CATGRALENG12

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Top Cable

Catalogue of cables for electrical power distribution

Catalogue of cables
for electrical power distribution

Top Cable

Top Cable

www.topcable.com/topmatic

topmatic

Calculate the most suitable cable for your electronic installations.

Topmatic is a computer software that helps you select the most suitable cross section for your installations. It calculates the maximum voltage drop by using UNE 20460-5-523 Norm as the reference point for current ratings. Topmatic selects the best cable for every installation by calculating its main parameters precisely.

Topmatic software is definitely a useful tool for everyone who is in the electrical industry.

Top Cable

www.topcable.com/ecomatic

ecomatic

Calculate your energy savings in your electrical installations.

The Ecomatic software helps you calculate the energy you can save when choosing a bigger cross section than the one strictly necessary for installation. A bigger cross section of the conductor reduces the resistance of the circuit, hence decreasing the losses from Joule effect and optimizing the yield of the energy that you consume and pay for.

With Ecomatic, you will achieve significant energy savings and will also reduce CO2 emissions, thus protecting the environment. It is a useful tool for engineers, installers, dealers, students, etc.

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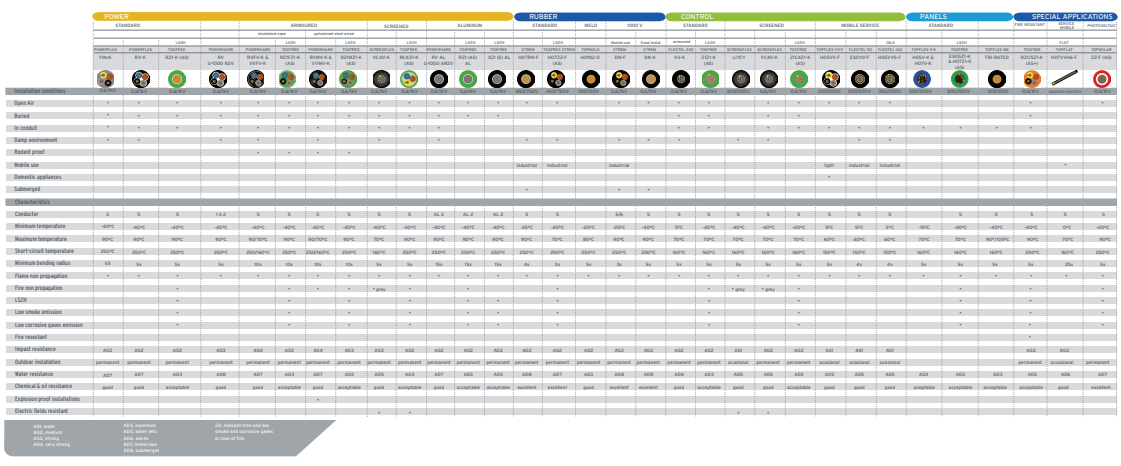
Top Cable

Top Cable

Summary of cables



Top Cable

Top Cable

Symbols

Characteristics

- Nominal Voltage
- Flexible conductor
- Minimum service tempersture
- Maximum service temperature
- Maximum short-circuit temperature
- Minimum bending radius
- Meter by meter marking
- Flame non-propagation
- Fire non-propagation
- Fire resistant
- Low corrosive gases emission
- Halogen free
- Low smoke emission
- Environmentally friendly
- Water resistance
- Chemical & Oil resistance
- Grease & mineral oils resistance
- Impact resistance
- Low extreme temperature resistance
- Abrasion resistance
- Torsion resistance
- UV resistant
- Estimated life span
- Outdoor installation
- Suited for explosion proof installations.
- Electric fields resistant

Installation Conditions

- Domestic use
- Industrial use
- Light mobile service
- Industrial mobile use
- Heavy mobile use
- Open air
- In conduit
- Buried
- Submerged
- Damp environment
- Rodent proof
- Electrical panel wiring
- Crane bridges
- Photovoltaic solar installations
- Emergency circuits
- Windmills
- Welding
- Robotics
- Marine
- Deep wells
- Submersible pumps
- Domestic appliances
- Elevators
- Public places

Top Cable, is an internationally recognized manufacturer of electric cables, and is highly thought of by professional Engineers & Electricians around the world. As a multinational Corporation with offices and warehouse located around the globe, Top Cable is committed to providing the best products and services to our clients worldwide.

Teamwork has always been the key to the success of our company. Our emphasis on human capital investments has made Top Cable one of the leading cable manufacturers in Europe. In conjuction with our research team, we are committed to providing electric cables of the highest standards to our clients on a global scale.

Top Cable is committed to providing the best products and services to our clients worldwide.

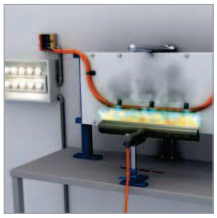
Teamwork has always been the key to the success of our company.

Top Cable is one of the leading cable manufacturers in Europe.

QUALITY, a priority in Top Cable

Top Cable's products have passed stringent standards set by both Spanish and European certifying bodies which AENOR guarantee the quality of our products. Our company strongly believes in selecting the best raw materials, adopting rigorous control systems and employing the latest technology in all our production. Our state of the art logistic warehouse in Barcelona (Spain), is one example of our commitment to providing high quality cables and excellent service to all our clients. This initiative has earned us the ISO 9001 award in 1994.

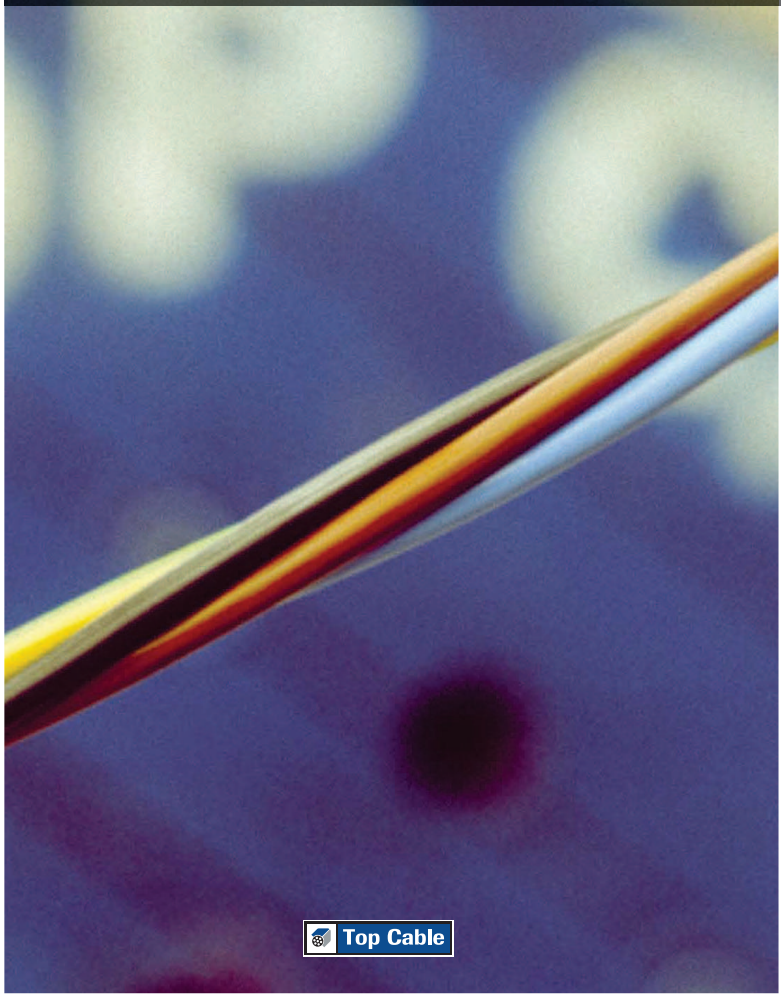
Top Cable as a trademark has become synonymous with quality worldwide.



