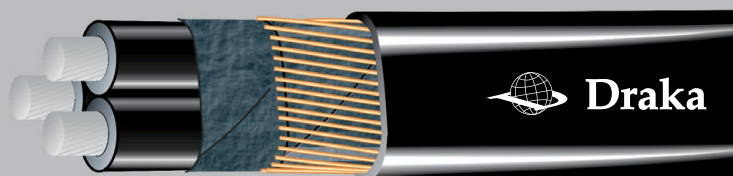
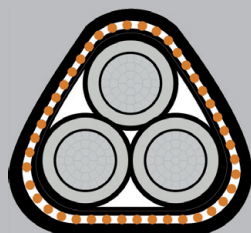
E.g. AXLJ-RMF 14/24 KV 3X150/25 LT DRAKA SE "year".

Number of cores x cross section of conductor	mm ²	3x25/16	3x50/16	3x95/16	3x150/25	3x240/25
Diameter over insulation	mm	18,2	20,4	23,7	26,7	30,7
Overall diameter (approx.)	mm	49,0	53,9	61,4	68,1	77,1
Weight (approx.)	kg/100 m	147,2	185,1	253,9	328,1	445,5
Standard delivery length	m	500	500	500	500	500
Standard drum size		K20	K20	K24	K24	K26
Article number		1045031502	1045031702	1045031902	1045032102	1045032302
Electrical data at +20 °C						
Conductor resistance	Ω/km	1,2	0,641	0,320	0,206	0,125
Screen resistance	Ω/km	1,2	1,2	1,2	0,8	0,8
Inductance	mH/km	0,43	0,39	0,35	0,32	0,30
Reactance	Ω/km	0,14	0,12	0,11	0,10	0,09
Capacitance	µF/km	0,14	0,16	0,20	0,24	0,29
Charging current	A/km	0,5	0,6	0,8	0,9	1,1
Electrical data						
Current rating at core temp. 65 °C in ground	A	100	145	205	260	340
Current rating at core temp. 65 °C in air	A	90	130	190	250	330
Current rating at core temp. 90 °C in air	A	110	160	230	305	400
Max. short circuit current on the conductor during 1 s at initial temp. 70 °C	kA	2,5	5,1	9,7	15,3	24,4
Max. short circuit current on the conductor during 1 s at initial temp. 90 °C	kA	2,3	4,7	9,0	14,2	22,7
Max. impulse current	kA	-	55	65	70	70

1) UV - ultraviolet radiation
 Nominal values unless otherwise specified.

AXQJ-RMF 7/12 kV

10 kV halogen-free power cable



Application fields

Halogen-free and fire classified cable. No emittance of corrosive gases, low smoke density in case of fire. Primary developed for installation indoors, tunnels etc. The cable can also with advantage be installed outdoors and in ground. Ploughing down is not recommended.

Alternative designation

SE-N10XC7Z1-AR

Standards

SS 424 14 16
CENELEC HD 620 Part 6 Section M
CENELEC HD 604 Halogen-free Materials
IEC 60754-1, -2 Corrosive Gases
IEC 61034 Smoke Density

Fire propagation class

F4B acc. to SS 424 14 75 and IEC 60332-3 cat B and SS-EN 50266-2-3

Temperature range

In continuous operation max. conductor temp.90 °C
Lowest cable temperature under installation-20 °C
and below 0 °C special precaution shall be taken.

Material declaration

AXQJ-F, -RMF

Impulse voltage

75 kV

Bending radius

At fixed mounting8D
At pulling in12D
At ploughing down8D

Design

Conductor stranded, round and compacted aluminium acc. to IEC 60228 class 2, longitudinal water sealed
Conductor screen extruded
Insulation XLPE, min. thickness = 2,96 mm
Insulation screen extruded bonded
Taping conductive tape
Concentric conductor annealed copper wires
Sheath halogen-free compound, black

Marking

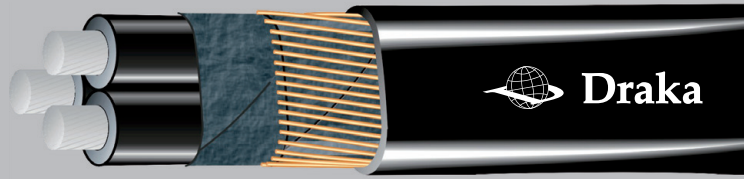
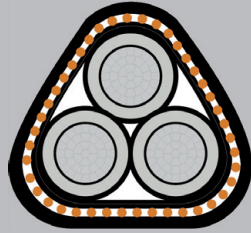
E.g. AXQJ-RMF 7/12 kV 3x150/25 LT F4B DRAKA SE
"Date", meter marked.

Number of cores x cross section of conductor	mm ²	3x50/16	3x95/16	3x150/25	3x240/25
Diameter over insulation	mm	16,0	19,3	22,2	26,1
Overall diameter (approx.)	mm	43,6	51,1	58,0	66,8
Weight (approx.)	kg/100 m	153,2	219,4	297,3	405,3
Standard delivery length	m	500	500	500	500
Standard drum size		K18	K20	K22	K24
Article number		0071210	0071220	0071230	0071240
Electrical data at +20 °C					
Conductor resistance	Ω/km	0,641	0,320	0,206	0,125
Screen resistance	Ω/km	1,2	1,2	0,8	0,8
Inductance	mH/km	0,34	0,31	0,29	0,27
Reactance	Ω/km	0,11	0,10	0,09	0,09
Capacitance	μF/km	0,23	0,30	0,35	0,43
Charging current	A/km	0,4	0,6	0,7	0,8
Electrical data					
Current rating at core temp. 65 °C in ground	A	145	205	260	340
Current rating at core temp. 65 °C in air	A	130	190	250	330
Current rating at core temp. 90 °C in air	A	160	230	305	400
Max. short circuit current on the conductor during 1 s at initial temp. 70 °C	kA	5,1	9,7	15,3	24,4
Max. short circuit current on the conductor during 1 s at initial temp. 90 °C	kA	4,7	9,0	14,2	22,7
Max. impulse current	kA	55	65	70	70

Nominal values unless otherwise specified.

AXQJ-RMF 14/24 kV

20 kV halogen-free power cable



Application fields

Halogen-free and fire classified cable. No emittance of corrosive gases, low smoke density in case of fire. Primary developed for installation indoors, tunnels etc. The cable can also with advantage be installed outdoors and in ground. Ploughing down is not recommended.

Alternative designation

SE-N20XC7Z1-AR

Standards

SS 424 14 16
 CENELEC HD 620 Part 6 Section M
 CENELEC HD 604 Halogen-free Materials
 IEC 60754-1, -2 Corrosive Gases
 IEC 61034 Smoke Density

Fire propagation class

F4B acc. to SS 424 14 75 and IEC 60332-3 cat B and SS-EN 50266-2-3

Temperature range

In continuous operation max. conductor temp.90 °C
 Lowest cable temperature under installation-20 °C
 and below 0 °C special precaution shall be taken.

Material declaration

AXQJ-F, -RMF

Impulse voltage

125 kV

Bending radius

At fixed mounting8D
 At pulling in12D
 At ploughing down8D

Design

Conductor stranded, round and compacted aluminium acc. to IEC 60228 class 2, longitudinal water sealed
 Conductor screen extruded
 Insulation XLPE, min. thickness = 4,85 mm
 Insulation screen extruded bonded
 Taping conductive tape
 Concentric conductor annealed copper wires
 Sheath halogen-free compound, black

Marking

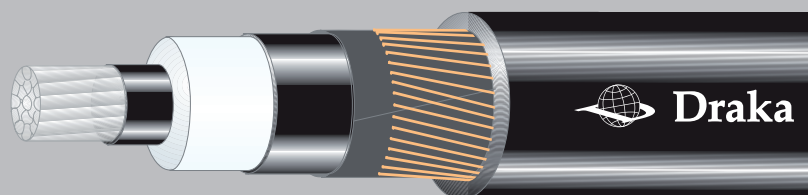
Eg. AXQJ-RMF 14/24 kV 3x150/25 LT F4B DRAKA SE "Date", meter marked.

Number of cores x cross section of conductor	mm ²	3x50/16	3x95/16	3x150/25	3x240/25
Diameter over insulation	mm	20,2	23,5	26,4	30,3
Overall diameter (approx.)	mm	53,5	61,0	67,6	76,6
Weight (approx.)	kg/100 m	210,2	286,2	367,0	488,3
Standard delivery length	m	500	500	500	500
Standard drum size		K20	K24	K24	K26
Article number		0071250	0071260	0071270	0071280
Electrical data at +20 °C					
Conductor resistance	Ω/km	0,641	0,320	0,206	0,125
Screen resistance	Ω/km	1,2	1,2	0,8	0,8
Inductance	mH/km	0,38	0,34	0,32	0,30
Reactance	Ω/km	0,12	0,11	0,10	0,09
Capacitance	μF/km	0,17	0,20	0,24	0,29
Charging current	A/km	0,6	0,8	0,9	1,1
Electrical data					
Current rating at core temp. 65 °C in ground	A	145	205	260	340
Current rating at core temp. 65 °C in air	A	130	190	250	330
Current rating at core temp. 90 °C in air	A	160	230	305	400
Max. short circuit current on the conductor during 1 s at initial temp. 70 °C	kA	5,1	9,7	15,3	24,4
Max. short circuit current on the conductor during 1 s at initial temp. 90 °C	kA	4,7	9,0	14,2	22,7
Max. impulse current	kA	55	65	70	70

Nominal values unless otherwise specified.

AXQJ-F 7/12 kV

10 kV halogen-free power cable



Application fields

Halogen-free and fire classified single core cable. No emittance of corrosive gases, low smoke density in case of fire. Distribution cable for indoors and outdoors use in 3-phase formation. Installation in pipes and ground. Ploughing down is not recommended.

Alternative designation

SE-N10XC7Z1-AR

Standards

SS 424 14 16
CENELEC HD 620 Part 5 Section K
CENELEC HD 604 Halogen-free Materials
IEC 60754-1, -2 Corrosive Gases
IEC 61034 Smoke Density

Fire propagation class

F4B acc. to SS 424 14 75 and IEC 60332-3 cat B and SS-EN 50266-2-3

Temperature range

In continuous operation max. conductor temp.90 °C
Lowest cable temperature under installation-20 °C
and below 0 °C special precaution shall be taken

Material declaration

AXQJ-F, -RMF

Impulse voltage

75 kV

Bending radius

At fixed mounting 10D
At pulling in 15D
At ploughing down 8D

Design

Conductor stranded, round and compacted aluminium acc. to IEC 60228 class 2, longitudinal water sealed

Conductor screen extruded

Insulation XLPE, min. thickness = 2,96 mm

Insulation screen extruded bonded

Concentric conductor annealed copper wires

Sheath halogen-free compound, black

Marking

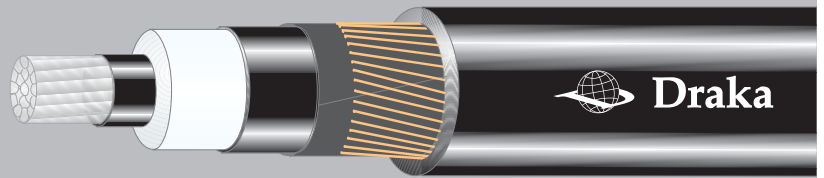
E.g. AXQJ-F 7/12 kV 1x630/35 F4B FASTSITTANDE SKIKT DRAKA SE "Date", meter marked.

Number of cores x cross section of conductor	mm ²	1x240/25	1x500/35	1x630/35	1x800/35
Diameter over insulation	mm	26,1	34,6	38,7	43,0
Overall diameter (approx.)	mm	33,5	42,7	46,9	52,0
Weight (approx.)	kg/100 m	149,4	254,9	302,4	365,0
Standard delivery length	m	500	500	500	500
Standard drum size		K14	K18	K20	K22
Article number		0071340	0071370	0071380	
Electrical data at +20 °C					
Conductor resistance	Ω/km	0,125	0,0605	0,0469	0,0367
Screen resistance	Ω/km	0,8	0,6	0,6	0,524
Inductance in trefoil/flat formation ^{(1) (2)}	mH/km	0,31/0,58	0,28/0,52	0,27/0,50	0,27
Reactance	Ω/km	0,18	0,16	0,16	0,16
Capacitance	μF/km	0,43	0,59	0,67	0,75
Charging current	A/km	0,8	1,1	1,3	1,4
Electrical data					
Current rating at core temp. 65 °C in ground ⁽²⁾	A	385	570	635	695
Current rating at core temp. 65 °C in air ⁽²⁾	A	400	635	720	820
Current rating at core temp. 90 °C in air ⁽²⁾	A	490	775	880	1010
Max. short circuit current on the conductor during 1 s at initial temp. 70 °C	kA	24,4	50,9	64,1	83
Max. short circuit current on the conductor during 1 s at initial temp. 90 °C	kA	22,7	47,2	59,5	75

Nominal values unless otherwise specified.
1) Cable distance, installation flat formation = 70 mm
2) Trefoil with screen grounded in both ends

AXQJ-F 14/24 kV

20 kV halogen-free power cable



Application fields

Halogen-free and fire classified single core cable. No emittance of corrosive gases, low smoke density in case of fire. Distribution cable for indoors and outdoors use in 3-phase formation. Installation in pipes and ground. Ploughing down is not recommended.

Alternative designation

SE-N20XC7Z1-AR

Standard

SS 424 14 16
 CENELEC HD 620 Part 5 Section K
 CENELEC HD 604 Halogen-free Materials
 IEC 60754-1, -2 Corrosive Gases
 IEC 61034 Smoke Density

Fire propagation class

F4B acc. to SS 424 14 75 and IEC 60332-3 cat B and SS-EN 50266-2-3

Temperature range

In continuous operation max. conductor temp.90 °C
 Lowest cable temperature under installation-20 °C
 and below 0 °C special precaution shall be taken

Material declaration

AXQJ-F, -RMF

Impulse voltage

125 kV

Bending radius

At fixed mounting 10D
 At pulling in 15D
 At ploughing down 8D

Design

Conductor stranded, round and compacted aluminium acc. to IEC 60228 class 2, longitudinal water sealed
 Conductor screen extruded
 Insulation XLPE, min. thickness = 4,85 mm
 Insulation screen extruded bonded
 Concentric conductor annealed copper wires
 Sheath halogen-free compound, black

Marking

E.g. AXQJ-F 14/24 kV 1x630/35 F4B FASTSITTANDE SKIKT DRAKA SE "Date", meter marked.

Number of cores x cross section of conductor	mm ²	1x240/25	1x500/35	1x630/35	1x800/35
Diameter over insulation	mm	30,3	38,8	42,9	63
Overall diameter (approx.)	mm	38,1	47,3	51,5	52
Weight (approx.)	kg/100 m	175,5	287,5	338,1	365
Standard delivery length	m	500	500	500	500
Standard drum size		K16	K20	K20	K22
Article number		0071440	0071470	0071480	
Electrical data at +20 °C					
Conductor resistance	Ω/km	0,125	0,0605	0,0469	0,0367
Screen resistance	Ω/km	0,8	0,6	0,6	0,524
Inductance in trefoil/flat formation ^{(1) (2)}	mH/km	0,34/0,59	0,30/0,53	0,29/0,51	0,27
Reactance	Ω/km	0,19	0,17	0,16	
Capacitance	µF/km	0,29	0,39	0,43	0,75
Charging current	A/km	1,1	1,5	1,6	1,9
Electrical data					
Current rating at core temp. 65 °C in ground ⁽²⁾	A	385	570	635	695
Current rating at core temp. 65 °C in air ⁽²⁾	A	400	635	720	820
Current rating at core temp. 90 °C in air ⁽²⁾	A	490	775	880	1010
Max. short circuit current on the conductor during 1 s at initial temp. 70 °C	kA	24,4	50,9	64,1	83,0
Max. short circuit current on the conductor during 1 s at initial temp. 90 °C	kA	22,7	47,2	59,5	75,0

Nominal values unless otherwise specified.
 1) Cable distance, installation flat formation = 70 mm.
 2) Trefoil with screen grounded in both ends.

PAS-W 20 kV

Covered conductor PAS-W 20 kV



Application

For pole installation as part of PAS-system.

Standards

SFS 5791, EN 50397

Rated voltage

$U_0/U = 12/20$ kV, $U_m = 24$ kV

Temperature range

Highest permissible conductor temperature

- in continuous operation 80 °C

- in a short circuit (duration up to 5 s) 200 °C

Lowest recommended temperature during laying . . . -20 °C

Construction

Conductor round, stranded and compacted wattertight aluminium alloy conductor

Covering black weather resistant XLPE compound

Marking

PAS, DRAKA, product name, year of manufacture, PEX.

Options

PAS-W 30 kV is available by special order.