Our laboratories are equipped to carry out the most rigorous tests.

The company process control systems are guaranteed by internationally recognized Certifying bodies.

An INTEGRATED manufacturing process



Top Cable was started in 1985, and since then has been focusing on investment in technology which sustains advancement through extensive research and development programmes. The aim is to continuosly improve our cables and to ensure a large production capacity that can meet the various demands in the global economy. Our Top Cable Design & Development Centre and research laboratories ware established to provide research work and to identify new areas of improvement that will enable us to constantly provide high performance cables that are suited for multiple applications in various industries.

Being conscious of the importance of optimal costing, our company has opted for the integration of our processes, through focusing each of our production centers into a specialized production unit, while co-ordinating with one another to optimize common resources.

Top Cable submits all its manufacturing processes to the most stringent controls.

Being conscious of the importance of optimal costing, our company has opted for the integration of our processes.

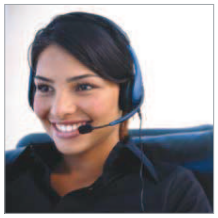
All the centres have R&D teams with their own laboratories capable of designing and producing high quality cables for various applications.

Our company values all our clients and therefore we adhere to the philosophy of prompt customer service. To further instill the philosophy of value added service, we have invested in a state of the art logistics centre with the latest warehouse management system. This system allows our clients to draw on various cables at any stage to meet their current requirements. This sophisticated infrastructure enables our clients to save on storage, distribution and administration costs.

Selecting the best transport companies for each destination as well as the type of shipment guarantees an extension of our service to destinations further a field. A worldwide computing platform co-ordinates all the logistics activities in real time.

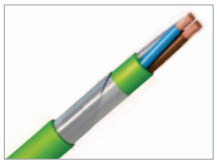
The Top Cable Automated logistic Centre has all the latest WMS (Warehouse Management System) technology.

At Top Cable we optimize the way in which we meet our clients requirements by saving them on multiple storage, distribution and administration costs.



Apart from our attention to detail in regard to logistics, Top Cable's sales teams offer unrivalled attention to the commercial side of the company.

We manufacture a Wide range of cables ranging from control cables for specialized applications to larger power cables for medium voltage applications in various industries. We supply cables for construction projects, railway, mining, marine, areonautical, military, OEM's and renewable energy plants. Conductors can be manufactured in both copper and aluminium with insulating materials varying depending on the application. Every part of the cable is specifically selected and the final product is produced to the highest quality, meeting international standards such as ISO 9002, IEC and CE.



ENVIRONMENTAL
& Corporate Social Responsibilities

We can speak of sales growth, benefits and assets yet this would be irrelevant without a sense of social and environmental responsibility as a company.

Top Cable is committed to protecting the environment. We strongly believe in using environmentally friendly processes in all stages of our production. One of our company's goals is to uphold Sustainable Social Development and seek to educate the public about the importance of keeping our planet green for future generations.

Top Cable is committed to protecting the environment.

The companies that form Top Cable have established recycling systems for the residues produced during the process of producing an electric cable.

Top Cable supports sustainable social development.

Top Cable

LOW VOLTAGE 300/500 V · 450/750 V

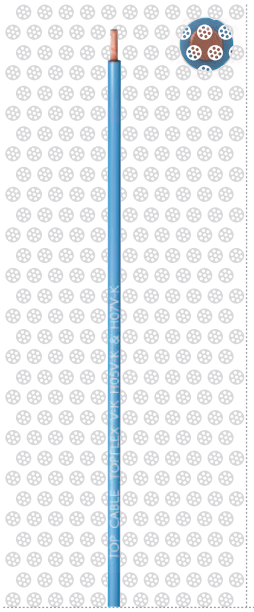
Based on: HD 21.3 / UNE 21031-3

HAR · AENOR · RoHS compliant

TOPFLEX V-K

H05V-K & H07V-K

Easy and safe Installations.



DESIGN

Conductor

Electrolytic copper, class 5 (flexible), based on EN 60228

Insulation

Extra sliding PVC.

The standard identification is the following:

Blue	RAL 5012	Grey	RAL 7000
Brown	RAL 8003	Dark Blue	RAL 5003
Black	RAL 9005	White	RAL 9010
Red	RAL 3000	Orange	RAL 2003
Yellow/green	RAL 1021 / RAL 6018		

Other colours available upon request

APPLICATIONS

The Topflex H05V-K & H07V-K cable has been specially designed for installations that require a flexible cable due to the complex nature of their layout. This cable is especially suitable for domestic wiring. It may also be used for equipment wiring, distributors, cabinets and lighting. In addition, it is recommended for installation under false ceilings. Cables with cross section, up to 1 mm2 are especially suited for signalling and monitoring installations.

Packaging

Small cross sections (from 0,75 mm2 to 6 mm2) are supplied in high resistant colour boxes (see table below). Medium cross sections (from 10 mm2 to 35 mm2) are supplied in 100 m sealed coils. Cross sections > 35 mm2 are supplied in drums.

BOX COLOUR GUIDE

COLOUR	CROSS SECTION	LENGHT (M) PER BOX
Violet	0,75 mm²	100 m
Green	1 mm²	100 m or 200 m
Red	1,5 mm²	100 m or 200 m
Blue	2,5 mm²	100 m
Brown	4 mm²	100 m
Grey	6 mm²	100 m

CHARACTERISTICS

- Rated Voltage: H05V-K (up to 1 mm2): 300/500 V. H07V-K (from 1,5 mm² onwards): 450/750 V.
- Maximum short-circuit temperature: 160ºC (max. 5 s)
- Chemical & oil resistance: acceptable
- Flexible conductor class 5
- Minimum bending radius: 5 x cable diameter
- Minimum service temperature: -15ºC
- Flame non-propagation
- Maximum service temperature:70ºC
- Water resistance AD3 aspersión

INSTALLATION CONDITIONS

- Domestic use
- In conduit
- Electrical panel wiring

National norm / European: EN 60332-1 International norm: IEC 60332-1

Top Cable

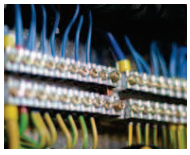
TOPFLEX V-K H05V-K & H07V-K

DIMENSIONS

Cross section (mm²)	Diameter (mm)	Weight (Kg/km)	In conduit 2 cores 30ºC (A)	In conduit 3 cores 30ºC (A)	Voltage drop (V/A · km)
1 x 0,75	2,3	11	11	-	62,4
1 x 1	2,5	13	14	-	46,8
1 x 1,5	2,9	19	17,5	15,5	31,9
1 x 2,5	3,6	30	24	21	19,2
1 x 4	4,1	44	32	28	11,9
1 x 6	4,6	61	41	36	7,92
1 x 10	5,9	104	57	50	4,58
1 x 16	7,0	158	76	68	2,90
1 x 25	8,7	245	101	89	1,87
1 x 35	9,9	334	125	110	1,33
1 x 50	11,8	480	151	134	0,926
1 x 70	13,5	654	192	171	0,653
1 x 95	15,6	863	232	207	0,494
1 x 120	17,3	1.095	269	239	0,386
1 x 150	19,3	1.378	-	275	0,310
1 x 185	21,5	1.672	-	314	0,254
1 x 240	24,5	2.206	-	370	0,192

For further technical data please request this cable's technical datasheet.

Top Cable reserves the right to carry out any modification to the data sheets whatsoever without giving previous notice.



Top Cable

Based on: HD 21 / UL 758 / CSA C22.2 / BS 6231

LOW VOLTAGE

H05V2-K 300/500 V · H07V2-K 450/750 V · CK 600/1000 V · UL 600V

TOPFLEX MS

TRI-RATED

The universal cable

DESIGN

Conductor

Electrolytic copper, class 5 (flexible), based on EN60228 and BS 6360.

Insulation

Flexible PVC, high service temperature type TI3 according to UNE 21031/HD 21 and Class 43 UL 1581. The special material used for isolation provides extra sliding properties to the cable.

APPLICATIONS

The Topflex Tri-rated cable has been designed for the internal wiring of electrical cabinets, switch boards and small electrical devices. Due to its manufacturing characteristics, it can be used in conduit or in flexible motor ducts, transformers and other machinery in general.

Packaging

Small cross sections (from 0,75 mm2 to 6 mm2) are supplied in high resistant boxes (see table below). Medium cross sections (from 10 mm2 to 35 mm2) are supplied in 100 m sealed coils. Cross sections > 35 mm2 are supplied in drums.

BOX COLOUR GUIDE

STYLE	CROSS SECTION	PACKAGING
1015	0,75-6 mm²	High resistant boxes
1028	10 mm²	Sealed coils
1283	16-35 mm²	Sealed coils
1284	>50 mm²	Drums

CHARACTERISTICS

- Flexible conductor class 5
- Minimum bending radius: 5 x cable diameter
- Chemical & oil resistance: acceptable
- Minimum service temperature: -40ºC (Fixed and protected installation)
- Meter by meter marking: from 10mm² onwards
- Maximum service temperature 90ºC based on HD and BS, 105ºC based on UL and CSA
- Flame non-propagation VW-1 / FT-2
- Maximum short-circuit temperature: 160ºC (max. 5 s)
- Water resistance AD3 aspersión

INSTALLATION CONDITIONS

- In conduit
- Electrical panel wiring

National norm / European: EN 60332-1 International norm: IEC 60332-1 / UL 2556

Top Cable

TOPFLEX MS TRI-RATED

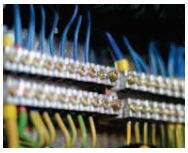
DIMENSIONS

Cross section (mm²)	Diameter (mm)	Weight (Kg/km)	In conduit 2 cores 30ºC (A)	In conduit 3 cores 30ºC (A)	Voltage drop (V/A · km)
1 x 0,75	2,7	13,2	15	13	66,6
1 x 1	2,9	15,8	18	16	49,9
1 x 1,5	3,1	20,4	23	20	34,0
1 x 2,5	3,6	29,9	31	28	20,4
1 x 4	4,1	43,9	42	37	12,7
1 x 6	4,7	61,7	54	48	8,45
1 x 10	7,2	124	75	66	4,89
1 x 16	8,2	180	100	88	3,10
1 x 25	9,6	262	133	117	2,00
1 x 35	10,7	357	164	144	1,42
1 x 50	13,2	517	198	175	0,99
1 x 70	14,9	707	253	222	0,696
1 x 95	16,6	910	306	269	0,527
1 x 120	18,0	1.150	354	312	0,412
1 x 150	20,5	1.440	407	358	0,330
1 x 185	22,5	1.730	464	408	0,271
1 x 240	25,1	2.240	546	481	0,205
1 x 300	28,0	2.800	628	553	0,164
1 x 400	31,6	3.670	751	661	0,124

TOPFLEX MS TRI-RATED

DIMENSIONS

Cross section (mm²)	AWG MCM	UE denomination CENELEC HD 21	GB denomination BS 6231	UL denomination UL 758	CSA denomination CSA 22.2
0,75	20 AWG	H05V2-K	CK	Style 1015	Type TEW
1	18 AWG	H05V2-K	CK	Style 1015	Type TEW
1,5	16 AWG	H07V2-K	CK	Style 1015	Type TEW
2,5	14 AWG	H07V2-K	CK	Style 1015	Type TEW
4	12 AWG	H07V2-K	CK	Style 1015	Type TEW
6	10 AWG	H07V2-K	CK	Style 1015	Type TEW
10	8 AWG	H07V2-K	CK	Style 1028	Type TEW
16	6 AWG	H07V2-K	CK	Style 1283	Type TEW
25	4 AWG	H07V2-K	CK	Style 1283	Type TEW
35	2 AWG	H07V2-K	CK	Style 1283	Type TEW
50	1 AWG	07V2-K	CK	Style 1284	Type TEW
70	2/0 AWG	07V2-K	CK	Style 1284	Type TEW
95	3/0 AWG	07V2-K	CK	Style 1284	Type TEW
120	4/0 AWG	07V2-K	CK	Style 1284	Type TEW
150	250 MCM	07V2-K	CK	Style 1284	-
185	350 MCM	07V2-K	CK	Style 1284	-
240	450 MCM	07V2-K	CK	Style 1284	-
300	550 MCM	07V2-K	-	Style 1284	-
400	750 MCM	07V2-K	-	Style 1284	-



For further technical data please request this cable's technical datasheet.

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Top Cable

Based on: HD 21.5 / UNE 21031-5

LOW VOLTAGE 300/500 V

TOPFLEX VV-F

H05VV-F

Flexible connection for interiors.

DESIGN

Conductor

Electrolytic copper, class 5 (flexible), based on EN 60228

Insulation

PVC.

The standard identification is the following

2x	Brown + Blue
3G	Brown + Blue + Yellow/green
4G	Brown + Black + Grey + Yellow/green
5G	Brown + Black + Grey + Blue + Yellow/green

Outer sheath

Flexible PVC. Standard colours are Grey, white and Black. Other colours available upon request.

APPLICATIONS

The multicore Topflex VV-F H05VV-F cable has been specially designed for connecting small home appliances such as vacuum cleaners, washing machines, refrigerators, etc. It is recommended for household installations and can also be used for light mobile services.

Packaging

Available in rolls (lengths of 50 and 100 m) and coils.