Basic cable data		PAS-W 35	PAS-W 50	PAS-W 70	PAS-W 95	PAS-W 120	PAS-W 150	
Diameter over conductor ⁽¹⁾	mm	6,9	8,0	9,7	11,3	12,8	14,2	
Diameter over covered conductor ⁽¹⁾	mm	11,5	12,7	14,3	16,1	17,6	18,9	
Weight ⁽¹⁾	aluminium	kg/km	90	120	180	245	310	385
	cable	kg/km	160	200	270	350	425	510
Delivery data								
Standard delivery length	m	2000	2000	2000	2000	2000	2000	
Drum		K11	K11	K12	K14	K16	K16	
Total weight ⁽¹⁾	kg	375	455	630	815	1045	1215	
Mechanical data ⁽²⁾								
Min. permissible bending radius during laying	m	0,16	0,18	0,20	0,22	0,25	0,27	
Min. permissible bending radius at final installation ⁽³⁾	m	0,12	0,13	0,14	0,16	0,18	0,19	
Min. tensile strength of the conductor	kN	11,2	15,5	22,5	30,4	38	47,3	
Initial modulus of elasticity of conductor	N/mm ²	61,000						
Final modulus of elasticity of conductor	N/mm ²	62,500						
Coefficient of linear expansion of conductor	1/°C	23 x 10 ⁻⁶						
Electrical data ⁽²⁾								
Maximum DC resistance of conductor (20 °C)	Ω/km	0,986	0,720	0,493	0,363	0,288	0,236	
AC resistance of conductor (80 °C) ⁽¹⁾	Ω/km	1,22	0,89	0,61	0,45	0,36	0,29	
Current ratings ⁽²⁾								
In air (conductor 80 °C)	A	200	245	310	370	430	485	
Short circuit currents ⁽²⁾								
Max. permissible short circuit current for 1 second ⁽⁴⁾	kA	3,2	4,3	6,4	8,6	11,0	13,5	

1) Approximate value.

2) See the basic assumptions at general information of products.

3) Final installation with careful single bending.

4) Initial temperature of conductor before short circuit 40 °C, final temperature of conductor after short circuit 200 °C.

ELECTRICAL PROPERTIES

RATED VOLTAGE

The rated voltage of cables is marked U_0/U , where:
 U_0 - rated voltage between the conductor and earth of metallic screen
 U - rated voltage between conductors.

DIRECT CURRENT RESISTANCE OF CONDUCTORS

For each cable, the catalogue lists the maximum direct current resistance value for the conductor at a temperature of +20°C, permitted by the construction standard. The current in a conductor heats up the conductor. The rise in temperature increases the conductor's resistance. The following table shows some pre-calculated correction factors for the direct current resistance of copper conductor.

Conductor temperature °C	20	40	60	70	80	90
Correction factor	1,0	1,079	1,157	1,196	1,236	1,275

CABLES CURRENT CARRYING CAPACITY

Current carrying capacities of installation cables are given in HD 384.5.523 (or IEC 364-5-523). Electrical installation of buildings section 523: Current carrying capacities.

Current rating tables are based on the requirements of the maximum permissible conductor temperatures in continuous use and assumed installation conditions. The correction factors must be used when the conditions differ from the installation conditions assumed in the current rating tables.

Current ratings for installation cables
(PVC insulated cables according to HD 21)

HD 516 table 7a

Cross section of conductors	mm ²	0,75	1,0	1,5	2,5	4	6	10	16	25
Current rating 2 cores load	A	6	10	16	25	32	-	-	-	-
Current rating 3 cores load	A	6	10	16	20	25	37	52	69	92

Assumptions for table are:
- conductor temperature in PVC cable. 70 °C
- ambient air temperature. 30 °C

Current ratings for control cables

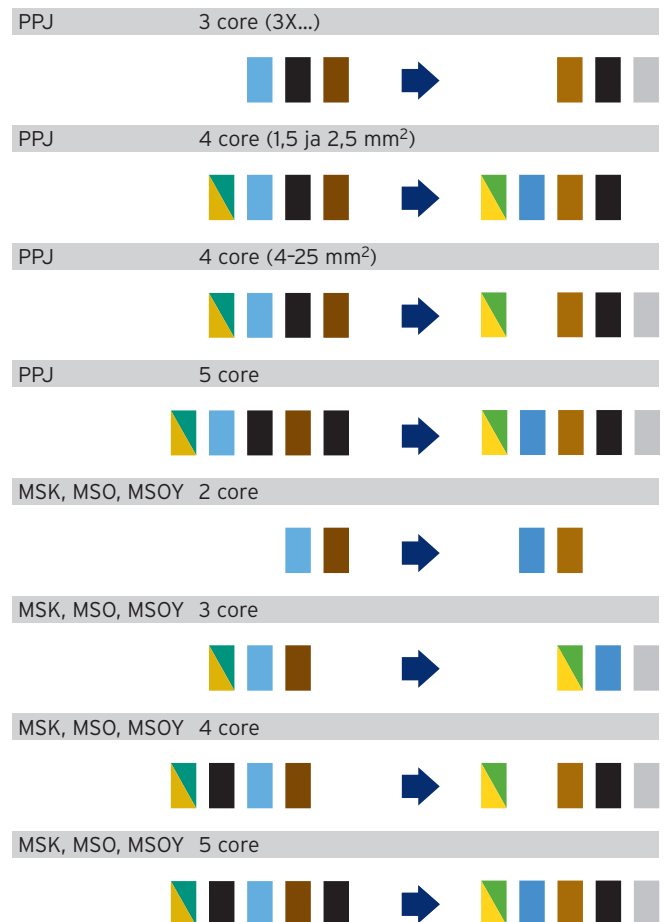
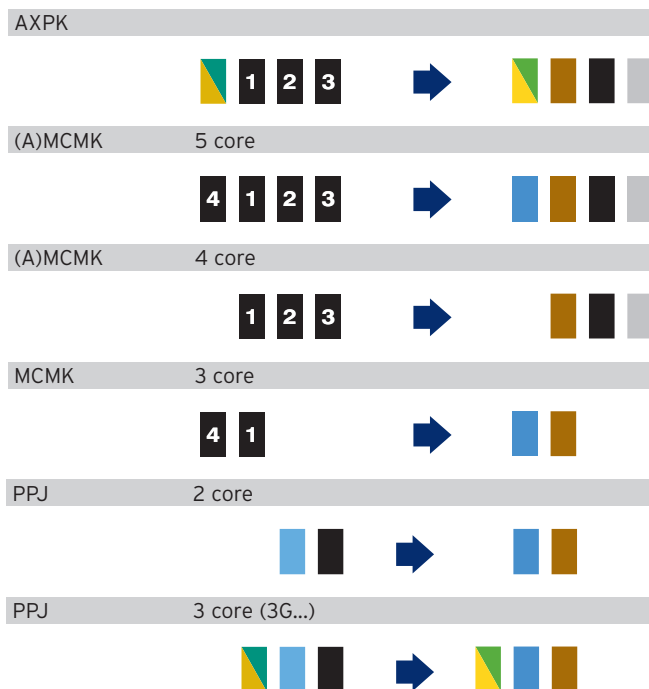
Maximum continuous current in amps for PVC insulated control cables in air $U_0/U=450/750$ V.

Number of conductors with load		4	7	12	19	27	37	48
Copper conductor cross section, mm ²	0,75	-	8	7	6	5	4	4
	1,5	-	13	11	9	8	7	6
	2,5	20	16	13	11	10	9	-

Assumptions for table are:
- conductor temperature in PVC cable. 70 °C
- ambient air temperature. 25 °C

THE NEW COLOURS OF WIRES FOR CABLES BY CENELEC HD 308 S2:2002 STANDARD

Renewed standard won't bring substantial changes, yellow-green remains for fuse wire (PE) or combined fuse- and neutral (PEN); blue comes into use as the colour of the neutral wire (N) instead of light blue. But the colours of phase wires will change - grey will be taken into use in addition to black and brown. The sequence of colours will change, too - instead of black, brown will be the first colour of the phase wire.



PL / ML / H07V-U

PVC-insulated solid conductor



Application

For fixed installation in a conduit, and for wiring in appliances, switchgear and control gear with a maximum voltage of 1000 V (AC) or a maximum of 750 V (DC) to earth.

Standards

EVS 719:1996, SFS 5523, CENELEC HD 21

Certificate/approval

EEI, FI, <HAR>

Rated voltage

$U_0/U = 450/750$ V

Temperature range

Highest permissible conductor temperature
 - in continuous operation 70 °C
 - in a short circuit (max. 5 s) 160 °C
 Lowest recommended handling temperature -25 °C

Bending radius

During installation min. 8D
 In a final installation if bent only once min. 3D

Construction

Conductor annealed copper wire
 Insulation PVC, core identification by colours

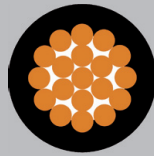
Identification of cores

PRU - brown, MU - black, SI - blue, KORO - yellow-green.

Cross section of conductor and colour	EAN code (SSTL code)	Nominal overall diameter	Total weight	Direct current resistance of conductor at 20 °C max.	Standard delivery length, coil
	64 100+	mm	kg/km	Ω/km	m
PL 1,5 MU	04 012 03-1	2,7	20	12,1	200
PL 1,5 PRU	04 012 02-4	2,7	20	12,1	200
PL 1,5 SI	04 012 07-9	2,7	20	12,1	200
PL 1,5 KORO	04 012 09-3	2,7	20	12,1	200
PL 2,5 MU	04 012 23-9	3,3	31	7,41	200
PL 2,5 PRU	04 012 22-2	3,3	31	7,41	200
PL 2,5 SI	04 012 27-7	3,3	31	7,41	200
PL 2,5 KORO	04 012 29-1	3,3	31	7,41	200
PL 4 MU	04 012 43-7	3,9	50	4,61	200
PL 4 PRU	04 012 42-0	3,9	50	4,61	200
PL 4 SI	04 012 47-5	3,9	50	4,61	200
PL 4 KORO	04 012 49-9	3,9	50	4,61	200

PK / MK / H07V-R

PVC-insulated stranded conductor



Application

For permanent installation in a conduit, and for wiring in appliances, switchgear and control gear with a maximum voltage of 1000 V (AC) or a maximum of 750 V (DC) to earth.

Standards

EVS 718:1996, SFS 3103, CENELEC HD 21

Certificate/approval

EEL, FI, <HAR>

Rated voltage

$U_0/U = 450/750$ V

Temperature range

Highest permissible conductor temperature
 - in continuous operation 70 °C
 - in a short circuit (max. 5 s) 160 °C
 Lowest recommended handling temperature -25 °C

Bending radius

During installation min. 8D
 In a final installation if bent only once min. 3D

Construction

Conductor annealed copper wires, stranded
 Insulation PVC, core identification by colours

Identification of cores

RU, PRU - brown, MU - black,
 KEVI, KORO - yellow-green, SI - blue

Cross section of conductor and colour	EAN code (SSTL code)	Nominal overall diameter	Total weight	Direct current resistance of conductor at 20 °C max.	Standard delivery length, coil	Standard delivery length, drum
	64 100+	mm	kg/km	Ω /km	m	
MK 1,5 RU	04 021 02-6	3	22	12,1	250	
MK 1,5 MU	04 021 03-3	3	22	12,1	250	
MK 1,5 SI	04 021 07-1	3	22	12,1	250	
MK 1,5 KEVI	04 021 08-8	3	22	12,1	250	
MK 2,5 RU	04 021 22-4	3,7	35	7,41	200	
MK 2,5 MU	04 021 23-1	3,7	35	7,41	200	
MK 2,5 SI	04 021 27-9	3,7	35	7,41	200	
MK 2,5 KEVI	04 021 28-6	3,7	35	7,41	200	
MK 4 MU	04 021 43-9	4,2	52	4,61	150	
MK 4 SI	04 021 47-7	4,2	52	4,61	150	
MK 4 KEVI	04 021 48-4	4,2	52	4,61	150	
PK 6 MU	04 024 63-8	4,8	70	3,08	100	
PK 6 SI	04 024 67-6	4,8	70	3,08	100	
PK 6 KORO	04 024 69-0	4,8	70	3,08	100	
PK 10 MU	04 024 73-7	6,1	115	1,83	100	
PK 10 SI	04 024 77-5	6,1	115	1,83	100	
PK 10 KORO	04 024 79-9	6,1	115	1,83	100	
PK 16 MU	04 024 83-6	7,2	175	1,15	100	
PK 16 SI	04 024 87-4	7,2	175	1,15	100	
PK 16 KORO	04 024 89-8	7,2	175	1,15	100	
PK 25 MU	04 024 91-1	8,9	270	0,727	100	
PK 25 SI	04 024 96-3	8,9	270	0,727	100	
PK 25 KORO	04 024 98-0	8,9	270	0,727	100	
MK 35 MU	04 522 22-6	10	370	0,524		500/6C
MK 35 SI	04 522 23-3	10	370	0,524		500/6C
MK 35 KEVI	04 522 27-1	10	370	0,524		500/6C
MK 50 MU	04 522 33-2	11,7	510	0,387		200/6C
MK 50 SI	04 522 37-0	11,7	510	0,387		200/6C
MK 50 KEVI	04 522 38-7	11,7	510	0,387		200/6C
MK 70 KEVI	04 022 48-6	13,4	710	0,268		200/6C
MK 95 KEVI	04 022 58-0	16	1000	0,193		500/8E
120 KEVI	04 022 66-5	18	1200	0,153		800/11G

MK 90 / H07V2-R

PVC-insulated stranded conductor



Application

For permanent installation in a conduit, and for wiring in appliances, switchgear and control gear with a maximum voltage of 1000 V (AC) or a maximum of 750 V (DC) to earth.

Standards

SFS 5523, CENELEC HD 21, IEC 60332-14

Certificate/approval

FI, <HAR>

Rated voltage

$U_0/U = 450/750$ V

Temperature range

Highest permissible conductor temperature
 - in continuous operation 90 °C
 - in a short circuit (max.5 s) 160 °C
 Lowest recommended handling temperature -25 °C

Bending radius

During installation min. 8D
 In a final installation if bent only once min. 3D

Construction

Conductor annealed copper wires, stranded
 Insulation lead-free Linyl PVC, core identification by colours

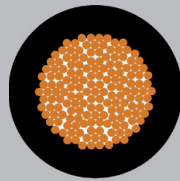
Identification of cores

RU, PRU - brown, MU - black, KEVI - yellow-green, SI - blue

Cross section of conductor and colour	EAN code (SSTL code)	Nominal overall diameter	Total weight	Direct current resistance of conductor at 20 °C max.	Standard delivery length, coil	Standard delivery length, drum
	64 100+	mm	kg/km	Ω /km	m	
MK 1,5 RU	04 01704-3	3	22	12,1	250	
MK 1,5 MU	04 01703-6	3	22	12,1	250	
MK 1,5 SI	04 01705-0	3	22	12,1	250	
MK 1,5 KEVI	04 01702-9	3	22	12,1	250	
MK 2,5 RU	04 01708-1	3,7	35	7,41	200	
MK 2,5 MU	04 01707-4	3,7	35	7,41	200	
MK 2,5 SI	04 01709-8	3,7	35	7,41	200	
MK 2,5 KEVI	04 01706-7	3,7	35	7,41	200	
MK 4 MU	04 01711-91	4,2	52	4,61	150	
MK 4 SI	04 01713-5	4,2	52	4,61	150	
MK 4 KEVI	04 01710-4	4,2	52	4,61	150	
PK 6 RU	04 01716-6	4,8	70	3,08	100	
PK 6 MU	04 01715-9	4,8	70	3,08	100	
PK 6 SI	04 01717-3	4,8	70	3,08	100	
PK 6 KEVI	04 01714-2	4,8	70	3,08	100	
PK 10 MU	04 01719-5	6,1	115	1,83	100	
PK 10 SI	04 01720-3	6,1	115	1,83	100	
PK 10 KEVI	04 01718-0	6,1	115	1,83	100	
PK 16 MU	04 01722-7	7,2	175	1,15	100	
PK 16 SI	04 01723-4	7,2	175	1,15	100	
PK 16 KEVI	04 01721-0	7,2	175	1,15	100	
PK 25 SI	04 02215-3	8,9	270	0,727	100	
PK 25 KEVI	04 02216-0	8,9	270	0,727	100	
MK 35 MU	04 52222-6	10	370	0,524		500/6C
MK 35 SI	04 52223-3	10	370	0,524		500/6C
MK 35 KEVI	04 52227-1	10	370	0,524		500/6C
MK 50 MU	04 52233-2	11,7	510	0,387		200/6C
MK 50 SI	04 52237-0	11,7	510	0,387		200/6C
MK 50 KEVI	04 52238-7	11,7	510	0,387		200/6C
MK 70 KEVI	04 022 48-6	13,4	710	0,268		200/6C
MK 95 KEVI	04 022 58-0	16	1000	0,193		500/8E
120 KEVI	04 022 66-5	18	1200	0,153		800/11G

MKEM 90 / H07V2-K

PVC-insulated flexible conductor



Application

For fixed installation in a conduit, and for wiring in appliances, switchgear and control gear with a maximum voltage of 1000 V (AC) or a maximum of 750 V (DC) to earth.