CHARACTERISTICS

- Flexible conductor class 5
- Minimum bending radius:3&4x cable diameter
- Outdor installation: permanent
- Minimum service temperature: 5ºC
- Meter by meter marking
- Water resistance AD5 water jet
- Maximum service temperature 60ºC
- Flame non-propagation
- Chemical & oil resistance: good
- Maximum short-circuit temperature: 150ºC (max. 5 s)
- Impact resistance: AGI weak impact

INSTALLATION CONDITIONS

- Domestic use
- In conduit
- Light mobile service
- Domestic appliances
- Open air

National Norm / European: EN 60332-1 International norm: IEC 60332-1

Top Cable

TOPFLEX VV-F H05VV-F

DIMENSIONS

Cross section (mm²)	Diameter (mm)	Weight (Kg/km)	Open Air 30ºC (A)	Buried 30ºC (A)	Voltage drop (V/A · km)
2 x 0,75	6,2	52	6	-	60,3
2 x 1	6,3	57	10	-	45,2
2 x 1,5	7,1	77	16	-	30,9
2 x 2,5	9,1	123	25	-	18,5
2 x 4	10,6	174	32	-	11,5
3 G 0,75	6,6	62	6	-	60,3
3 G 1	6,8	71	10	-	45,2
3 G 1,5	8,0	99	16	-	30,9
3 G 2,5	9,8	153	25	-	18,5
3 G 4	11,2	214	32	-	11,5
4 G 0,75	7,0	74	6	-	52,2
4 G 1	7,7	90	10	-	39,2
4 G 1,5	8,9	125	16	-	26,7
4 G 2,5	10,8	188	20	-	16,0
4 G 4	12,3	263	25	-	9,95
5 G 0,75	8,0	93	6	-	52,2
5 G 1	8,3	108	10	-	39,2
5 G 1,5	10,0	156	16	-	26,7
5 G 2,5	11,9	239	20	-	16,0
5 G 4	13,9	331	25	-	9,95

For further technical data please request this cable's technical datasheet.

Top Cable reserves the right to carry out any modification to the data sheets whatsoever without giving previous notice.

Based on: HD 22.4 / UNE 21027-4

HAR · AENOR · RoHS compliant

XTREM

H07RN-F

Power and flexibility to the limit.

DESIGN

Conductor

Electrolytic copper, class 5 or 6 (flexible), based on EN 60228

Insulation

Thermosetting rubber (type EI4).

The standard identification is the following:

1 x ..... natural
2 x ..... Brown + Blue
3 G ..... Brown + Blue + Yellow/green
4 G ..... Brown + Black + Grey + Yellow/green
5 G ..... Brown + Black + Grey + Blue + Yellow/green
6 G or more ..... Black numbered + Yellow/Green

Outer sheath

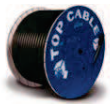
Thermosetting rubber (type EM2). Black colour.

APPLICATIONS

Top Cable H07RN-F cables are designed to supply power to low voltage appliances including electric motors and submersible pumps in deep water installations as well as many other types of electrical equipment. Thanks to its extraordinary flexibility and mechanical strength, the Xtrem H07RN-F cable is ideal for power transmission in both fixed instalation or mobile service. The cable has been manufactured using compounds which have much better behaviour than the ones specified in the standards. This fact makes the Xtrem H07RN-F cable a multipurpose one. Nominal voltage up to 1000 V possible thanks to the high dielectric properties of the insulation material (according to HD 516).

Pakaging

Available in rolls
(lengths of 50 and 100 m) and coils.



CHARACTERISTICS

- Flexible conductor, class 5/6
- Minimum bending radius 3&4 cable diameter
- Outdoor installation: permanent
- Grease & mineral oils resistance: excellent
- Industrial use
- Robotics
- Minimum service temperature: -25ºC
- Meter by meter marking
- Water resistance AD8 submerged
- Abrasion resistance: excellent
- Industrial mobile use
- Open air
- Maximum service temperature 90ºC
- Flame non-propagation
- Chemical & Oil resistance: excellent
- Anti-twist resistant: excellent
- Heavy mobile use
- Submerged
- Maximum short-circuit temperature: 250ºC (max. 5 s)
- Impact resistance AG2 medium impact
- Low temperature resistance: excellent (-25ºC)
- Submersible pumps
- Windmills
- Deep wells

INSTALLATION CONDITIONS

National norm / European: EN 60332-1 International norm: IEC 60332-1

XTREM H07RN-F

DIMENSIONS

Cros section (mm²)	Diameter (mm)	Weight (Kg/km)	Open Air 30ºC (A)	Buried 20ºC (A)	Voltage drop (V/A · km)
1 x 1,5	5,9	48	21	16	26,7
1 x 2,5	6,5	62	29	20	16,6
1 x 4	7,5	88	40	30	9,95
1 x 6	8,3	116	53	38	6,63
1 x 10	10,1	182	74	53	3,84
1 x 16	11,4	250	101	71	2,43
1 x 25	13,4	361	135	94	1,57
1 x 35	14,7	469	169	117	1,11
1 x 50	17,5	671	207	148	0,776
1 x 70	19,6	892	268	185	0,546
1 x 95	22,0	1.140	328	222	0,414
1 x 120	24,2	1.420	383	260	0,323
1 x 150	26,6	1.760	444	300	0,259
1 x 185	28,8	2.090	510	341	0,213
1 x 240	32,2	2.710	607	407	0,161
1 x 300	34,9	3.310	703	468	0,129
1 x 400	39,3	4.270	823	553	0,0976
1 x 500	43,1	5.390	946	634	0,0772
2 x 1	8,3	92	21	10	45,2
2 x 1,5	8,7	109	26	16	30,9
2 x 2,5	10,6	162	36	25	18,5
2 x 4	12,0	220	49	34	11,5
2 x 6	13,7	295	63	43	7,66
2 x 10	18,1	522	86	60	4,43
2 x 16	21,6	738	115	79	2,81
2 x 25	25,7	1.052	149	105	1,81
3 G 1	8,9	111	21	10	45,2
3 G 1,5	9,7	137	26	16	30,9
3 G 2,5	11,4	198	36	25	18,5
3 G 4	13,1	276	49	35	11,5
3 G 6	14,8	370	63	44	7,66
3 G 10	20,1	668	86	62	4,43
3 G 16	22,6	906	115	82	2,81
3 G 25	27,4	1.360	149	109	1,81
3 G 35	29,7	1.700	185	135	1,29
3 G 50	35,4	2.410	225	169	0,896
3 G 70	39,6	3.180	289	211	0,631
3 G 95	45,2	4.070	352	250	0,478
4 G 1	9,7	134	17	10	39,2
4 G 1,5	10,7	169	23	16	26,7
4 G 2,5	12,6	244	32	20	16,0
4 G 4	14,4	343	42	30	9,95
4 G 6	16,7	474	54	37	6,63
4 G 10	21,6	822	75	52	3,84
4 G 16	24,6	1.120	100	69	2,43
4 G 25	30,7	1.730	127	92	1,57
4 G 35	33,2	2.180	158	114	1,11
4 G 50	39,2	3.060	192	143	0,776
4 G 70	43,3	4.040	246	178	0,546
4 G 95	50,5	5.300	298	210	0,414
4 G 120	52,6	6.331	346	246	0,323
4 G 150	60,1	7.928	399	282	0,259
5 G 1	10,5	162	17	10	39,2
5 G 1,5	11,6	206	23	16	26,7
5 G 2,5	14,0	299	32	20	16,0
5 G 4	16,3	431	42	30	9,95
5 G 6	18,4	585	54	38	6,63
5 G 10	24,2	1.010	75	54	3,84
5 G 16	27,1	1.380	100	71	2,43
5 G 25	33,6	2.110	127	94	1,57
5 G 35	36,6	2.677	158	114	1,11
5 G 50	42,7	3.696	192	143	0,776
5 G 70	48,3	4.917	426	178	0,546
5 G 95	55,3	6.448	298	210	0,414
5 G 120	59,7	7.883	346	246	0,323
7 G 1,5	14,8	307	26	16	30,9
7 G 2,5	17,0	434	36	25	18,5
7 G 4	20,1	618	49	34	11,5
8 G 1,5	16,3	379	26	16	30,9