Temperature range

Highest permissible conductor temperature
 - in continuous operation 90 °C
 - in a short circuit (max. 5 s) 160 °C
 Lowest recommended handling temperature -25 °C

Bending radius

During installation min. 8D
 In a final installation if bent only once min. 3D

Construction

Conductor annealed copper wires, stranded flexible
 Insulation lead-free Linyl PVC, core identification by colours

Identification of cores

RU - brown, MU - black, KEVI - yellow-green, SI - blue

Standards

SFS 5523, CENELEC HD 21, IEC 60332-14

Certificate/approval

FI, <HAR>

Rated voltage

U₀/U = 450/750 V

Cross section of conductor and colour	EAN code (SSTL code)	Nominal overall diameter	Total weight	Direct current resistance of conductor at 20 °C max.	Standard delivery length, coil	Standard delivery length, drum
	64 100+	mm	kg/km	Ω/km	m	m
1,5 RU	04 03102-5	3	21	13,3	250	
1,5 MU	04 03103-2	3	21	13,3	250	
1,5 SI	04 03107-0	3	21	13,3	250	
1,5 KEVI	04 03108-7	3	21	13,3	250	
2,5 RU	04 03122-3	3,6	32	7,98	200	
2,5 MU	04 03123-0	3,6	32	7,98	200	
2,5 SI	04 03127-8	3,6	32	7,98	200	
2,5 KEVI	04 03128-5	3,6	32	7,98	200	
4 MU	04 03143-8	4,1	45	4,95	100	
4 SI	04 03147-6	4,1	45	4,95	100	
4 KEVI	04 03148-3	4,1	45	4,95	100	
6 MU	04 03163-6	5	70	3,3	100	
6 SI	04 03167-4	5	70	3,3	100	
6 KEVI	04 03168-1	5	70	3,3	100	
10 MU	04 03183-4	6,5	115	1,91	100	
10 SI	04 03187-2	6,5	115	1,91	100	
10 KEVI	04 03188-9	6,5	115	1,91	100	
16 MU	04 03203-9	7,6	170	1,21	100	
16 SI	04 03207-9	7,6	170	1,21	100	
16 KEVI	04 03208-9	7,6	170	1,21	100	
25 MU	04 03213-8	9,4	270	0,78	100	
25 SI	04 03217-6	9,4	270	0,78	100	
25 KEVI	04 03218-3	9,4	270	0,78	100	
35 MU	04 53223-2	11	370	0,554		500/6C
35 SI	04 53227-0	11	370	0,554		500/6C
35 KEVI	04 53228-7	11	370	0,554		500/6C
50 MU	04 53233-1	13	520	0,386		200/6C
50 SI	04 53237-9	13	520	0,386		200/6C
50 KEVI	04 53238-6	13	520	0,386		200/6C
70 MU	04 022 43-0	15	730	0,272		200/6C
70 SI	04 022 47-8	15	730	0,272		200/6C
70 KEVI	04 022 48-5	15	730	0,272		200/6C
95 MU	04 03253-4	17,5	940	0,206		200/7E
95 SI	04 03257-2	17,5	940	0,206		200/7E
120 MU	04 032 63-3	19	1200	0,161		200/7E
150 MU	04 032 73-2	22	1450	0,129		200/7E

MMO

PVC sheathed control cable



Application

Cables for control, measuring and signal circuits of electrical equipment.

Fixed surface or flush-mounted installations, indoors and outdoors.

Direct sunlight may change the colour of the sheath.

Temperature range

Highest permissible conductor temperature
 - in continuous operation 70 °C
 - in a short circuit (max. 5 s) 160 °C
 Lowest recommended handling temperature -15 °C

Construction

Conductor annealed copper wires
 Insulation black PVC, core identification by numbers
 Sheath white PVC, marked by meters

Standards

EVS 722:1996, SFS 3714; HD 627

Certificate/approval

EEI, FI

Rated voltage

$U_0/U=450/750$ V

Bending radius

During installation min. 10D
 In a final installation if bent only once min. 3D

Identification of cores

Core identification by numbers.

Number of conductors and cross section	EAN code (SSTL code)	Nominal overall diameter	Total weight	Direct current resistance of conductor at 20 °C max.	Standard delivery length, drum
n x mm ²	64 100+	mm	kg/km	Ω/km	m
7x1,5	04 112 03-8	12	230	12,1	1000/K8
12x1,5	04 112 05-2	15	350	12,1	500/K8
19x1,5	04 112 07-6	18	500	12,1	500/K9
27x1,5	04 120 25-5	21	700	12,1	500/K11
37x1,5	04 120 26-2	24	950	12,1	500/K11
7x2,5	04 112 13-7	14	310	7,41	500/K8
12x2,5	04 112 15-1	18	500	7,41	500/K8
19x2,5	04 112 17-5	21	750	7,41	500/K11

Nominal values unless otherwise specified.

EKLN 450/750 V

Installation cable



Application fields

Fixed installation, indoors and outdoors, in pipes, ducts, in or under plaster, also suspended in catenary system. In ground, only if the cable is protected against mechanical damage.

Alternative designation

SE-N07VA5EV-U

Standard

SS 424 02 19-4

Fire propagation class

F3 acc. to SS 424 14 75 and IEC 60332-1 and SS-EN 50265-2-1

Halogen-free alternative

EQLQ

Approval

SEMKO, CE

Material declaration

EKLN

Temperature range

In continuous operation max. conductor temp.70°C
 Lowest cable temperature under installation-15°C
 and below 0°C special precaution shall be taken.

Bending radius

12D (6D in final installation, bent only once)

Design

Conductor solid and annealed copper acc. to IEC 60228 class 1
 Insulation lead-free PVC
 Filler lead-free PVC
 Concentric conductor. aluminium with bonded PVC in contact with drain wire of tinned copper
 Inner sheath PE, white
 Sheath lead-free PVC, white, meter marked

Identification of cores

2-core blue, brown
 3-core green/yellow, blue, brown
 4-core green/yellow, blue, brown, black
 5-core green/yellow, blue, brown, black, grey

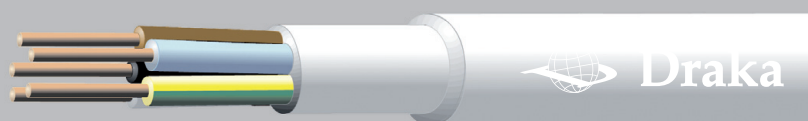
Marking

E.g. EKLN 3G1,5 S BLYFRI F3 DRAKA SE.

Number of cores x cross section of conductor mm ²	Overall diameter (approx.) mm	Weight (approx.) kg/100 m	Standard delivery length m	Standard drum size/Package	Article number
Without earth conductor					
2x1,5	10	14,3	50	Ring	423101
2x1,5	10	14,3	500	K6	423105
With earth conductor					
3G1,5	9,8	14	50	Ring	423001
3G1,5	9,8	14	250	K4	423003
3G1,5	9,8	14	500	K6	423005
3G1,5	9,8	14	1000	K7	423006
3G2,5	11,6	21,3	50	Ring	423011
3G2,5	11,6	21,3	150	K4	423013
3G2,5	11,6	21,3	500	K6	423015
3G2,5	11,6	21,3	1000	K8	423016
4G1,5	10,8	19	50	Ring	423021
4G1,5	10,8	19	200	K4	423023
4G1,5	10,8	19	500	K6	423025
4G2,5	13,1	25,7	50	Ring	423031
4G2,5	13,1	25,7	500	K7	423035
5G1,5	11,8	22,5	50	Ring	423041
5G1,5	11,8	22,5	150	K4	423043
5G1,5	11,8	22,5	500	K7	423045
5G1,5	11,8	22,5	1000	K9	423046
5G2,5	13,9	30,9	50	Ring	423051
5G2,5	13,9	30,9	150	K4	423053
5G2,5	13,9	30,9	500	K7	423055
5G2,5	13,9	30,9	1000	K9	423056

PPJ

PVC sheathed installation cable

**Application**

For fixed surface or flush-mounted installations, indoors and outdoors. Suitable for installation in a slot covered with plaster. Not for installation directly in ground or directly in concrete without protective ducting. Cable needs protection from direct sunlight.

Max. permissible tensile stress during installation Ax50 N/mm²

Standards

EVS 720:1996, EVS 721:1996, SFS 2091, SFS 5524

Certificate/approval

EEL, FI, CE

Rated voltage

U₀/U=300/500 V (1,5-4 mm²), U₀/U=450/750 V (6-25 mm²)

Temperature range

Highest permissible conductor temperature
- in continuous operation 70 °C
- in a short circuit (max. 5 s) 160 °C
Lowest recommended handling temperature -15 °C

Bending radius

Recommended during installation min. 10D
In a final installation if bent only once min. 3D

Construction

Conductor annealed copper wires; 1,5 - 4 mm²
solid and 6 - 25 mm² stranded
Insulation PVC, core identification by colours
Filling filling compound
Sheath white PVC, marked by meters

Identification of cores

Core identification according to the HD 308 S2:2002

X type without green/yellow core

2-core blue, brown

3-core brown, black, grey

G type with green/yellow core

3-core green/yellow, blue, brown

4-core (1,5 and 2,5 mm²) . green/yellow, blue, brown, black

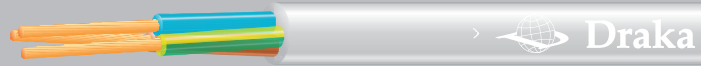
4-core (4-25 mm²). green/yellow, brown, black, grey

5-core green/yellow, blue, brown,
black, grey

Number of conductors and cross section	EAN code (SSTL code) reel	EAN code (SSTL code) drum	Nominal overall diameter	Total weight	Direct current resistance of conductor at 20 °C max	Standard delivery length, reel	Standard delivery length, drum
n x mm ²	64 100+		mm	kg/km	Ω/km	m	m
Without protective conductor							
2x1,5	04 073 12-4		8	105	12,1	100	
3x1,5	04 073 22-3		9	125	12,1	100	
2x2,5	04 073 13-1		10	150	7,41	100	
With protective conductor							
3G1,5	04 072 22-6	04 572 22-1	9	125	12,1	100	2000
4G1,5	04 072 32-5	04 572 32-0	10	155	12,1	100	1000
5G1,5	04 072 42-4	04 072 42-9	10	180	12,1	50	1000
3G2,5	04 072 23-3	04 572 23-8	10	180	7,41	100	1000
4G2,5	04 072 33-2	04 572 33-7	11	220	7,41	50	1000
5G2,5	04 072 43-1	04 572 43-6	12	260	7,41	50	750
3G4		04 572 24-5	10	280	4,61		1000
4G4		04 572 34-4	12	340	4,61		750
5G4		04 572 44-3	13	410	4,61		500
3G6		04 572 25-2	14	350	3,08		500
4G6		04 572 35-1	16	430	3,08		500
5G6		04 572 45-0	17	510	3,08		500
4G10		04 572 36-8	19	670	1,83		400
5G10		04 572 46-7	21	810	1,83		250
4G16		04 572 37-5	22	950	1,15		250
5G16		04 572 47-4	24	1150	1,15		250
4G25		04 572 38-2	30	1780	0,727		250
5G25		04 572 48-1	31	1900	0,727		250

MSK / H05VV-F

Flexible cord



Application

Cord for ordinary duty use for portable appliances in domestic premises, kitchens and offices.

- For household appliances in dry and damp premises.
- Not for outdoor use, industrial use, agricultural use.

The weight of a lighting fixture hanging from the cable must not exceed 2 kg.

Standard

SFS 5525 = CENELEC HD 21

Certificate/approval

FI (FIMKO), CE, <HAR>

Rated voltage

$U_0/U = 300/500$ V

Temperature range

Maximum permissible temperature of conductor:

- in continuous use60 °C
- in a short circuit (max. 5 s)150 °C

Lowest recommended handling temperature 15 °C

Bending radius

Min. recommended bending radius in normal usage . . .6D

Construction

Conductor Annealed copper wires, stranded, flexible

Insulation PVC, core identification by colours

Sheath PVC, round

Identification of cores

N type without green/yellow core2-core

S type with green/yellow core BU - BN

3-core GNYE - BU - BN

4-core GNYE - BK - BU - BN

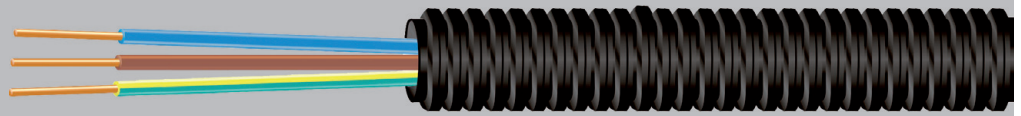
5-core GNYE - BK - BU - BN - BK

Number of conductors and cross section	EAN code (SSTL code)	Nominal overall diameter	Total weight	Direct current resistance of conductor at +20 °C max.	Standard delivery length coil
	64 100+	mm	kg/km	Ω/km	m
With protective conductor					
3 x 0,75 S	04 197 20-2	6,6	65	26	100
3 x 1,0 S	04 197 21-9	7	72	19,5	100
3 x 1,5 S white	04 197 22-6	8,3	100	13,3	100
3 x 1,5 S grey	04 198 22-3	8,3	100	13,3	100
4 x 0,75 S	04 197 30-1	7,2	75	26	100
4 x 1,5 S	04 197 32-5	9,3	130	13,3	100
5 x 1,0 S	04 197 41-7	8,6	110	19,5	100
5 x 1,5 S	04 197 42-4	10,3	160	13,3	100
Without protective conductor					
2 x 0,75 N	04 194 10-2	6,2	52	26	100
2 x 1,0 N	04 194 11-9	6,6	60	19,5	100
2 x 1,5 N	04 194 12-6	7,6	80	13,3	100

Abbreviations of colours
VA = WH White
HA = GY Grey

PROFIT

Conduit with cores



Profit

Application

For fixed installation in electrical- and information network. Conduit is suitable for installation in concrete

Standards

Conduit EN 50086, cables and wires have own

Certificates

CE, RoHS

Properties

Self-extinguishing
 Maximum permissible temperature of conduit in use and installation 90 °C
 Minimum permissible temperature of conduit in installation -25 °C
 Compression resistance 750 N (ICTA 3)
 Impact resistance 2 kg/100 mm (ICTA 3)

Properties of cables and cores as without conduit.

Current carrying capacities of ML/MK/MKZ according to HD 384.5.523 (or IEC 364-5-523): "Electrical installation of buildings" section 523: Current carrying capacities.

Construction

Conduit. Flexible PP conduit, lead-free, ICTA 3342

Cables and cores

PROFIT ML. H07V-U cores in Ø16/20 conduit

PROFIT MK H07V-R cores in Ø16/20 conduit

PROFIT MKZ H07V-R cores in Ø16/20 conduit, wires twisted together

PROFIT CAT 5e. CAT 5e UTP in Ø20 conduit

PROFIT CAT 6 CAT 6 UTP in Ø20 conduit

PROFIT TELLU 13. TELLU 13 in Ø16 conduit

PROFIT MHS MHS in Ø16 conduit

ML(H07V-U), MK(H07V-R), MKZ colours according to HD 308 S2

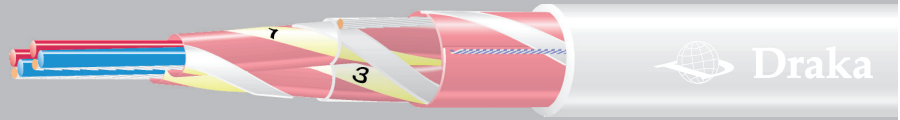
Convenient installation without twists
 Multi-installation base ensure uncoiled and smooth running of the cable from the package.



Name	SSTL code	Total weight kg/km	Coil length m	Pallet length m
PROFIT MK 3x1.5 S 16/R100	04 123 02	110	100	1800
PROFIT MK 3x2.5 S 16/R100	04 123 04	145	100	1800
PROFIT MK 3x4 S 20/R50	04 017 34	210	50	900
PROFIT MK 4x1.5 S 16/R100	04 123 06	130	100	1800
PROFIT MK 4x2.5 S 20/R50	04 017 42	190	50	900
PROFIT MK 5x1.5 S 20/R50	04 123 08	165	50	900
PROFIT MK 5x2.5 S 20/R50	04 123 10	225	50	900
PROFIT MK 6 KEVI 16/R100	04 123 12	115	100	1800
PROFIT MK 7x1.5 S 20/R50		205	50	900
PROFIT ML 3x1.5 N 16/R100	04 011 30	105	100	1800
PROFIT ML 3x1.5 S 16/R100	04 011 32	105	100	1800
PROFIT ML 3x2.5 S 16/R100	04 011 34	140	100	1800
PROFIT ML 4x1.5 S 16/R100	04 011 36	125	100	1800
PROFIT ML 5x1.5 N 16/R100	04 011 38	160	100	900
PROFIT ML 5x1.5 S 16/R100	04 011 40	160	100	900
PROFIT ML 5x2.5 S 20/R100	04 011 41	215	100	900
PROFIT ML 7x1.5 S 20/R100	04 017 71	195	100	900
PROFIT CAT 5e UTP 2x4p 20/R100	02 413 12	130	100	900
PROFIT CAT 6 UTP 2x4p 20/R100	02 413 14	140	100	900
PROFIT TELLU 13 16/R100	02 321 78	105	100	1800
PROFIT MHS 3x2x0,5 16/R100	02 024 07	85	100	1800

JAMAK

Instrumentation cable



Applications

- Fixed indoor installations
- Automation
- Instrumentation
- Process control
- Audio systems
- Suitable for MaxiTermipoint connections

Construction

Conductor stranded tinned copper
 Insulation PE
 Unit twisted and individually with, plastic-aluminium tape shielded pair, earth conductor and a number tape
 Shield plastic aluminium tape with earth conductor
 Sheath grey Linyl PVC

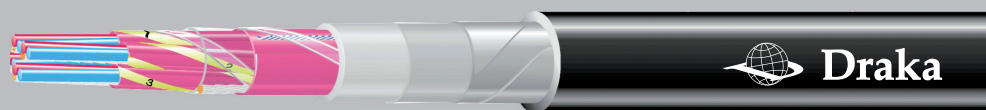
Identification

Units marked with numbers, a-conductors are blue and b-conductors are red.

Number and size of the conductor	mm ²	2 x(2+1)x 0,5	4 x(2+1)x 0,5	8 x(2+1)x 0,5	12 x(2+1)x 0,5	24 x(2+1)x 0,5	48 x(2+1)x 0,5
EAN code (SSTL code)	64 100+	02 642 52-0	02 642 54-4	02 642 58-2	02 642 62-9	02 642 64-3	02 642 68-1
Nominal diameter	mm	8	9,5	13	15	21	29
Mass	kg/km	70	110	200	280	530	990
Delivery length	m	1000	1000	1000	1000	1000	500
Drum		K6	K7	K9	K10	K12	K12
Electrical properties 20 °C							
Maximum loop resistance	Ω/km			81			
Nominal mutual capacitance (800 Hz)	μF/km			85			
Impedance, 10 MHz	Ω			70 ± 10 %			
Minimum insulation resistance	GΩ x km			2			
Velocity factor				0,66			
Maximum voltage	V			75			
Nominal attenuation	frequency 9,6 kHz	dB/100 m		0,3			
	frequency 19,2 kHz	dB/100 m		0,5			
	frequency 64 kHz	dB/100 m		0,7			
	frequency 100 kHz	dB/100 m		0,9			
	frequency 200 kHz	dB/100 m		1,6			
	frequency 1,0 MHz	dB/100 m		4,5			
Other properties							
Bending radius	during installation, min.	mm			15D		
(D=outer diameter)	during operation, min.	mm			10D		
Installation temperature min.		°C			-5		
Max operation temperature		°C			70		

JAMAK ARM

Instrumentation cable



Applications

- Fixed outdoor installations
- Automation
- Instrumentation
- Process control
- Audio systems
- Suitable for MaxiTermipoint connections

Suitable specially for digital and low level analog signal transmission. The construction gives an excellent protection against electromagnetic interference.

Construction

Conductor stranded tinned copper
 Insulation PE
 Unit twisted and individually with plastic-aluminium tape shielded pair, earth conductor and a number tape
 Shield plastic/aluminium tape with earth conductor
 Sheath grey Linyl PVC
 Armouring wrapped steel band
 Outer sheath black PE

Identification

Units marked with number tape, a-conductors are blue and b-conductors are red.

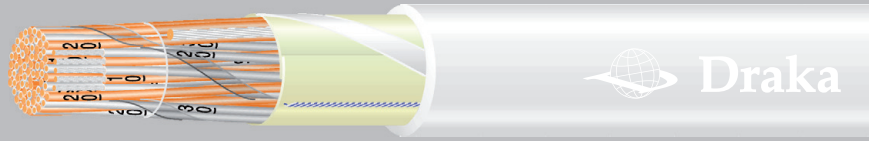
Other properties

JAMAK ARM is also available as halogen-free (JAMAK ARM-HF)

Number and size of the conductor	mm ²	4 x (2+1) x 0,5	8 x (2+1) x 0,5	12 x (2+1) x 0,5	24 x (2+1) x 0,5	48 x (2+1) x 0,5
EAN code (SSTL code)	64 100+	02 642 72-4	02 642 78-0	02 642 82-7	02 642 84-1	02 642 88-9
Nominal diameter	mm	14	17	19	25	33
Mass	kg/km	240	370	480	820	1440
Delivery length	m	1000	1000	1000	1000	500
Drum		K9	K11	K11	K14	K18
Electrical properties 20 °C						
Maximum loop resistance	Ω/km			81		
Nominal mutual capacitance (800 Hz)	μF/km			85		
Impedance, 10 MHz	Ω			70 ± 10 %		
Minimum insulation resistance	GΩ x km			2		
Velocity factor				0,66		
Maximum voltage	V			75		
Nominal attenuation	frequency 9,6 kHz	dB/100 m		0,3		
	frequency 19,2 kHz	dB/100 m		0,5		
	frequency 64 kHz	dB/100 m		0,7		
	frequency 100 kHz	dB/100 m		0,9		
	frequency 200 kHz	dB/100 m		1,6		
	frequency 1,0 MHz	dB/100 m		4,5		
Other properties						
Bending radius (D=outer diameter)	during installation, min.	mm	15D			
	during operation, min.	mm	10D			
Installation temperature min.		°C	-5			
Max operation temperature		°C	70			

NOMAK

Instrumentation cable



Application

- Fixed indoor installations
- Automation
- Instrumentation
- Process control
- Suitable for Maxi Termpoint connections

Construction

Conductor stranded tinned copper
 Insulation PVC
 Unit twisted pair
 Overall shield plastic/aluminium tape with earth conductor
 Sheath grey Linyl PVC

Identification

Pairs marked with numbers, a-conductors are orange and b-conductors are white.

Number and size of the conductor	n x n mm ²	2 x 2 x 0,5	4 x 2 x 0,5	8 x 2 x 0,5	12 x 2 x 0,5	24 x 2 x 0,5	48 x 2 x 0,5
EAN code (SSTL code)	64 100+	02 649 52-9	02 649 54-3	02 649 58-1	02 649 62-8	02 649 64-2	02 649 68-0
Nominal diameter	mm	7,5	9	12	13	18	24
Mass	kg/km	55	85	150	210	400	720
Delivery length	m	1000	1000	1000	1000	1000	1000
Drum		K6	K6	K7	K9	K11	K14
Electrical properties 20 °C							
Maximum loop resistance	Ω/km	81	81	81	81	81	81
Nominal mutual capacitance (800 Hz)	μF/km	90	90	85	85	85	85
Impedance, 10 MHz	Ω	100 ± 10 %					
Minimum insulation resistance	GΩ x km	100					
Velocity factor		0,6					
Maximum voltage	V	75					
Nominal attenuation	frequency 9,6 kHz	dB/100 m					0,3
	frequency 19,2 kHz	dB/100 m					0,5
	frequency 64 kHz	dB/100 m					0,7
	frequency 100 kHz	dB/100 m					0,9
	frequency 200 kHz	dB/100 m					1,5
	frequency 1,0 MHz	dB/100 m					2,9
Other properties							
Bending radius	during installation, min.	mm					15D
(D - outer diameter)	during operation, min.	mm					10D
Installation temperature min.	°C						-5
Max operation temperature	°C						70

KLMA

Signal cable



Applications

- Fixed indoor installations
- Building automation
- Alarm, signal and security control transmission

Construction

According to . . . SFS 2755
 Conductor tinned copper
 Insulation PVC
 Unit twisted conductors shielded with
 plastic/aluminium tape, earth conductor
 Sheath grey Linyl PVC

Identification

1. conductor blue
2. conductor yellow
3. conductor white
4. conductor red

Other properties

KLMA is also available as halogen-free KLMA-LSZH version

Number and size of the conductor	n x mm	2 x 0,8 + 0,8	4 x 0,8 + 0,8
EAN code (SSTL code)	64 100+	02 920 01-7	02 920 03-1
Nominal diameter	mm	5	5,5
Mass	kg/km	30	45
Delivery length	m	500	500
Electrical properties 20 °C			
Maximum loop resistance	Ω/km	36,7	36,7
Minimum insulation resistance	GΩ x km	500	500
Maximum voltage	V	75	75
Other properties			
Bending radius (D=outer diameter)	during installation, min.	mm	15D
	during operation, min.	mm	10D
Installation temperature min.	°C	-5	-5
Max operation temperature	°C	70	70

PULS 2,5 75V

Traffic sensor cable



Application

Traffic light cable with a maximum voltage of 75 V (AC) or a maximum of 50 V (DC) to earth.

Standards

IEC 60228, CENELEC HD 22, IEC 60332-1

Certificate/approval

RoHS

Rated voltage

U = 75 VDC; 50 VAC

Temperature range

Highest permissible conductor temperature
 - in continuous operation90°C
 - in a short circuit (max. 30 s) 200°C
 Lowest recommended handling temperature-40°C

Construction

Conductor annealed tinned copper wires, stranded flexible
 Insulation..... heat resistant plastic
 Outer sheath..... black oil retardant rubber

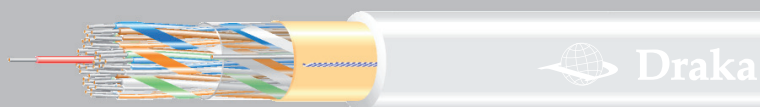
Bending radius

During installation min 3D

Cross section of conductor and colour		PULS 2,5 MU 75 V
EAN code (SSTL code)	64 100+	0231002
Nominal overall diameter	mm	4
Total weight	kg/km	30
Direct current resistance of conductor at 20°C max.	Ω/km	8,21
Minimum recommended bending radius during installation	m	0,012
Standard delivery length	m	1000
Reel		S4

MHS

Indoor telecommunication cable



Construction

Conductor annealed, tinned copper wire
 Insulation PE
 Twining two insulated conductors in a pair
 Lay-up stranded into units
 Signal wire red, insulated conductor
 Ground wire annealed, tinned copper wire
 Screen plastic coated aluminium foil
 Sheath grey Linyl PVC

Electric properties (+20 °C)

Loop resistance	maximum	192 Ω/km
	maximum average	184 Ω/km
Insulation resistance	minimum 500 V, 1 min.	500 MΩkm
Mutual capacitance	maximum	65 μF/km
	maximum average	60 μF/km
Capacitance unbalance	maximum	250 pF/500 m
	over 30-pair cables, 95 % of values	150 pF/500 m

Conductor number and diameter	EAN code	Nominal sheath thickness	Nominal outer diameter	Nominal mass	Standard delivery length
mm	64 100+	mm	mm	kg/km	m
1 x 4 x 0,5		1,0	4,5	30	
drum	02 951 31-8				1000
coil	02 551 21-1				100
coil	02 551 31-0				300
3 x 2 x 0,5		1,0	5,0	36	
drum	02 951 32-5				1000
coil	02 551 32-7				200
5 x 2 x 0,5		1,0	6,0	50	
drum	02 951 33-2				1000
coil	02 551 33-4				150
10 x 2 x 0,5		1,0	7,6	78	
drum	02 551 34-1				1000
coil	02 551 35-8				200
20 x 2 x 0,5					
drum	02 551 36-5	1,0	9,5	130	1000
coil	02 551 39-6				150
30 x 2 x 0,5	02 551 37-2	1,1	11,5	185	1000
50 x 2 x 0,5	02 551 38-9	1,1	14,0	285	1000
100 x 2 x 0,5	02 551 40-2	1,2	19,0	550	1000
200 x 2 x 0,5	02 551 42-6	1,5	26,0	1030	1000
400 x 2 x 0,5	02 551 44-0	1,8	36,0	2000	500
800 x 2 x 0,5	02 551 48-8	2,2	50,0	3950	500

VMOHBU

Outdoor telecommunication cable



Construction

- Conductor annealed copper wire
- Insulation. PE
- Twinning. two insulated conductors in a pair
- Signal wire. red, insulated conductor
- Filling compound. . special jelly
- Screen aluminium laminate
- Sheath black PE

Conductor number and diameter	EAN code	Nominal sheath thickness	Nominal outer diameter	Nominal cable mass	Standard delivery length
mm	64 100+	mm	mm	kg/km	m
100 x 2 x 0,4	02 565 08-9	2,2	24	600	1000
200 x 2 x 0,4	02 565 09-6	2,4	33	1150	1000
300 x 2 x 0,4	02 565 11-9	2,6	38	1600	1000
400 x 2 x 0,4	02 565 12-6	2,6	43	2100	1000
600 x 2 x 0,4	02 565 13-3	2,8	52	3000	500
800 x 2 x 0,4	02 565 14-0	3	58	3850	500
1200 x 2 x 0,4	02 565 16-4	3	71	5700	500
3 x 2 x 0,5	02 563 21-4	2	9,7	80	1000
5 x 2 x 0,5	02 564 74-7	2	11	105	1000
10 x 2 x 0,5	02 564 75-4	2	12,5	145	1000
20 x 2 x 0,5	02 564 76-1	2	15,5	235	1000
30 x 2 x 0,5	02 564 77-8	2	17,5	315	1000
50 x 2 x 0,5	02 564 78-5	2	22	480	1000
100 x 2 x 0,5	02 564 79-2	2,2	28	860	1000
200 x 2 x 0,5	02 564 80-8	2,4	39	1650	1000
300 x 2 x 0,5	02 564 81-5	2,4	45	2350	1000
400 x 2 x 0,5	02 564 82-2	2,6	52	3050	500
600 x 2 x 0,5	02 564 83-9	3	62	4500	500
800 x 2 x 0,5	02 564 84-6	3,2	71	5900	500
5 x 2 x 0,6	02 565 43-0	2	12	130	1000
10 x 2 x 0,6	02 565 44-7	2	14	185	1000
20 x 2 x 0,6	02 565 45-4	2	17,5	305	1000
30 x 2 x 0,6	02 565 46-1	2	21	425	1000
50 x 2 x 0,6	02 565 47-8	2	25	630	1000
100 x 2 x 0,6	02 565 48-5	2,2	33	1200	1000
200 x 2 x 0,6	02 565 62-1	2,6	46	2300	1000
300 x 2 x 0,6	02 565 63-8	2,6	54	3300	500
400 x 2 x 0,6	02 565 64-5	2,6	63	4400	500
10 x 2 x 0,8	02 565 50-8	2	16,5	275	1000
20 x 2 x 0,8	02 565 51-5	2	22	480	1000
30 x 2 x 0,8	02 565 52-2	2	25	680	1000
50 x 2 x 0,8	02 565 53-9	2,2	32	1100	1000
100 x 2 x 0,8	02 565 54-6	2,4	42	2000	1000
3 x 2 x 1,0	02 565 03-4	2	14	185	1000

Electric properties (+20 °C)

Number of pairs in cable		50 and more	less than 50		
Mutual capacitance maximum	µF/km	45	46		
Mutual capacitance max average	µF/km	40	-		
Diameter of conductor	mm	0,8			
Resistance unbalance maximum	%	2			
Diameter of conductor	mm	0,4	0,5	0,6	0,8
Loop resistance max	Ω/km	300	192	134	74
Loop resistance max average	Ω/km	288	184	128	71
Insulation resistance 500 V, 1 min					
Minimum	GΩ km	2			
Diameter of conductor	Capacitance unbalance pair-to-pair		Capacitance unbalance pair-to-earth		
	maximum	95% of values	maximum	95% of value	
	pF/500 m	pF/500 m	pF/500 m	pF/500 m	
mm					
0,4-0,6	250	150	-	-	
0,8	180	100	1700	1000	

H05RN-F; RDO/05RN-F 300/500 V

Rubber cable



Application fields

A highly flexible weather resistant cable, for the connection of light portable equipment where the risk of mechanical stress is low. Suitable for permanent outdoor use.

Standard

SS 424 02 35, CENELEC HD 22.4

Fire propagation class

F2 acc. to SS 424 14 75 and IEC 60332-1

Material declaration

H05-, H07RN-F, RDO/05RN-F

Approval

H05RN-F <HAR>, C
RDO/05RN-F SEMKO, C

Temperature range

In continuous operation max. conductor temp.60 °C
The cable is flexible down to -25 °C

Bending radius

During installation min 6D

Design

Conductor . . Flexible and annealed copper acc. to IEC 60228 class 5

Insulation . . EPDM-rubber

Core identification

2-core blue, brown

3-core green/yellow, blue, brown

4-core green/yellow, brown, black, grey

5-core green/yellow, blue, brown, black, grey

7-core green/yellow, 6 cores black number-marked 1-6

Sheath weather and oil resistant Bjuroflex rubber

Marking

E.g. DRAKAFLEX SEMKO <HAR> H05RN-F 2X1.