For further technical data please request this cable's technical datasheet.

Top Cable reserves the right to carry out any modification to the data sheets whatsoever without giving previous notice.

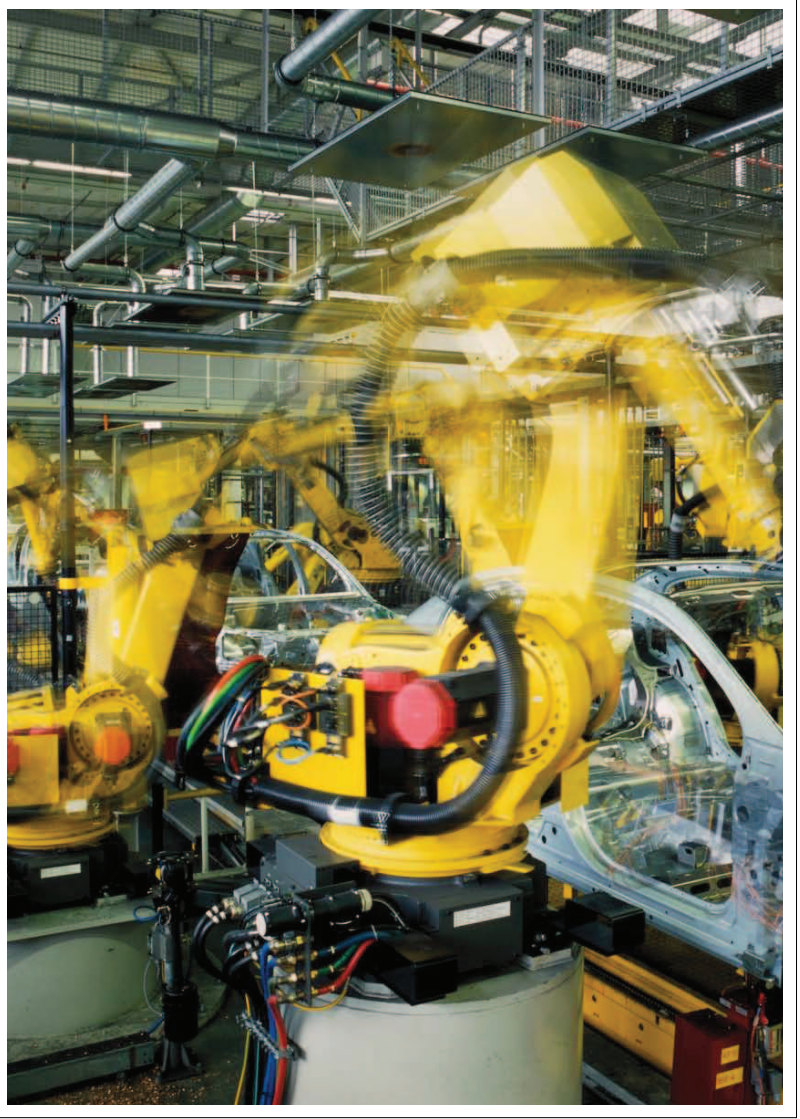
XTREM H07RN-F

DIMENSIONS

Cross section (mm²)	Diameter (mm)	Weight (Kg/km)	Open Air 30ºC (A)	Buried 20ºC (A)	Voltage drop (V/A · km)
8 G 2,5	18,4	525	36	25	18,5
8 G 4	22,2	767	49	34	11,5
12 G 1,5	17,5	456	26	16	30,9
12 G 2,5	20,4	654	36	25	18,5
16 G 1,5	20,8	605	26	16	30,9
16 G 2,5	24,5	880	36	25	18,5
18 G 1,5	20,5	646	26	16	30,9
18 G 2,5	24,3	939	36	25	18,5
24 G 1,5	23,7	830	26	16	30,9
24 G 2,5	27,7	1.207	36	25	18,5

For further technical data please request this cable's technical datasheet.

Top Cable reserves the right to carry out any modification to the data sheets whatsoever without giving previous notice.



Based on: UNE 21150

Top Cable

LOW VOLTAGE 0,6/1kV

RoHS compliant

XTREM DN-F

The 1.000 V rubber cable for heavy duty

DESIGN

Conductor

Electrolytic copper, class 5 or 6 (flexible), based on EN 60228

Insulation

Thermosetting Rubber (type EPR).

The standard identification is the following

1 x	natural
2 x	Brown + Blue
3 G	Brown + Blue + Yellow/green
4 G	Brown + Black + Grey + Yellow/green
5 G	Brown + Black + Grey + Blue + Yellow/green

Outer sheath

Thermosetting rubber (type ST1) Black colour.

APPLICATIONS

Flexible cable for mobile heavy duty. Suitable for installations in dry, damp or wet locations, outdoors, machines in industrial workshops, motors and transportable machines; on construction sites and for agricultural exploitations. Suitable for submerged installations (AD8) and for supplying power to low voltage appliances including electric motors and submersible pumps in deep water installations as well many other types of electrical equipment.