Number of cores x cross section of conductor mm ²	Overall diameter (approx.) mm	Weight (approx.) kg/100 m	Standard delivery length m	Standard drum size/package	Article number
H05RN-F					
2x0,75	6,3	6	100	Coil	952002040202
2x0,75	6,3	6	500	K6	952002040205
2x1	6,9	7,1	100	Coil	952002070202
2x1	6,9	7,1	500	K6	952002070205
3G0,75	6,9	7,7	100	Coil	952003040202
3G0,75	6,9	7,7	500	K6	952003040205
3G1	7,3	8,8	100	Coil	952003070202
3G1	7,3	8,8	500	K6	952003070205
RDO/05RN-F					
2x1,5	8,3	10,4	100	Coil	952002080202
2x1,5	8,3	10,4	500	K6	952002080205
3G1,5	9	12,1	100	Coil	952003080202
3G1,5	9	12,1	500	K6	952003080205
3G2,5	10,5	17	50	Coil	952003100201
3G2,5	10,5	17	500	K6	952003100205
4G1,5	9	15,1	50	Coil	952004080201
4G1,5	9	15,1	500	K6	952004080205
4G2,5	11,8	21,2	50	Coil	952004100201
4G2,5	11,8	21,2	500	K7	952004100205
5G1,5	11,2	18,3	50	Coil	952005080201
5G1,5	11,2	18,3	500	K6	952005080205
5G2,5	13	26,1	50	Coil	952005100201
5G2,5	13	26,1	500	K7	952005100205
7G1,5	12,6	24,1	500	K7	952007080205

DRAKAFLEX H07RN-F 450/750 V

Rubber cable



Application fields

A highly flexible weather and oil resistant cable. For use where the mechanical stress have medium hard character, in spaces with explosion risks or dry and damp spaces. Outdoors e.g. in agricultural buildings and for temporary installations in working sites. Also for fixed installation in temporary buildings and cabins.

Standard

CENELEC HD 22.4

Fire propagation class

F2 acc. to SS 424 14 75 and IEC 60332-1

Approval

<HAR>, CE

Material declaration

H05-, H07RN-F, RDO/O5RN-F

Temperature range

In continuous operation max. conductor temp.60 °C
 The cable is flexible down to-25 °C

Bending radius

When flexing6D
 At fixed mounting4D

Max tensile stress (N)

Total copper area x 15

Design

Conductor. . flexible and annealed copper acc. to IEC 60228 class 5
 Insulation. . EPDM-rubber

Identification of cores

2-core blue, brown;
 3-core green/yellow, blue, brown;
 4-core green/yellow, brown, black, grey;
 5-core green/yellow, blue, brown, black, grey;
 7-core green/yellow, 6 cores black number-marked 1-6;
 Sheath weather and oil resistant Bjuroflex rubber

Marking

E.g. DRAKAFLEX SEMKO <HAR> H07RN-F 5G1,5

DRAKAFLEX H07RN-F 450/750 V

Rubber cable

Number of cores x cross section of conductor mm ²	Overall diameter (approx.) mm	Weight (approx.) kg/100 m	Standard delivery length m	Standard drum size /Package	Article number
2x1	8,3	9,4	100	Coil	952502070202
2x1	8,3	9,4	500	K6	952502070205
2x1,5	8,9	10,5	100	Coil	952502080202
2x1,5	8,9	10,5	500	K6	952502080205
2x2,5	10,7	15,8	100	Coil	952502100202
2x2,5	10,7	15,8	500	K6	952502100205
3G1	8,8	11,5	100	Coil	952503070202
3G1	8,8	11,5	500	K6	952503070205
3G1,5	9,6	13,2	50	Coil	952503080201
3G1,5	9,6	13,2	100	Coil	952503080202
3G1,5	9,6	13,2	500	K6	952503080205
3G2,5	11,5	18,9	50	Coil	952503100201
3G2,5	11,5	18,9	100	Coil	952503100202
3G2,5	11,5	18,9	500	K7	952503100205
3G4	14	27,8	500	K7	952503110205
3G6	15,2	35,6	500	K8	952503120205
4G1,5	10,5	16,2	50	Coil	952504080201
4G1,5	10,5	16,2	100	Coil	952504080202
4G1,5	10,5	16,2	500	K6	952504080205
4G2,5	12,4	23,2	50	Coil	952504100201
4G2,5	12,4	23,2	100	Coil	952504100202
4G2,5	12,4	23,2	500	K7	952504100205
4G4	14,9	33,9	500	K8	952504110205
4G6	16,5	44,3	500	K8	952504120205
4G10	22,7	82,3	500	K11	952504130205
4G16	26	114,7	500	K12	952504140205
4G25	32	187,4	500	K16	952504150205
4G35	35	250,5	500	K16	952504160205
4G50	41	333,1	500	K18	952504170205
4G70	47	474,9	250	K16	952504180204
4G95	53	600,7	250	K18	952504190204
4G120	58	749,5	250	K18	952504200204
5G1,5	11,7	19,9	50	Coil	952505080201
5G1,5	11,7	19,9	100	Coil	952505080202
5G1,5	11,7	19,9	500	K7	952505080205
5G2,5	13,5	28,5	50	Coil	952505100201
5G2,5	13,5	28,5	100	Coil	952505100202
5G2,5	13,5	28,5	500	K7	952505100205
5G4	16,9	41,9	50	Coil	952505110201
5G4	16,9	41,9	500	K8	952505110205
5G6	18,7	56,2	50	Coil	952505120201
5G6	18,7	56,2	500	K9	952505120205
5G10	25,5	100,4	500	K12	952505130205
5G16	28,3	136,6	500	K12	952505140205
5G35	39	310,0	250	K12	952505160204
7G1,5	15,1	32,6	500	K8	952507080205
7G2,5	17,4	43,8	500	K9	952507100205

DRAKAFLEX-TARMO H07BN4-F 450/750 V LSZH

High quality rubber cable with an extended temperature range (-50°C – +90°C)



Application fields

Halogen-free oil and weather resistant cable for connection to moveable items and motors, outdoors, in spaces with fire and explosion risks, in humid rooms with corrosive contents and in hostile surroundings, e.g. in industry and agriculture. Also for fixed installation in temporary buildings and cabins. Suitable for working sites. Use up to 1000 V AC is permitted for fixed, protected installation (in conduit or appliances) and also for motor connections of hoisting motors and the like.

Standard

HD 22.12 Part 6 (H07BN4-F) and
HD 22.12 Part 4 (H07BB-F) and
HD 22.4 (H07RN-F)
HD 308 S2:2002
SS-EN 50267-2-2 (corrosive gases)
SS-EN 50268-2 (smoke density)
IEC 60811-2-1 (ozone protection)

Fire propagation class

F2 acc. to SS 424 14 75 and IEC 60332-1
and SS-EN 50265-2-1

Temperature range

In continuous operation max. conductor temp.90 °C
The cable is flexible down to-50 °C

Approval

<HAR>, C

Material declaration

DRAKAFLEX-TARMO H07BN4-F

Bending radius

6 x overall diameter

Max tensile stress (N)

Total copper area x 15 N/mm²

Design

Conductor flexible and annealed copper
acc. to IEC 60228 class 5
Insulation EPDM-rubber class EI6
Core identification 2-core: blue, brown;
3-core: green/yellow, blue, brown;
4-core: green/yellow, brown, black,
grey;
5-core: green/yellow, blue, brown,
black, grey;
7-core: green/yellow, 6 cores black
number-marked 1-6;
Sheath weather and oil resistant rubber,
halogen-free; fulfills class EM2, EM6
and EM7
Marking e. g. DRAKAFLEX-TARMO H07BN4-F 5G
2,5 mm² <HAR>

DRAKAFLEX-TARMO H07BN4-F 450/750 V LSZH

High quality rubber cable with an extended temperature range (-50°C – +90°C)

No. of cores x cross section of conductor mm ²	Overall diameter (approx.) mm	Weight (approx.) kg/100 m	Standard delivery length m	Std. drum size /package	Article number
2x1	8,3	9,3	500	K6	956502070205
2x2,5	11,1	15,9	500	K6	956502100205
3G1	8,8	11,4	500	K6	952503070205
3G1,5	10,0	13,7	100	Coil	952503080202
3G1,5	10,0	13,7	500	K6	956503080205
3G2,5	11,5	17,9	500	K7	956503100205
3G4	13,5	26,5	500	K7	956503110205
3G6	15,6	36,5	500	K8	956503120205
4G1	10	13,0	500	K6	956504070205
4G1,5	10,5	15,4	500	K6	956504080205
4G2,5	12,4	23,7	500	K7	956504100205
4G6	16,8	45,1	500	K8	956504120205
4G10	22,9	80,1	500	K11	956504130205
4G16	26	111,3	500	K12	956504140205
5G1,5	11,6	18,9	50	Coil	956505080201
5G1,5	11,6	18,9	500	K7	956505080205
5G2,5	13,5	27,3	50	Coil	956505100201
5G2,5	13,5	27,3	500	K7	956505100205
5G4	16,9	41,3	500	K8	956505110205
5G6	19,0	52,9	500	K9	956505120205
5G10	25,5	95,4	500	K12	956505130205
5G16	28,5	136,7	500	K12	956505140205
7G1,5	14,8	31,0	500	K8	956507080205
7G2,5	17,4	43,6	500	K9	956507100205

Electrical data

Type	Resistance at 200°C Ω/km	Reactance at 200°C and 50 Hz Ω/km	Current carrying capacity with 90°C at conductor and ambient temperature at 300°C mA	Voltage drop between phases V/A/km)
3G1,5	13,3	0,106	23	26,9
3G2,5	7,98	0,101	32	16,2
3G4	4,95	0,100	43	10,1
3G6	3,30	0,094	56	6,7
3G10	1,91	0,090	77	3,9
5G1,5	13,3	0,117	21	23,3
5G2,5	7,98	0,113	29	14,0
5G4	4,95	0,110	38	8,7
5G6	3,30	0,107	50	5,9
5G10	1,91	0,101	68	3,5
5G16	1,21	0,096	92	2,2

Ambient temperature	300°C	450°C	400°C	450°C	500°C
Conversion factor	1	0,96	0,91	0,87	0,82

Nominal values unless otherwise specified.

NOTE Current ratings when installed in open air. National regulations must be followed.
When the cable is accessible during operation by personnel, it is recommended that steps are taken to ensure that the outside jacket temperature does not exceed 500°C.
Following assumptions have been made:
• 2-3 core cable - single phase circuit;
• 4-5 core cable - three phase circuit.
Voltage drop has been determined for $\cos \phi = 0,8$

HULT(FLEX) LSOH FB 90 0,6/1 kV

Fire resistant halogen-free power and control cable



Firetuf

Application

Halogen-free power and control cable for low voltage applications 0,6/1 kV. Designed for vital installations during fire and have circuit integrity during 30 and 60 minutes. Suitable in wet environments. Multicore cables are specially applied for control engineering. Suited for use in public buildings tunnels, railway stations, oil and petrol chemical plants, etc where the danger to life may be greatly increased in the event of a power failure due to fire.

Properties and specifications

EN 50200 EN 50362, IEC 60331 and DIN 4102/12 Circuit Integrity During Fire IEC 60332-3-22 (Cat A) Flame Retardant IEC 60332-1 Self Extinguishing IEC 60754 Halogen-free IEC 61034 Low Smoke

Remarks

General, for signalling cables 30 minutes circuit integrity required and for power cables is a minimum of 60 minutes circuit Integrity required.

Construction

Conductor solid conductor up to 10 mm²; 10 mm² and larger conductor sizes stranded copper
 Insulation ceramifiable silicone rubber; earthing core green/yellow polyethylene (PE)
 Cores cores stranded together
 Bedding halogen-free compound
 Outer sheet polyolefin, halogen-free compound

Colour coding cores

1 core black
 2 cores blue brown
 3 cores blue brown green/yellow
 4 cores blue brown black green/yellow
 blue brown black grey
 5 cores blue brown black grey green/yellow

Other properties

Installation temp. . . min. -20°C, max. +60°C
 Outer sheet colour . . red
 Delivery on reels

Type		2x1,5	3G1,5	4G1,5	5G1,5	7G1,5	2x2,5	3G2,5	4G2,5	5G2,5	7G2,5	4G6	5G6	4G10	5G10	4G16	5G16
Nom. core diam.	mm	3,4	3,4	3,4	3,4	3,4	3,4	3,8	3,8	3,8	3,8	4,9	4,9	7,1	7,1	8,3	8,3
Nom. outer diam.	mm	11,6	12,1	13,9	14,3	14,9	12,4	13,0	15,3	18,0	16,1	15,6	17,0	20,0	23,2	22,0	26,6
Weight	kg/km	175	190	230	260	265	210	230	340	410	350	420	510	775	920	1000	1295
Min. bending radius	mm	95	100	115	115	120	100	105	125	145	130	125	140	160	190	180	215
Max. pulling force	N	400	435	575	610	665	460	505	700	970	775	730	865	1200	1610	1450	2120
Current Rating	A	26	26	23	23	17	36	36	32	25	23	54	54	75	75	100	100
Conductor 20°C AC	Ω/km	12,1	12,1	12,1	12,1	12,1	12,1	7,41	7,41	7,41	7,41	3,08	3,08	1,83	1,83	1,15	1,15
Resistance 90°C DC	Ω/km	15,4	15,4	15,4	15,4	15,4	15,4	9,45	9,45	9,45	9,45	3,93	3,93	2,33	2,33	1,47	1,47

Type		4G25	5G25	4G35	5G35	4x50	5G50	4G70	5G70	5G95	4G120	5G120	4G150	4G185	4G240	1x300	1x400
Nom. core diam.	mm	9,6	9,6	10,8	10,8	12,1	12,1	13,1	13,1	15,8	17,2	17,2	19,2	21,5	24,2	26,9	30,2
Nom. outer diam.	mm	26,0	30,2	30,0	33,7	34,6	38,3	40,0	44,0	49,4	50,0	54,4	55,0	61,0	69,0	33,0	37,0
Weight	kg/km	1450	1855	1980	2415	2660	3240	3700	4440	5970	6180	7400	7520	9360	12120	3430	4280
Min. bending radius	mm	210	245	240	270	280	310	320	355	400	400	440	440	490	555	265	300
Max. pulling force	N	2025	2735	2700	3405	280	310	320	355	7320	7500	8875	9075	10000	10000	3265	4105
Current Rating	A	127	127	158	158	192	192	246	246	298	346	346	399	456	538	703	823
Conductor 20°C AC	Ω/km	0,727	0,727	0,524	0,524	0,387	0,387	0,268	0,268	0,193	0,153	0,153	0,124	0,0991	0,0754	0,0601	0,0470
Resistance 90°C DC	Ω/km	0,927	0,927	0,669	0,669	0,494	0,494	0,344	0,344	0,248	0,198	0,198	0,161	0,131	0,102	0,0831	0,0685

Current rating: cables in free air according to IEC 60364-5-52

HULT(FLEX) LSOH FB30/60 0,6/1 kV

Fire resistant halogen-free power and control cable



Firetuf

Application

Halogen-free power and control cable for low voltage applications 0,6/1 kV. Designed for vital installations during fire and have circuit integrity during 30 and 60 minutes. Suitable in wet environments. Multicore cables are especially applied for control engineering. Suited for use in public buildings tunnels, railway stations, oil and petrol chemical plants, etc where the danger to life may be greatly increased in the event of a power failure due to fire.

Properties and specifications

EN 50200 EN 50362, IEC 60331
and DIN 4102/12 Circuit Integrity During Fire
IEC 60332-3-22 (Cat A) Flame Retardant
IEC 60332-1 Self Extinguishing
IEC 60754 Halogen-free
IEC 61034 Low Smoke

Remarks

General, for signalling cables 30 minutes circuit integrity required and for power cables is a minimum of 60 minutes circuit integrity required.

Construction

Conductor solid conductor up to 10 mm²;
10 mm² and larger conductor sizes
stranded copper
Insulation ceramifiable silicone rubber;
earthing core green/yellow poly-
ethylene (PE)
Cores cores stranded together
Bedding halogen-free compound
Outer sheet polyolefin, halogen-free compound

Colour coding cores

1 core black
2 cores blue brown
3 cores blue brown green/yellow
4 cores blue brown black green/yellow
blue brown black grey
5 cores blue brown black grey green/yellow

Other properties

Installation temp. . . . min. -20°C, max. +60°C
Outer sheet colour . . red
Delivery on reels

Type		2x1,5	3G1,5	4G1,5	5G1,5	7G1,5	2x2,5	3G2,5	4G2,5	5G2,5	7G2,5	24G2,5	5G4	4G6	5G6	5G10
Nom. core diam.	mm	3,4	3,4	3,4	3,4	3,4	3,4	3,8	3,8	3,8	3,8	3,8	4,4	4,9	4,9	7,1
Nom. outer diam.	mm	11,6	12,1	13,9	14,3	14,9	12,4	13,0	15,3	18,0	16,1	31,0	16,6	15,6	17,0	23,2
Weight	kg/km	175	190	230	260	265	210	230	340	410	350	1280	390	420	510	920
Min. bending radius	mm	95	100	115	115	120	100	105	125	145	130	250	125	125	140	190
Max. pulling force	N	400	435	575	610	665	460	505	700	970	775	2880	730	730	865	1610
Current Rating	A	26	26	23	23	17	36	36	32	25	23	13,5	42	54	54	75
Conductor 20°C AC	Ω/km	12,1	12,1	12,1	12,1	12,1	12,1	7,41	7,41	7,41	7,41	7,41	4,61	3,08	3,08	1,83
Resistance 90°C DC	Ω/km	15,4	15,4	15,4	15,4	15,4	15,4	9,45	9,45	9,45	9,45	9,45	5,88	3,93	3,93	2,33

Type		5G16	5G25	5G35	4G50	5G50	5G70	4G95	5G95	4G120	5G120	4G150	4G185	4G240	1x300	1x400
Nom. core diam.	mm	8,3	9,6	10,8	12,1	12,1	13,1	15,8	15,8	17,2	17,2	19,2	21,5	24,2	26,9	30,2
Nom. outer diam.	mm	26,6	30,2	33,7	34,6	38,3	44,0	44,6	49,4	50,0	54,4	55,0	61,0	69,0	33,0	37,0
Weight	kg/km	1295	1855	2415	2670	3240	4440	4895	5970	6180	7400	7520	9360	12120	3430	4280
Min. bending radius	mm	215	245	270	280	310	355	360	400	400	440	440	490	555	265	300
Max. pulling force	N	2120	2735	3405	280	310	355	5965	7320	7500	8875	9075	10000	10000	3265	4105
Current Rating	A	100	127	158	192	192	246	298	298	346	346	399	456	538	703	823
Conductor 20°C AC	Ω/km	1,15	0,727	0,524	0,387	0,387	0,268	0,193	0,193	0,153	0,153	0,124	0,0991	0,0754	0,0601	0,0470
Resistance 90°C DC	Ω/km	1,47	0,927	0,669	0,494	0,494	0,344	0,248	0,248	0,198	0,198	0,161	0,131	0,102	0,0831	0,0685

Current rating: cables in free air according to IEC 60364-5-52

Signal cable type 2300 FB 30 (mbzh)

Halogen-free overall screened multipair signal cable
with circuit integrity FE90/E30

Product number	No. of cores and conductor cross section	Type	Nominal overall diameter	Minimum bending radius	Maximum tensile strength	Approx. weight	Conductor resistance at 20°C, DC	Mutual capacitance
	n x mm/mm ²		mm	mm	N	kg/km	Ω/km	μF/km
127273	1 x 2 x 0,8	2301	6,6	40	15	55	37,5	120
127274	1 x 4 x 0,8	2302Q	7,5	45	30	80	37,5000	120
128130	1 x 2 x 1,5	2301.150	8,9	55	45	100	12,1000	150
128126	1 x 2 x 2,5	2301.250	10,1	65	75	125	7,4100	150
127275	2 x 2 x 0,8	2302	9,6	60	30	85	37,5	120
128127	2 x 2 x 1,5	2302.150	14,1	85	90	210	12,1000	150
128128	2 x 2 x 2,5	2302.250	14,9	90	150	260	7,4100	150
127276	4 x 2 x 0,8	2304	10,5	65	60	130	37,5	120
128122	8 x 2 x 0,8	2308	13,0	80	120	200	37,5	120
128123	12 x 2 x 0,8	2312	14,4	90	180	265	37,5	120
128125	16 x 2 x 0,8	2316	15,8	95	240	330	37,5	120
128129	20 x 2 x 0,8	2320	17,7	110	300	410	37,5	120

Type 2302Q FB30: 2 pairs constructed as a quad, the opposite cores form a pair.

Signal cable type 2300 FB 90 (mbzh)

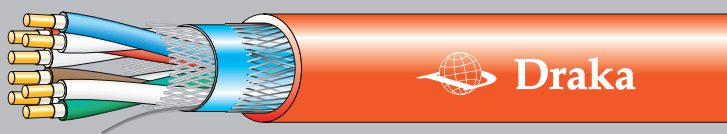
Halogen-free overall screened multipair signal cable mbzh
with circuit integrity FE90/E90

Product number	No. of cores and conductor cross section	Type	Nominal overall diameter	Minimum bending radius	Maximum tensile strength	Approx. weight	Conductor resistance at 20°C, DC	Mutual capacitance
	n x mm/mm ²		mm	mm	N	kg/km	Ω/km	μF/km
122171	1x2x0,8	2301	6,6	55	15	55	37,5	120
122172	1x4x0,8	2302Q	7,5	60	30	80	37,5000	120
122444	1x2x1,5	2301.150	8,9	75	45	100	7,4100	150
129171	1x2x2,5	2301.250	10,1	85	75	125	7,4100	150
122450	2x2x0,8	2302	9,6	80	30	85	37,5	120
129172	2x2x1,5	2302.150	12,2	100	90	210	12,1000	150
129173	2x2x2,5	2302.250	14,9	120	150	260	7,4100	150
122173	4x2x0,8	2304	10,5	85	60	130	37,5	120
122174	8x2x0,8	2308	13,0	105	120	200	37,5	120
122175	12x2x0,8	2312	14,4	120	180	265	37,5	120
122176	16x2x0,8	2316	15,8	130	240	330	37,5	120
122177	20x2x0,8	2320	17,7	145	300	410	37,5	120

Type 2302Q FB90: 2 pairs constructed as a quad, the opposite cores form a pair.

Draka SF/UTP Cat."5" FB 90 (mbzh)

SF/UTP FB 90 cat "5" rd# 4x2x22 AWG



Firetuf

DIN: J-02YSCH PiMF

Application

- Specially developed for those parts of circuit installations where 90 minutes circuit integrity is required
- Primary (Campus), Secondary (Riser) and Tertiary (Horizontal)
- IEEE 802.3 networks: 10Base-T, 100Base-T and 1000Base-T
- IEEE 802.5 16 MB networks: ISDN, TPDDI and ATM
- Industrial Ethernet application

Properties regarding fire performance

- Circuit integrity in accordance with NEN-EN 50200, BS 5839-1:2002 Clause 26.2e Enhanced, BS 8434-2:2003
- Fire resistant in acc. with IEC 60331-23 and BS 6387-C
- Halogen-free in acc. with NEN-EN 50267 (IEC 60754)
- Low smoke in accordance with NEN-EN-IEC 61034
- Flame retardant in accordance with NEN-EN 50266-2-3 and UL 1581 VW1
- Self-extinguishing in acc. with NEN-EN-IEC 60332-1

General properties

- In areas effected by electromagnetic interference signals (EMC)
- Construction of the cable is such that it approaches the properties of a Cat 5 cable as much as possible

Remarks

- There is also a single and a double pair construction with a conductor diameter of 0,63 mm

Construction

Conductor solid plain copper
 Insulation silicon rubber (SiR) and polyethylene (PE)
 Cores 2 cores twisted to a pair, wrapped with glass tape
 Overall screen metallized polyester foil
 Braiding tinned copper wires, with a tinned copper drain wire underneath
 Outer sheath halogen-free flame retardant thermoplastic (LSOH)

Core colours

Standard colours. . . white/blue and blue, white/orange and orange, white/green and green, white/brown and brown (in accordance with ISO/IEC 11801)

Standards/References

EIA/TIA 568A, ISO/IEC 11801, NEN-IEC 61156-6, NEN-EN 50173, NEN-EN 50288-4-2

Additional information

Minimum installation temperature 0°C
 Operating temperature min. -20°C, max. +60°C
 Bending radius: fixed installation 4D
 Sheath colour red
 Packaging drums

Electrical data	
Insulation resistance	≥ 5000 MΩ/km
LDC loop resistance	≤ 192 Ω/km
Resistance unbalance	≤ 2 %
Characteristic impedance	100 ± 15 Ω (1 - 100 MHz)
Return loss	in acc. with ISO/IEC 11801
Capacitance unbalance (pair to ground)	≤ 1600 pF/km
Velocity ratio	± 57%
Construction data	
Conductor material	Cu, bare
Diameter conductor	0,64 mm
AWG-size	22
Conductor category	Class 1 = solid
Number of cores	8
Stranding element	pairs
Core insulation	other
Core identification	colour
Screen over stranding element	none
Screen over stranding	other
Material outer sheath	copolymer, thermoplastic
Colour outer sheath	red
Halogen-free (acc. EN 50267-2-2)	yes
Flame retardant	acc. EN 50266-2-4
Low smoke (acc. EN61034-2)	yes
Outer diameter	approx. 10,5 mm
Operating temperature, flexible	-20/60 °C
Operating temperature, fix	-20/60 °C
Category	5
Armouring/reinforcement	none
Protective sheath	no
Weight	125 kg
Copper content	41 kg
Elements	x2x
Number of stranding elements	4
Properties	
Circuit integrity	E 90
Max. tensile force	100 N
Bending radius	85 mm
Electrical	
Characteristic impedance	100 Ω
Applications	
Patch	no
Product packing	
Product number	128690NN
Description	length of 1 m

BI(c) 250V

Fire resistant halogen-free control cable



Firetuf



Application

As alarm, control, and signal cables in places where during a fire the cable must sustain its functionality for a certain amount of time in order to protect people or machinery. For indoor and outdoor use.

Standards

CENELEC HD 627-7B, IEC 60502-1, IEC 60332-3C, IEC 60331 and EN50200, IEC 60754-1 and 2, IEC 61034

Certificates

CE, RoHS

Properties

Rated voltage U_m 250V
Max allowed temperature for the cable:
- continuous use 70 °C
- in case of short circuit (max 5 sec) 160 °C
Min recommended usage temperature -15 °C
Min recommended bending radius
- when installing 10D
- for permanent installation as a one-time bend 5D
Max allowed tension during installation. . . . Ax50 N/mm²

Construction

Conductor annealed, tinned copper, multi-stranded
Insulation Mica-tape and EPDM-rubber, colour and numerical markings
Shielding aluminium/polyester band and ground wire as a unified shielding
Outer sheath orange halogen-free polymer, production date and metric markings

Colour coding cores

Conductor colour
and pair BLA/BLU and number tape on pair
Four core BLA/BLU and BLA/BR

No. of cable pairs/cables and area of cross section	mm ²	2 x 0,75	1 x 4 x 0,75	2 x 2 x 0,75	4 x 2 x 0,75
Art No.		460961	460922	461110	461120
Approx. diameter	mm	6,5	8,4	10,3	11,9
Approx. weight	kg/km	70	115	140	210
Standard length	m	500	500	500	500
Standard package		S4	S4	K7	K7
Properties					
Capacitance of the cable pair	µF/km			80	
Inductance	mH/km			0,75	
Impedance / 1 kHz	Ω/km			330	
Conductor resistivity, max (20 °C)	Ω/km			24,8	
Loop resistivity, max (20 °C)	Ω/km			49,6	

BFSI-EMC 1 kV

Halogen-free and fire-resistant EMC compatible power cable



Firetuf

Application

Installations with rated voltage up to 1 kV, in case of requirement for a cable to function during a fire. This is a cable for indoor and outdoor use. Improved EMC screen according to EMC directive. Halogen-free cable is recommended when it is important to avoid heavy smoke and corrosive gases in case of a fire. National regulations for electrical installations must be followed.

Max conductor temp 90 °C
 Rated voltage U_0/U 0,6/1 kV
 CENELEC designation N1ZC7Z1-R

Standards applied

CENELEC HD 604-5D Construction
 IEC 60502-1 Insulation
 IEC 60331 Fire Resistant
 IEC 60332-3C Flame Retardancy
 IEC 60754-1 and 2 Halogen-free
 IEC 61034 Low Smoke

Approvals

NEMKO, CE-marking, acc. to LVD.

Construction

Conductor stranded copper
 Insulation Mica-tape and extruded XLPE
 Bedding halogen-free
 Concentric conductor . . (PE/PEN conductor) copperfoil with overlap and concentric screen of copper wires.
 Outer sheath halogen-free polymer
 Colour black
 Mode of packing drum

Marking

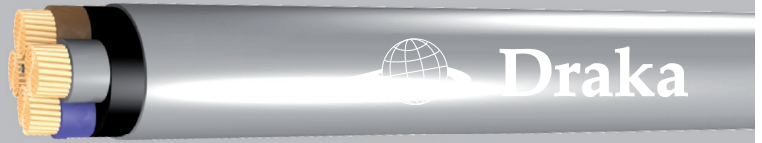
Printed on outer sheath, designation and dimension. Meter marking and year of production.

No. of cores and conductor area mm ²	Conductor type 1)	EI. No.	Art. No.	Outer diameter appr. mm	Approx. weight kg/km
2 x 1,5/1,5	FR	1046120	422605	12	150
2 x 2,5/2,5	FR	1046121	422615	13	190
2 x 6/6	FR	1046123	422640	15	300
3 x 1,5/1,5	FR	1046140	422610	12	180
3 x 2,5/2,5	FR	1046141	422620	13	220
3 x 4/4	FR	1046142	422630	15	290
3 x 6/6	FR	1046143	422645	16	380
3 x 10/10	FR	1046144	422655	19	570
3 x 16/16	FR	1046145	422660	22	860
3 x 25/16	FR	1046146	422670	25	1150
3 x 35/16	FV	1046147	422675	24	1380
3 x 50/25	FV	1046148	422680	27	1840
4 x 1,5/1,5	FR	1046160	422612	13	200
4 x 2,5/2,5	FR	1046161	422625	14	260
4 x 4/4	FR	1046162	422635	16	350
4 x 6/6	FR	1046163	422650	17	460
4 x 10/10	FR	1046164	422657	21	690
4 x 16/16	FR	1046165	422665	24	1050
4 x 25/16	FR	1046166	422673	27	1430
4 x 35/16	FV	1046167	422677	27	1750
4 x 50/25	FV	1046168	422685	30	2330
4 x 70/35	FV	1046169	422690	36	3280
4 x 95/50	FV	1046170	422693	40	4500
4 x 150/70	FV	1046172	422695	48	6700

1) FR =Stranded round.
 FV=Stranded sector shaped.
 Mode of packing and length can be changed.

HULT(FLEX) LSOH 0,6/1 kV

Halogen-free Power and Control Cable



Application

Halogen-free Power and Control cable for Low Voltage applications 0,6/1 kV. Suitable in wet environments. Multicore cables are especially applied for control engineering. Suited for use in Public buildings tunnels, Railway Stations, Oil and Petrol.

Properties and Specifications

IEC 60332-3-22 (Cat A) Flame Retardant
 IEC 60332-1 Self Extinguishing
 IEC 60754 Halogen-free
 IEC 61034 Low Smoke

Construction

Conductor Solid conductor up to 10 mm²
 10 mm² and larger conductor sizes
 stranded copper
 Insulation polyethylene (PE)
 Cores cores cabled together
 Bedding halogen-free compound
 Outer sheet polyolefin, halogen-free compound

Colour coding cores

1 core black
 2 cores blue brown
 3 cores blue brown green/yellow
 4 cores blue brown black green/yellow
 blue brown black grey
 5 cores blue brown black grey green/yellow

Other properties

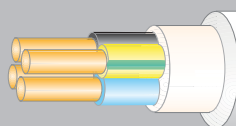
Min. installation temperature -20°C, max. +60°C
 Max. conductor temperature 90°C
 Outer sheet colour red
 Delivery on reels

Type	Nom. outer diam.	Weight	Min. bending radius	Current rating	Conductor 20°C AC	Resistance 90°C DC	Working inductance	Working capacitance
	mm	kg/km	mm	A	Ω/km	Ω/km	mH/km	μF/km
2x1,5	9,5	130	50	26	12,1	15,4	0,33	55
2x2,5	10,3	165	55	36	7,41	9,45	0,31	63
3G1,5	9,9	150	50	26	12,1	15,4	0,33	56
3G2,5	10,7	190	55	36	7,41	9,45	0,31	63
4G1,5	10,7	175	55	23	12,1	15,4	0,37	123
4G2,5	11,5	220	60	32	7,41	9,45	0,35	142
4G4	12,6	295	80	42	4,61	5,88	0,33	150
4G6	13,8	390	85	54	3,08	3,93	0,32	159
4G10	17,1	620	105	75	1,83	2,33	0,29	185
4G16	19,7	895	120	100	1,15	1,47	0,28	212
4G25	23,8	1360	170	127	0,727	0,927	0,28	227
4G35	26,7	1770	135	158	0,524	0,669	0,26	240
4G50	31,6	2445	160	192	0,387	0,494	0,25	242
4G70	36,6	3410	185	246	0,268	0,344	0,25	245
4G95	41,8	4550	210	298	0,193	0,248	0,25	255
4G150	51,3	7180	260	399	0,124	0,161	0,24	270
5G1,5	11,5	200	60	23	12,1	15,4	0,41	128

Type	Nom. outer diam.	Weight	Min. bending radius	Current rating	Conductor 20°C AC	Resistance 90°C DC	Working inductance	Working capacitance
	mm	kg/km	mm	A	Ω/km	Ω/km	mH/km	μF/km
5G2,5	12,5	260	75	32	7,41	9,45	0,38	147
5G4	13,7	350	85	42	4,61	5,88	0,36	155
5G6	15	460	90	54	3,08	3,93	0,34	164
5G10	18,7	745	115	75	1,83	2,33	0,32	190
5G16	21,5	1080	155	100	1,15	1,47	0,31	217
5G25	26,2	1655	185	127	0,727	0,927	0,3	232
5G35	29,5	2160	150	158	0,524	0,669	0,3	243
5G50	34,9	2990	175	192	0,387	0,494	0,27	245
5G70	40,5	4180	205	246	0,268	0,344	0,23	247
5G95	46,5	5710	235	298	0,193	0,248	0,22	268
5G120	51,4	7130	260	346	0,153	0,198	0,21	280
5G150	57,6	8900	290	399	0,124	0,161	0,2	285
7G1,5	12	215	60	17	12,1	15,4	-	≤150
7G2,5	13,1	285	80	23	7,41	9,45	-	≤150
12G1,5	15,2	330	95	13	12,1	15,4	-	≤150
12G2,5	16,8	440	105	18	7,41	9,45	-	≤150
24G1,5	20,2	585	145	9,5	12,1	15,4	-	≤150

EQQ-Light 300/500 V

Halogen-free installation cable



Application fields

Halogen-free, no emittance of corrosive gases, low smoke density in case of fire. Fixed installation, in pipes, ducts, in or under plaster, also suspended in catenary system. Indoors and outdoors, however not in ground or water. UV protected¹⁾ for outdoor use in the Nordic countries.