CHARACTERISTICS

- Flexible conductor class 5/6
- Minimum bending radius 3x cable diameter
- Outdoor installation: permanent
- Abrasion resistance: excellent
- Minimum service temperature: -25ºC
- Meter by meter marking
- Water resistance AD8 submerged
- Anti-twist resistant: excellent
- Maximum service temperature 90ºC
- Flame non-propagation
- Chemical & Oil resistance: permanent
- Maximum short-circuit temperature: 250ºC (max. 5 s)
- Impact resistance AG2 medium impact
- Grease & mineral oils resistance: excellent

INSTALLATION CONDITIONS

- Industrial use
- Open air
- Industrial mobile use
- Submerged
- Heavy mobile use
- Submersible pumps
- Windmills
- Deep wells

National norm / European: EN 60332-1 International norm: IEC 60332-1

Top Cable

XTREM DN-F

DIMENSIONS

Cros section (mm²)	Diameter (mm)	Weight (Kg/km)	Open Air 30ºC (A)	Buried 20ºC (A)	Voltage drop (V/A · km)
1 x 6	8,3	113	53	-	7,32
1 x 10	10,0	176	74	-	4,23
1 x 16	11,1	242	101	-	2,68
1 x 25	13,2	353	135	-	1,73
1 x 35	14,7	470	169	-	1,23
1 x 50	17,1	645	207	-	0,86
1 x 70	19,2	865	268	-	0,603
1 x 95	21,7	1.121	328	-	0,457
1 x 120	23,4	1.393	383	-	0,357
1 x 150	25,9	1.717	444	-	0,286
1 x 185	28,8	2.079	510	-	0,235
1 x 240	31,9	2.668	607	-	0,178
1 x 300	34,9	3.272	703	-	0,142
2 x 1,5	9,3	115	26	-	34,0
2 x 2,5	10,7	166	36	-	20,4
2 x 4	12,3	226	49	-	12,7
2 x 6	13,6	286	63	-	8,45
2 x 10	18,0	505	86	-	4,89
2 x 16	21,3	713	115	-	3,10
2 x 25	25,7	1.051	149	-	2,00
3 G 1,5	10,9	163	26	-	34,0
3 G 2,5	12,2	216	36	-	20,4
3 G 4	13,9	296	49	-	12,7
3 G 6	15,4	385	63	-	8,45
3 G 10	20,0	646	86	-	4,89
3 G 16	22,3	876	115	-	3,10
3 G 25	26,8	1.292	149	-	2,00
3 G 35	29,7	1.691	185	-	1,42
3 G 50	35,4	2.357	225	-	0,99
3 G 70	39,6	3.118	289	-	0,696
3 G 95	45,1	4.068	352	-	0,527
4 G 1,5	11,9	199	23	-	29,5
4 G 2,5	13,5	269	32	-	17,7
4 G 4	15,9	387	42	-	11,0
4 G 6	18,1	516	54	-	7,32
4 G 10	21,5	790	75	-	4,23
4 G 16	24,2	1.081	100	-	2,68
5 G 6	19,4	611	54	-	7,32
5 G 10	24,1	984	75	-	4,23
5 G 16	26,9	1.353	100	-	2,68

For further technical data please request this cable's technical datasheet.

Top Cable reserves the right to carry out any modification to the data sheets whatsoever without giving previous notice.

Based on: IEC 60502

Top Cable

LOW VOLTAGE 0,6/1kV

RoHS compliant

XTREM DN-K

The 1.000 V rubber cable for fixed installations

DESIGN

Conductor

Electrolytic copper, class 5 (flexible), based on EN 60228

Insulation

Thermosetting rubber (type EPR) Natural colour

Outer sheath

Thermosetting rubber (type ST1) Black colour.

APPLICATIONS

Flexible cable for fi xed installations. Suitable for transportation and distribution of electrical power in instalations where the cable must withstand medium mechanical aggression. It is highly recommended for use in installations in industrial and agricultural environments, engines and machines connection. At the same time, it is suitable for indoor or outdoor use, in damp or dry environments. Top Cable DN-K cables are designed to supply power to low voltage appliances including electric motors and submersible pumps in deep water installations as well as many other types of electrical equipment.

CHARACTERISTICS

- Flexible conductor Class 5
- Minimum bending radius 5x cable diameter
- Outdoor installation: permanent
- Grease & mineral oils resistance: excellent
- Minimum service temperature: -40ºC (Fixed and protected installation)
- Meter by meter marking
- Water resistance AD8 submerged
- Abrasion resistance: excellent
- Maximum service temperature 90ºC
- Flame non-propagation
- Chemical & Oil resistance: permanent
- Maximum short-circuit temperature: 250ºC (max. 5 s)
- Impact resistance AG2 medium impact
- Low temperature resistance: excellent

INSTALLATION CONDITIONS

- Industrial use
- Deep wells
- Open air
- Submerged
- Submersible pumps

National norm / European: EN 60332-1 International norm: IEC 60332-1

Top Cable

XTREM DN-K

DIMENSIONS

Cros section (mm²)	Diameter (mm)	Weight (Kg/km)	Open Air 30ºC (A)	Buried 20ºC (A)	Voltage drop (V/A · km)
1 x 10	8,7	150	74	61	4,23
1 x 16	9,8	210	101	79	2,68
1 x 25	11,3	300	135	101	1,73
1 x 35	12,6	400	169	122	1,23
1 x 50	14,7	560	207	144	0,860
1 x 70	16,6	760	268	178	0,603
1 x 95	18,7	990	328	211	0,457
1 x 120	20,3	1.230	383	240	0,357
1 x 150	22,4	1.530	444	271	0,286
1 x 185	25,0	1.850	510	304	0,235
1 x 240	28,2	2.420	607	351	0,178
1 x 300	31,3	3.030	703	396	0,142

For further technical data please request this cable's technical datasheet.

Top Cable reserves the right to carry out any modification to the data sheets whatsoever without giving previous notice.

Based on: HD 22.6 / UNE 21027-6

Top Cable

LOW VOLTAGE 100/100V

TOPWELD

H01N2-D

The special cable for welding.

DESIGN

Conductor

Electrolytic copper, class D (flexible), based on UNE 21027-6

Outer sheath

Thermosetting rubber (type EM5). Black colour.

APPLICATIONS

The Topweld H01N2-D cable has been specially designed for transmitting high currents between the welding generator and the electrode. The high degree of flexibility makes using the welding tool easier and also prevents knots from forming in the cable that could cause the internal conductor to break. It can also be used in automatic welding machines, transport belts, and production or assembly lines, for example in automobile assembly lines.

CHARACTERISTICS

- Flexible conductor class 5
- Minimum bending radius 5x cable diameter
- Outdoor installation: permanent
- Abrasion resistance: excellent
- Minimum service temperature: -20ºC
- Meter by meter marking
- Water resistance AD3 aspersion
- Maximum service temperature 85ºC
- Flame non-propagation
- Chemical & Oil resistance: permanent
- Maximum short-circuit temperature: 250ºC (max. 5 s)
- Impact resistance AG2 medium impact
- Grease & mineral oils resistance: excellent

INSTALLATION CONDITIONS

- Industrial use
- Welding

National norm / European: EN 60332-1 International norm: IEC 60332-1

TOPWELD H01N2-D

DIMENSIONS

Cross Section (mm²)	Diameter (mm)	Weight (Kg/km)	Maximum current for a 5 minute period 100%	85%	60%	35%	Voltage drop (V) (100A, 10 m)
1 x 10	8,0	139	100	103	108	122	2,450
1 x 16	9,1	195	135	145	175	230	1,560
1 x 25	10,3	279	180	195	230	300	0,998
1 x 35	11,4	373	225	245	290	375	0,709
1 x 50	13,4	520	285	305	365	480	0,493
1 x 70	15,5	724	355	380	460	600	0,348
1 x 95	17,4	947	430	470	560	730	0,264
1 x 120	19,4	1.197	500	540	650	850	0,206
1 x 150	21,5	1.477	580	630	750	980	0,166
1 x 185	23,9	1.788	665	720	860	1.120	0,136

For further technical data please request this cable's technical datasheet.