Alternative Designation

SE-S05Z1Z1-U

Standard

SS 424 02 19-5 and EN 50265-2-1 (corrosive gases)
EN 50268-2 (smoke density)

Fire propagation class

F3 acc. to SS 424 14 75 and IEC 60332-1 and SS-EN 50265-2-1

Temperature range

In continuous operation max. conductor temp. 70 °C
Lowest cable temperature under installation -15 °C
and below 0 °C special precaution shall be taken

Approval

SEMKO, S-marked, C

Material declaration

EQQ-Light

PVC alternative

EKK-Light

Bending radius

8D (4D in final installation, bent only once)

Design

Conductor solid and annealed copper acc. to IEC 60228 class 1

Insulation halogen-free compound

Core identification. 2-core: blue, brown

3-core: green/yellow, blue, brown

4-core: green/yellow, blue, brown, black

5-core: green/yellow, blue, brown, black, grey

Filler halogen-free compound

Sheath halogen-free compound, white, meter marked

Marking e.g. DRAKA EQQ-LIGHT 3G1,5 300/500 V LSZH S

Number of cores x cross section of conductor	Overall diameter (approx.)	Weight (approx.)	Standard delivery length	Standard drum size /Package	Article number
mm ²	mm	kg/100 m	m		
Without earth conductor					
2 x 1,5	8,6	10,0	500	K6	0445065
With earth conductor					
3G1,5	8,6	10,9	50	Coil	0445001
3G1,5	8,6	10,9	250	K4,5	0445003
3G1,5	8,6	10,9	500	K6	0445005
3G2,5	10,7	16,9	50	Coil	0445011
3G2,5	10,7	16,9	150	K4,5	0445013
3G2,5	10,7	16,9	500	K6	0445015
4G1,5	10,1	14,2	50	Coil	0445021
4G1,5	10,1	14,2	200	K4,5	0445023
4G1,5	10,1	14,2	500	K6	0445025
5G1,5	10,2	15,3	50	Coil	0445041
5G1,5	10,2	15,3	150	K4,5	0445043
5G1,5	10,2	15,3	500	K6	0445045
5G2,5	12,8	23,9	50	Coil	0445051
5G2,5	12,8	23,9	150	K4,5	0445053
5G2,5	12,8	23,9	500	K7	0445055

1) UV - ultraviolet radiation
Nominal values unless otherwise specified.

EQLQ 450/750 V

Halogen-free installation cable



Application fields

Halogen-free, no emittance of corrosive gases, low smoke density in case of fire. Fixed installation, indoors and outdoors, in pipes, ducts, in or under plaster, also suspended in catenary system. In ground, only if the cable is protected against mechanical damage.

Alternative designation

N07Z1A5EZ1-U

Standard

SS 424 02 19-4 In Applicable Parts
HD 604 Halogen-free Materials
EN 50267-2-2 Corrosive Gases
EN 50268-2 Low Smoke Density

Fire propagation class

F3 acc. to SS 424 14 75 and IEC 60332-1 and SS-EN 50265-2-1

Temperature range

In continuous operation max. conductor temp. 70 °C
Lowest cable temperature under installation -15 °C
and below 0 °C special precaution shall be taken

Approval

SEMKO, S-marked, CE

Material declaration

EQLQ

PVC alternative

EKLK

Bending radius

12D (6D in final installation, bent only once)

Design

Conductor solid and annealed copper
acc. to IEC 60228 class 1
Insulation halogen-free polymer

Core identification

3-core green/yellow, blue, brown
4-core green/yellow, blue, brown, black
5-core green/yellow, blue, brown,
black, grey
Filler halogen-free polymer
Concentric conductor . . . aluminium with bonded PE
in contact with drain wire of
tinned copper
Sheath halogen-free polymer, white,
meter marked
Marking e.g. EQLQ 3G1,5 450/750 V F3
LSZH DRAKA S.

Number of cores x cross section of conductor	Overall diameter (approx.)	Weight (approx.)	Standard delivery length	Standard drum size/package	Article number
n x mm ²	mm	kg/100 m	m		
3G1,5	9,9	13,2	50	Coil	460001
3G1,5	9,9	13,2	250	K4,5	460003
3G1,5	9,9	13,2	500	K6	460005
3G2,5	11,8	18,7	50	Coil	460011
3G2,5	11,8	18,7	150	K4,5	460013
3G2,5	11,8	18,7	500	K7	460015
4G1,5	11,2	17,2	50	Coil	460021
4G1,5	11,2	17,2	200	K4,5	460023
4G1,5	11,2	17,2	500	K6	460025
4G2,5	13,3	26,1	50	Coil	460031
4G2,5	13,3	26,1	500	K7	460035
5G1,5	12	17,8	50	Coil	460041
5G1,5	12	17,8	150	K4,5	460043
5G1,5	12	17,8	500	K7	460045
5G2,5	13,6	26,8	50	Coil	460051
5G2,5	13,6	26,8	150	K4,5	460053
5G2,5	13,6	26,8	500	K7	460055

FQLQ 450/750 V

Halogen-free installation cable



Application fields

Halogen-free, no emittance of corrosive gases, low smoke density in case of fire. Fixed installation, indoors and outdoors, in pipes, ducts, in or under plaster, also suspended in catenary system. In ground, only if the cable is protected against mechanical damage.

Alternative designation

N07Z1A5EZ1-R

Standard

SS 424 02 19-4 In Applicable Parts
 HD 604 Halogen-free Materials
 IEC 60754-1, -2 Corrosive Gases
 IEC 61034 Smoke Density

Fire propagation class

F3 acc. to SS 424 14 75 and IEC 60332-1 & EN 50265-2-1

Temperature range

In continuous operation max. conductor temp. 70°C
 Lowest cable temperature under installation -15°C
 and below 0°C special precaution shall be taken.

Approval

SEMKO, S-marked CE

Material declaration

EQLQ, FQLQ

Bending radius

12D (6D in final installation, bent only once)

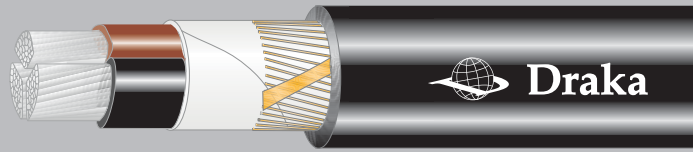
Design

Conductor stranded and annealed copper
 acc. to IEC 60228 class 2
 Insulation. halogen-free compound
 Core identification
 3-core. green/yellow, blue, brown
 4-core. green/yellow, blue, brown, black
 5-core. green/yellow, blue, brown, black,
 grey
 7-core. green/yellow, 6 cores black
 number-marked 1-6
 Filler. halogen-free compound
 Concentric conductor. . . aluminium with bonded PE
 in contact with drain wire of
 tinned copper
 Sheath halogen-free compound, white,
 meter marked
 Marking e.g. FQLQ 5G2,5 450/750 V
 LSZH DRAKA SE F3 S.

Number of cores x cross section of conductor n x mm ²	Overall diameter (approx.) mm	Weight (approx.) kg/100 m	Standard delivery length m	Standard drum size/Package	Article number
3G1,5	10,3	15,7	500	K6	5,17503E+11
3G2,5	12,4	20,7	500	K7	5,17503E+11
4G1,5	11,6	18	500	K7	5,17504E+11
5G1,5	12,4	20,6	500	K7	5,17505E+11
5G2,5	14,1	28,5	500	K7	5,17505E+11
7G1,5	13	24,5	500	K7	5,17507E+11
7G2,5	15,4	34,9	500	K8	5,17507E+11

AXQJ 0,6/1 kV

Halogen-free power cable



Application fields

Halogen-free and fire classified cable. No emittance of corrosive gases, low smoke density in case of fire. Open, fixed installation, indoors and outdoors, in pipes and in ground/water. In switchgear rooms and rooms where explosions may occur. Can be carefully ploughed down.

Alternative designation

SE-N1ZICZ1-AS

Standard

SS 424 14 18
 CENELEC HD 603 Part 3 Section L
 CENELEC HD 604 Halogen-free Materials
 IEC 60754-1, -2 Corrosive Gases
 IEC 61034 Smoke Density

Fire propagation class

F3 acc. to SS 424 14 75 and IEC 60332-1 and SS-EN 50265-2-1

Temperature range

In continuous operation max. conductor temp. 70 °C
 Lowest cable temperature under installation -20 °C
 and below 0 °C special precaution shall be taken.

Approval

SEMKO, S-marked EC

Material declaration

AXQJ

PVC alternative

AKKJ

Bending radius

At fixed mounting 8D
 At pulling in 12D
 At ploughing down 8D

Design

Conductor stranded, sector-shaped and annealed aluminium acc. to IEC 60228 class 2
 Insulation halogen-free compound
 Core identification
 3-core brown, black, grey
 4-core brown, black, grey, blue
 Filler halogen-free, extruded compound or plastic tape
 Concentric conductor annealed copper wires and counter spiral of copper
 Sheath halogen-free compound, black
 Marking e.g. AXQJ 0,6/1 kV 3x240/72 F3 S GREEN LINE CABLES DRAKA SE "Date", meter marked.

Number of cores x cross section of conductor mm ²	Overall diameter (approx.) mm	Weight (approx.) kg/100 m	Standard delivery length m	Standard drum size	Article number
3x50/15	26,4	92,1	500	K12	1620
3x70/21	29,9	122,6	500	K12	1630
3x95/29	33,5	158	500	K14	1640
3x120/41	37,4	176	500	K16	1650
3x150/41	40,8	208,5	500	K18	1660
3x185/57	45,4	265,1	500	K20	1670
3x240/72	49,7	333,8	500	K22	1680
4x50/15	29,7	112,7	500	K12	1720
4x70/21	33,6	150,5	500	K16	1730
4x95/29	37,7	194,5	500	K16	1740
4x120/41	42,2	217,1	500	K18	1750
4x150/41	46,2	261,4	500	K18	1760
4x185/57	51,3	329,4	500	K20	1770
4x240/72	56,2	415,2	500	K22	1780

EXQJ 0,6/1 kV

Halogen-free power cable



Application fields

Halogen-free, no emittance of corrosive gases, low smoke density in case of fire. Open, fixed installation, indoors and outdoors, in pipes and in ground/water. In switchgear rooms and rooms where explosions may occur. Can be carefully ploughed down.

Alternative designation

SE-N1Z1CZ1-U

Standard

SS 424 14 18
CENELEC HD 603 Part 3 Section L
CENELEC HD 604 Halogen-free Materials
IEC 60754-1, -2 Corrosive Gases
IEC 61034 Smoke Density

Fire propagation class

F3 acc. to SS 424 14 75 and IEC 60332-1

Temperature range

In continuous operation max. conductor temp. 70 °C
Lowest cable temperature under installation -20 °C
and below 0 °C special precaution shall be taken

Approval

SEMKO, S-marked CE

PVC alternative

EKKJ

Bending radius

At fixed mounting 8D
At pulling in 12D
At ploughing down 8D

Design

Conductor solid, round and annealed copper acc. to IEC 60228 class 1
Insulation halogen-free compound
Core identification
3-core brown, black, grey
4-core brown, black, grey, blue
Filler halogen-free compound
Concentric conductor annealed copper wires and counter spiral of copper
Sheath halogen-free compound, black, meter marked

Marking

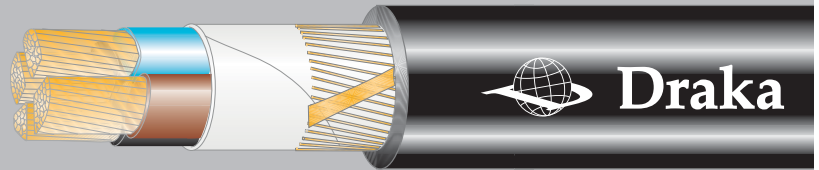
E.g. EXQJ 3X4/4 0,6/1 kV F3 S GREEN LINE CABLES DRAKA SE "year".

Number of cores x cross section of conductor	Overall diameter (approx.)	Weight (approx.)	Standard delivery length	Standard drum size	Article number
mm ²	mm	kg/100 m	m		
3x2,5/2,5	14	24,5	500	K07	2110031002
3x4/4	15	31,9	500	K07	2110031102
3x6/6	16	41	500	K08	2110031202
3x10/10	18,3	61,3	500	K09	2110031302
4x2,5/2,5	14,8	28,1	500	K07	2110041002
4x4/4	15,9	37	500	K07	2110041102
4x6/6	17,7	50,7	500	K09	2110041202
4x10/10	19,6	72,8	500	K11	2110041302

Nominal values unless otherwise specified.

FXQJ 0,6/1 kV

Halogen-free power cable



Application fields

Halogen-free, no emittance of corrosive gases, low smoke density in case of fire. Open, fixed installation, indoors and outdoors, in pipes and in ground/water. In switchgear rooms and rooms where explosions may occur. Can be carefully ploughed down.

Alternative designation

SE-N1Z1CZ1-R, SE-N1Z1CZ1-S

Standard

SS 424 14 18
CENELEC HD 603 Part 3 Section L
CENELEC HD 604 Halogen-free Materials
IEC 60754-1, -2 Corrosive Gases
IEC 61034 Smoke Density

Fire propagation class

F3 acc. to SS 424 14 75 and IEC 60332-1

Approval

SEMKO, S-marked CE

PVC-alternative

FKKJ

Temperature range

In continuous operation max. conductor temp.70 °C
Lowest cable temperature under installation -20 °C
and below 0 °C special precaution shall be taken

Bending radius

At fixed mounting8D
At pulling in. 12D
At ploughing down8D

Design

Conductorstranded and annealed copper
acc. to IEC 60228 class 2
≤ 35 mm² round
50-240 mm² sector-shaped
Insulation. halogen-free compound
Core identification
3-core. brown, black, grey
4-core. brown, black, grey, blue
Filler halogen-free, extruded compound or plastic tape
Concentric conductor annealed copper wires and counter spiral of copper
Sheath halogen-free compound, black, meter marked

Marking

E.g. FXQJ 3X240/120 0,6/1 kV F3 (S) GREEN LINE
CABLES DRAKA SE "year".

Number of cores x cross section of conductor	Overall diameter (approx.)	Weight (approx.)	Standard delivery length	Standard drum size	Article number
mm ²	mm	kg/100 m	m		
3x16/16	20,6	94	500	K11	2115031402
3x25/16	23,4	128,2	500	K11	2115031502
3x35/16	25,8	162,1	500	K11	2115031602
3x50/25	26,4	189,8	500	K11	2115031702
3x70/35	29,9	244,8	500	K14	2115031802
3x95/50	34,3	332,6	500	K14	2115031902
3x120/70	37,6	419,5	500	K14	2115032002
3x150/70	41	506,6	500	K18	2115032102
3x185/95	46,4	633,9	500	K18	2115032202
3x240/120	51,1	829	500	K22	2115032302
4x16/16	22,3	112	500	K11	2115041402
4x25/16	25,4	155,7	500	K12	2115041502
4x35/16	28,1	198,7	500	K12	2115041602
4x50/25	29,7	239,8	500	K12	2115041702
4x70/35	33,7	312,4	500	K12	2115041802
4x95/50	38,6	424,4	500	K16	2115041902
4x120/70	42,3	533,5	500	K16	2115042002
4x150/70	46,5	650,6	500	K18	2115042102
4x185/95	52,6	811	500	K20	2115042202
4x240/120	57,6	1060,6	500	K22	2115042302

Nominal values unless otherwise specified.

Drum handling guide

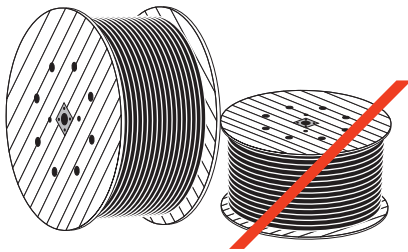
The right way to transport, handle and move drums

A cable is a valuable product. The cable transportation package is usually a drum. The battens on the drum seem thick enough to remain unbroken. But, with a cable weighing more than 4 tons, it becomes very vulnerable. If the handling is done correctly, the drum will protect the cable from transportation damages. If the drum is damaged, the cable can also be damaged. The damage might not be discovered until after installation, when repairs can be extremely expensive.

The purpose of these instructions is to tell you how damages can be avoided by correct drum handling.

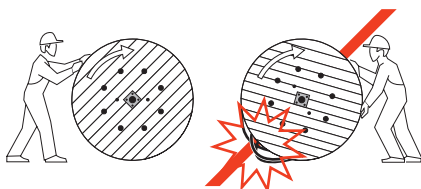
Keep the drum upright

Always store and move the drum in an upright position. The drum is constructed to be handled in an upright position - it will not stand up to being lifted lying flat. When kept upright, the cable layers will not entangle and cause problems when the cable is laid. Keep the cable protected until the cable is used.



Roll in direction of arrows only

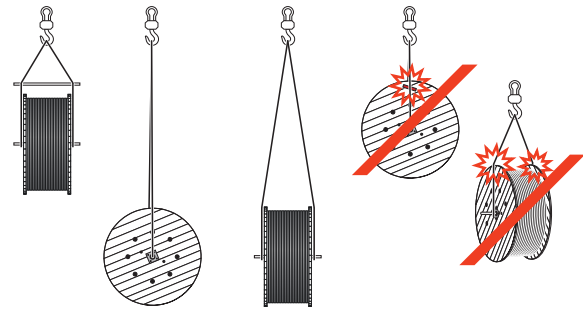
Always roll the drum in direction of the arrow. This way the cable will not unwind and loosen on the drum. But, this does not mean that the drum can be rolled freely. When the drum must be rolled for some reason or other, roll it in the direction of arrow over a distance not exceeding 5 meters. If it is rolled beyond the 5 m limit, the cable wind will come too tight and cut off the rope holding the cable end. This will deform the cable and make it unfit for use.



Lift the drum without damage

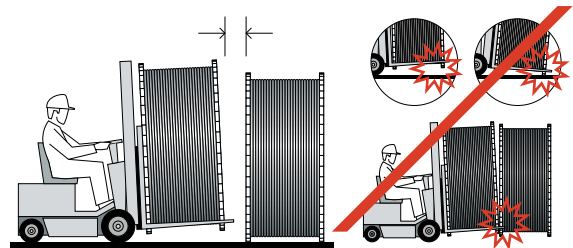
When lifting the drum, use a shaft through the centre of the drum and a wire spreader. If these are not available, lift with as long a wire as possible, so that the sides of the drum are not damaged. Make sure that the cable head is not pinched between wire and

drum. Keep the drum from touching other drums and well balanced. Take care not to give any impact to the drum being lowered. In case a cable drum must be temporarily in a waiting position above the deck for reason of cargo handling, keep it hoisted and do not put it down on the deck.



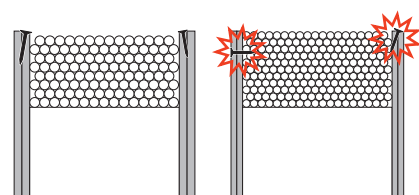
Handling with fork-lift truck

The forks of the truck must be longer than the width of the drum, so that the lagging is not damaged. Different widths of drums should be painted on the forks enabling the operator to select the correct position for the drum size. When moving the drum, tilt the truck mast so that the drum remains in the fork and the points don't touch the ground. Raise the forks of the forklift sufficiently 15-20 cm above the ground. Insufficient raising may cause the drum to be dragged on the ground and eventually damaged or dropped off the forks if the ground surface is uneven. Don't release the drum until the truck has sopped completely. Don't push the drum with the truck. Leave sufficient room between each drum so that the fork doesn't damage the drum.



Nail with caution

In case the planks have to be refastened, the nailing should be done carefully in the middle of the drum flange. If label or something similar is attached to the drum with nails, make sure that they don't touch the cable.

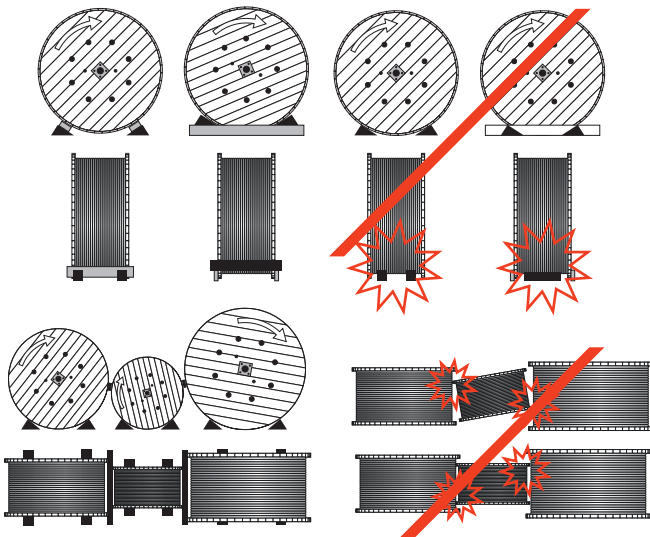


Drum handling guide

The right way to transport, handle and move drums

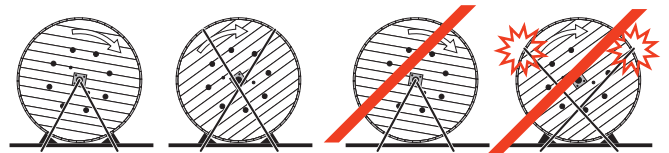
Secure the drums firmly

The round-shaped cable drum rolls easily. It is an a very unstable state because its center section is vacant and the whole weight rests on its peripheral section. Make sure to use drags to prevent drums from rolling during storage. Large drums should be lifted from the base onto triangular or square wedges. The wedges should be positioned by the flanges or the full width of drum. Sideways movement is eliminated by planks attached to the side of the drum. In case smaller drums are placed between larger ones, each drum has to be supported separately to prevent damages.



Fasten the drums firmly

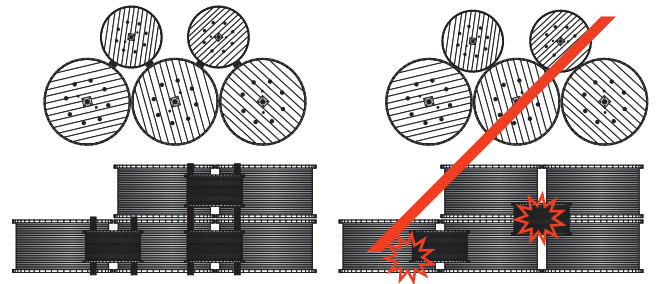
The drum is fastened to the base through the centre hole or across the flanges with wires or ropes.



Avoid stacking

Stacking of drums should be avoided. If, however, one is forced to do this, same size of drums should be positioned exactly on top of each other.

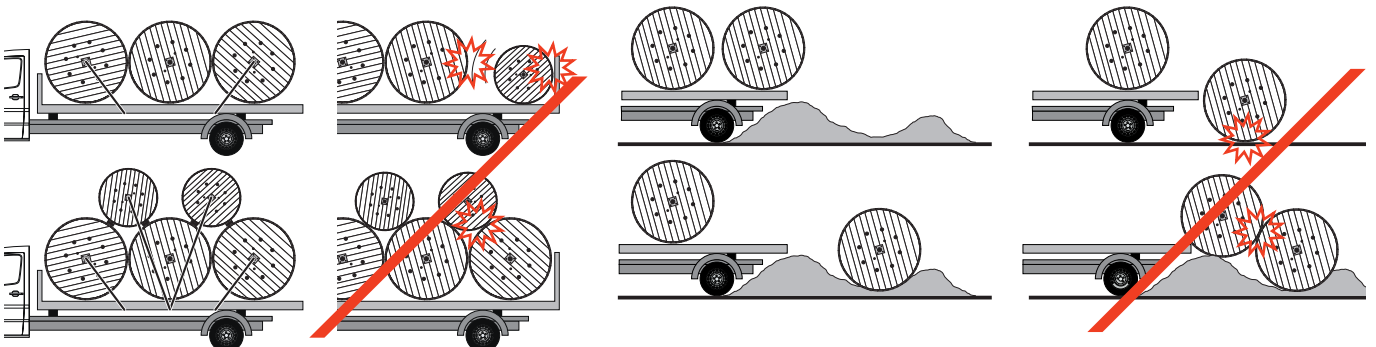
If smaller drums are stacked on larger drums, planks of the size of the larger drum is placed in between to protect the flanges. Above method is recommended even when same size drums are stacked.



Secure drums to be transported

To prevent movement of drums, a combination of wedges and transportation support should be used and tied down front and rear. Higher drums should be tied in side direction as high up as possible.

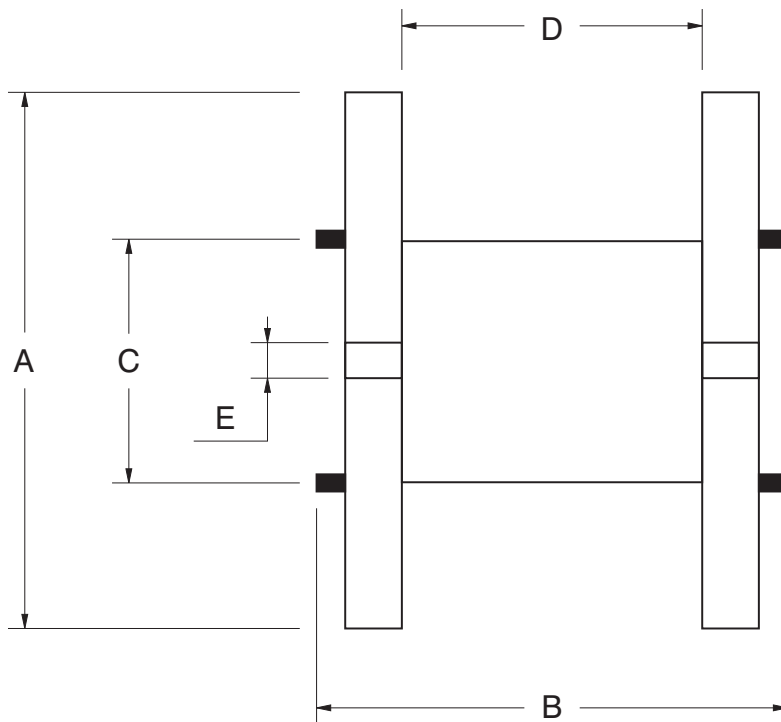
The drums loaded first should rest against the front board (observing shaft weight). If the last drum doesn't lean against the end board or the board is not strong enough, the drum must be secured.



Don't drop drums

The drum must not be dropped from the vehicle. The drum is to be lifted either by winch or fork-lift truck as mentioned in "lifting the drum". If above mentioned equipment is not available, best possible conditions must be created to unload the drums from the vehicle. A platform of the same height as the vehicle or a point in the terrain will guarantee that no damage will occur. Make sure when unloading that the drum doesn't strike another drum.

Drum dimensions and weights



Drums type	Dimensions mm					Weight kg/drum
	A	B	C	D	E	
5C	500	500	250	400	55	10
6A	600	400	250	300	55	10
6C	600	500	250	400	55	16
7E	700	610	325	500	55	20
8E	800	610	375	500	55	26
9F	900	660	425	550	82	40
9FV	900	675	425	550	82	50
11G	1100	725	500	600	82	70
11GV	1100	755	500	600	82	85
13G	1300	760	600	600	82	105
15G	1500	760	700	600	82	150
16L	1600	970	800	800	82	185
18M	1800	1025	1100	850	82	260
20P	2000	1155	1100	960	82	350
22P	2200	1155	1200	960	82	445
22P5	2200	1155	1500	960	82	460
26U	2600	1455	1500	1200	123	805
26U8	2600	1455	1800	1200	123	830
28W	2800	1610	1500	1300	123	1050
28W0	2800	1610	2000	1300	123	1100
30Y	3000	1810	2200	1500	123	1300
32Z	3200	1970	2400	1600	132	1900
K6	600	468	250	400	75	12
K7	700	580	325	500	75	20
K8	800	580	375	500	75	25
K9	900	630	425	550	75	34
K11	1100	762	575	650	106	55
K12	1200	982	675	850	106	90
K14	1400	982	800	850	106	115
K16	1600	1018	950	850	106	195
K18	1800	1075	1100	850	132	230
K20	2000	1190	1300	1000	132	340
K22	2200	1190	1400	1000	132	410
K24	2400	1205	1400	1000	132	450
K26	2600	14 48	1500	1200	132	900
K28	2800	1650	1500	1350	132	1180
K30	3000	1800	1500	1500	132	1500



CERTIFICATE OF APPROVAL

This is to certify that the Management System of:

DRAKA KEILA CABLES AS
Keila
Estonia

has been approved by Lloyd's Register Quality Assurance to the following Environmental and Quality Management System Standards:

ISO 14001:2004
ISO 9001:2008

The scope of this approval is applicable to:

Design, development, manufacturing, marketing and sales of overhead conductors, 1 kV power cables. Supply and resale of power, automation, data transmission, cellular communication, CAT and low voltage network cables and building wires.

Approval Certificate No: LTQ0005973	Original QMS Approval: 26 June 1998
	Original EMS Approval: 22 November 2001
	Current Certificate: 15 January 2010
	Certificate Expiry: 14 January 2013

Issued by: Lloyd's Register EMEA Eesti filiaal for and on behalf of the Lloyd's Register Quality Assurance Limited



This document is subject to the provision on the reverse
Lauteri 5, 10114 Tallinn, Estonia, Reg nr. 19977049
The approval is carried out in accordance with the LRQA assessment and certification procedures and monitored by LRQA.
The use of the UKAS Accreditation Mark indicates Accreditation in respect of those activities covered by the Accreditation Certificate Number: 001
Web: www.lrqas.com



CERTIFICATE OF APPROVAL

This is to certify that the Occupational Health & Safety Management System of:

DRAKA KEILA CABLES AS
Keila
Estonia

has been approved by Lloyd's Register Quality Assurance to the following Standard:

OHSAS 18001:2007

The Occupational Health & Safety Management System is applicable to:

Design, development and manufacturing of overhead conductors, 1 kV power cables. Supply and resale of power, automation, data transmission, cellular communication, CAT and low voltage network cables and building wires.

Approval Certificate No: LTQ0005973/O	Original Approval: 22 June 2011
	Current Certificate: 22 June 2011
	Certificate Expiry: 21 June 2014

Issued by: Lloyd's Register EMEA Eesti filiaal for and on behalf of the Lloyd's Register Quality Assurance Limited



This document is subject to the provision on the reverse
71 Fenchurch Street, London EC3M 4BS United Kingdom. Registration number: 1879370
The approval is carried out in accordance with the LRQA assessment and certification procedures and monitored by LRQA.
A UKAS accredited certification body No. 001 for OHSAS 18001
Web: www.lrqas.com

The mission of Draka Keila Cables is to be a profitable Draka enterprise. We have a competent sales organization that is targeted to the customers and we produce and sell a wide range of cable products to the present and future information and electricity networks.

We wish to achieve the satisfaction of customers, employees and owners by making decisions that would enable the environment-friendly development of Draka Keila Cables by minimizing our environmental impacts and improving the effectiveness of our management system constantly.

Upon the implementation of ISO 9001:2008, ISO 14001:2004 and OHSAS 18001:2007 requirements, Keila Kabel proceeds from the needs of the customers and the instructional requirements.

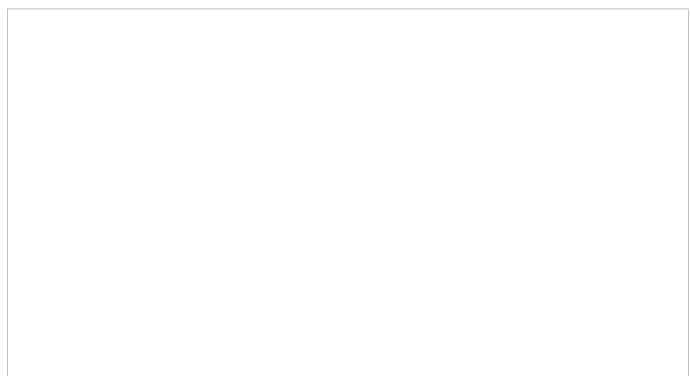


AS Draka Keila Cables
Paldiski Road 31
76606 Keila
Estonia

Phone +372 674 7466
Fax +372 674 7468

www.draka.ee

Member of Prysmian Group
www.prysmian.com



European Union
Regional Development Fund



Investing in your future

All information concerning material properties, fire performance, construction, electrical and technical data, prices etc. reflects our current level of knowledge and is provided without obligation. Dimensions and weights are only given as a guide. The technical specifications may change any time without prior notice.