Top Cable reserves the right to carry out any modification to the data sheets whatsoever without giving previous notice.

Based on: HD 359 - UNE-EN 50214

Top Cable

LOW VOLTAGE 300/500 V 450/750 V

TOPFLAT

H07VVH6-F

Flexibility when moving.

DESIGN

Conductor

Electrolytic copper, class 5 (flexible), based on EN 60228

Insulation

Flexible PVC.

The standard identification is the following:

4 G ..... Brown + Black + Grey + Yellow/green

6 or more conductors ..... Black numbered+ Yellow/green

Outer sheath

Flexible PVC outer sheath, black colour.

APPLICATIONS

The Topflat H07VVH6-F cable is specially suitable for connecting overhead cranes, devices for operating racks, hoists, lifts, etc. The hanging length of the cable can reach up to 35m and its pull out speed can reach up to 1.6 m/s (overlaying cables is not recommended when installing).

CHARACTERISTICS

- Flexible conductor Class 5
- Minimum bending radius 25 x cable thickness
- Outdoor installation: occasional
- Minimum service temperature: 0ºC
- Meter by meter marking
- Water resistance AD6 waves
- Maximum service temperature 70ºC
- Flame non-propagation
- Chemical & Oil resistance: good
- Maximum short-circuit temperature: 160ºC (max. 5 s)
- Impact resistance AG2 medium impact

INSTALLATION CONDITIONS

- Industrial use
- Crane bridges
- Elevators
- Robotics

National norm / European: EN 60332-1 International norm: IEC 60332-1

TOPFLAT H07VVH6-F

DIMENSIONS

Cros section (mm²)	Dimensions (mm)	Weight (Kg/km)	Open air at 30ºC (A)	Buried 20ºC (A)	Voltage drop (V/A · km)
6 G 0,75	17 x 3,9	114	14	-	62,4
8 G 0,75	22 x 3,9	171	14	-	62,4
12 G 0,75	31 x 3,9	229	14	-	62,4
16 G 0,75	41 x 3,9	304	14	-	62,4
20 G 0,75	50 x 3,9	380	14	-	62,4
24 G 0,75	60 x 3,9	447	14	-	62,4
4 G 1	12 x 4,1	97	14	-	40,5
6 G 1	18 x 4,1	140	17	-	46,8
8 G 1	23 x 4,1	182	17	-	46,8
12 G 1	33 x 4,1	267	17	-	46,8
16 G 1	44 x 4,1	352	17	-	46,8
20 G 1	55 x 4,1	437	17	-	46,8
24 G 1	65 x 4,1	523	17	-	46,8
4 G 1,5	17 x 5,3	149	18,5	-	27,6
6 G 1,5	22 x 5,3	213	22	-	31,9
8 G 1,5	28 x 5,3	271	22	-	31,9
12 G 1,5	41 x 5,3	399	22	-	31,9
16 G 1,5*	54 x 5,3	528	22	-	31,9
4 G 2,5	21 x 5,9	219	25	-	16,6
6 G 2,5	27 x 5,9	309	30	-	19,2
8 G 2,5	34 x 5,9	399	30	-	19,2
12 G 2,5	50 x 5,9	590	30	-	19,2
4 G 4	23 x 7,0	301	34	-	10,3
4 G 6	25 x 7,2	389	43	-	6,86
4 G 10	30 x 9,3	640	60	-	3,97
4 G 16	35 x 10,5	928	80	-	2,51
4 G 25	44 x 13,1	1.435	101	-	1,62
4 G 35*	48 x 14,4	1.880	126	-	1,15
4 G 50*	57 x 16,3	2.580	153	-	0,802
4 G 70*	62 x 17,8	3.374	196	-	0,565

(*) These cables are not covered by the reference standard, therefore they do not carry the H of harmonized.

For further technical data please request this cable's technical datasheet.

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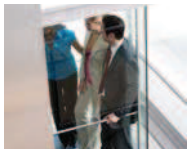


Top Cable

LOW VOLTAGE 300/500 V

Based on: UNE 21031-5 1C

RoHS compliant

FLEXTEL 110

ES05VV-F

Extreme flexibility when moving

DESIGN

Conductor

Electrolytic copper, class 5, based on EN 60228.

Insulation

Flexible PVC insulation, type TI2 according to HD 21.

The standard identification, is the following:

6 or more ..... Black numbered + Green / yellow

Outer sheath

Flexible PVC, grey colour.

APPLICATIONS

Flexible cable for mobile service. Suitable for the connection of machinery parts used in manufacturing, including machine tools. Suitable for indoor use. Its installation is recommended in fixed ducts. Not suitable for buried installations.

CHARACTERISTICS

- Flexible conductor class 5
- Minimum bending radius: 5x cable diameter
- Outdor installation: OCCASIONAL
- Minimum service temperature: 5ºC
- Meter by meter marking
- Water resistance AD5 water jet
- Maximum service temperature 60ºC
- Flame non-propagation
- Chemical & oil resistance: good
- Maximum short-circuit temperature: 150ºC (max. 5 s)
- Impact resistance: AGI weak impact

INSTALLATION CONDITIONS

- Domestic use
- Domestic appliances
- Open air
- In conduit

National Norm / European: EN 60332-1 International norm: IEC 60332-1

Top Cable

FLEXTEL 110 ES05VV-F

Cross section (mm²)	Diameter (mm)	Weight (Kg/km)	Open Air 30ºC (A)	Buried 30ºC (A)	Voltage drop (V/A · km)
6 x 1	9,0	127	10	-	45,2
7 x 1	9,5	141	10	-	45,2
8 x 1	10,3	163	10	-	45,2
10 x 1	11,4	198	10	-	45,2
12 x 1	12,4	231	10	-	45,2
14 x 1	12,8	268	10	-	45,2
16 x 1	14,3	308	10	-	45,2
19 x 1	15,0	351	10	-	45,2
24 x 1	16,7	435	10	-	45,2
27 x 1	17,9	479	10	-	45,2
30 x 1	18,2	515	10	-	45,2
33 x 1	19,8	575	10	-	45,2
37 x 1	20,2	622	10	-	45,2
44 x 1	22,5	763	10	-	45,2
52 x 1	24,0	884	10	-	45,2
61 x 1	25,7	1030	01	-	45,2

For further technical data please request this cable's technical datasheet.

Top Cable reserves the right to carry out any modification to the data sheets whatsoever without giving previous notice.

Top Cable

LOW VOLTAGE 300/500 V

Based on: HD21.13 / UNE 21031-13

HAR AENOR RoHS compliant

FLEXTEL 140

H05VV5-F

The harmonised oil resistant control cable

DESIGN

Conductor

Electrolytic copper, class 5, based on EN 60228

Insulation

PVC.

The standard identification is the following:

2 x ..... Black numbered

3 or more conductors ..... Black numbered+ Yellow/green

Outer sheath

Flexible PVC oil resistant outer sheath, grey colour.

APPLICATIONS

The Flextel 140 H05VV5-F cable is ideal for signalling and control systems. It is especially suitable for connecting industrial equipment and machine tools. Due to its properties, it is recommended for robotics and light mobile services. Its special vinilic outer sheath compound is particularly resistant to mineral oils and other chemical agents. It can be installed in either dry or humid environments.

CHARACTERISTICS

- Flexible conductor class 5
- Minimum bending radius: 3&4 x cable diameter
- Outdor installation: occasional
- Minimum service temperature: 5ºC
- Meter by meter marking
- Water resistance AD5 water jet
- Maximum service temperature 60ºC
- Flame non-propagation
- Oil resistance: excellent
- Maximum short-circuit temperature: 150ºC (max. 5 s)
- Impact resistance: AGI weak impact
- Chemical & oil resistance: good

INSTALLATION CONDITIONS

- Industrial mobile use
- In conduit
- Robotics
- Damp environment
- Open air

National Norm / European: EN 60332-1 International norm: IEC 60332-1

Top Cable

FLEXTEL 140 H05VV5-F

DIMENSIONS

Cross section (mm²)	Diameter (mm)	Weight (Kg/km)	Open Air 30ºC (A)	Buried 30ºC (A)	Voltage drop (V/A · km)
2 x 0,75	6,2	50	6	-	60,3
3 G 0,75	6,5	60	6	-	60,3
4 G 0,75	7,0	72	6	-	60,3
5 G 0,75	8,0	91	6	-	60,3
7 G 0,75	9,6	124	6	-	60,3
8 G 0,75	9,6	132	6	-	60,3
12 G 0,75	11,3	187	6	-	60,3
18 G 0,75	13,8	277	6	-	60,3
27 G 0,75	16,5	391	6	-	60,3
36 G 0,75	19,3	508	6	-	60,3
2 x 1	6,3	55	10	-	45,2
3 G 1	6,8	69	10	-	45,2
4 G 1	7,6	87	10	-	45,2
5 G 1	8,3	104	10	-	45,2
6 G 1	9,0	125	10	-	45,2
7 G 1	10,1	144	10	-	45,2
8 G 1	10,1	156	10	-	45,2
10 G 1	11,2	194	10	-	45,2
12 G 1	12,1	225	10	-	45,2
14 G 1	12,6	262	10	-	45,2
16 G 1	14,0	301	10	-	45,2
18 G 1	14,8	332	10	-	45,2
24 G 1	16,2	420	10	-	45,2
27 G 1	17,6	470	10	-	45,2
30 G 1	17,9	506	10	-	45,2
33 G 1	18,8	561	10	-	45,2
36 G 1	19,9	601	10	-	45,2
44 G 1	22,6	737	10	-	45,2
52 G 1	23,6	868	10	-	45,2
60 G 1	25,5	994	10	-	45,2
2 x 1,5	7,1	74	16	-	30,9
3 G 1,5	8,0	97	16	-	30,9
4 G 1,5	8,9	122	16	-	30,9
5 G 1,5	10,0	151	16	-	30,9
6 G 1,5	10,7	176	16	-	30,9
7 G 1,5	11,9	205	16	-	30,9
8 G 1,5	11,9	222	16	-	30,9
10 G 1,5	13,1	271	16	-	30,9
12 G 1,5	13,8	313	16	-	30,9
14 G 1,5	15,1	365	16	-	30,9
16 G 1,5	16,3	421	16	-	30,9
18 G 1,5	17,0	463	16	-	30,9
24 G 1,5	19,6	606	16	-	30,9
27 G 1,5	20,8	667	16	-	30,9
30 G 1,5	21,7	729	16	-	30,9
33 G 1,5	22,7	797	16	-	30,9
36 G 1,5	23,3	872	16	-	30,9
44 G 1,5	26,0	1.057	16	-	30,9
52 G 1,5	28,1	1.239	16	-	30,9
60 G 1,5	29,7	1.420	16	-	30,9
2 x 2,5	9,1	119	25	-	18,5
3 G 2,5	9,6	145	25	-	18,5
4 G 2,5	10,8	184	25	-	18,5
5 G 2,5	12,0	228	25	-	18,5
6 G 2,5	12,8	263	25	-	18,5
7 G 2,5	13,9	304	25	-	18,5
8 G 2,5	14,3	342	25	-	18,5
10 G 2,5	15,7	413	25	-	18,5
12 G 2,5	16,8	780	25	-	18,5
14 G 2,5	18,5	560	25	-	18,5
16 G 2,5	19,7	646	25	-	18,5
18 G 2,5	20,9	717	25	-	18,5
24 G 2,5	23,5	921	25	-	18,5
27 G 2,5	25,0	1.022	25	-	18,5
30 G 2,5	26,3	1.119	25	-	18,5
33 G 2,5	27,4	1.235	25	-	18,5
36 G 2,5	28,7	1.340	25	-	18,5
44 G 2,5	33,2	1.626	25	-	18,5
52 G 2,5	34,6	1.900	25	-	18,5
60 G 2,5	37,1	2.215	25	-	18,5

For further technical data please request this cable's technical datasheet.

Top Cable reserves the right to carry out any modification to the data sheets whatsoever without giving previous notice.

Top Cable

LOW VOLTAGE 0,6/1kV

Based on: IEC 60502 / UNE 21123-1

RoHS compliant

FLEXTEL 200

VV-K

The 0,6/1kV control cable

DESIGN

Conductor

Electrolytic copper, class 5, based on EN 60228

Insulation

PVC.

The standard identification is the following:

1 x	Natural
2 x	Brown + Blue
3 G	Brown + Blue + Yellow/green
3 x	Brown + Black +Blue
3 x + 1	Brown + Black + Black + Blue (reduced cross section)
4 G	Brown + Black + Blue + Yellow/green
4 x	Brown + Black + Black + Blue
5 G	Brown + Black + Black + Blue + Yellow/green
6 or more conductors	Black numbered+ Yellow/green

Other identifications are possible on request.

Outer sheath

Flexible PVC outer sheath, black colour. Other colours available on request.

APPLICATIONS

The Flextel 200 VV-K cable is suitable for fixed installations with complex layouts where flexible cables are required. It is also used for connecting motors or frequency converters. The characteristics of the outer sheath material make this cable extremely versatile as it provides a high level of protection in all types of environments.

CHARACTERISTICS

- Flexible conductor class 5
- Minimum service temperature: -40ºC (Fixed and protected installation)
- Maximum service temperature 70ºC
- Maximum short-circuit temperature: 160ºC (max. 5 s)
- Minimum bending radius 5x cable diameter
- Meter by meter marking
- Flame non-propagation
- Impact resistance: AGI weak impact
- Outdoor installation: occasional
- Water resistance AD6 waves
- Oil resistance: good

INSTALLATION CONDITIONS

- Industrial mobile use
- Damp environment
- Open air
- Buried
- Open air

National Norm / European: EN 60332-1 International norm: IEC 60332-1

Top Cable

FLEXTEL 200 VV-K

DIMENSIONS

Cross section (mm²)	Diameter (mm)	Weight (Kg/km)	Open Air 30ºC (A)	Buried 30ºC (A)	Voltage drop (V/A · km)
1 x 10	8,8	151	60	52	3,97
1 x 16	9,9	208	82	67	2,51
1 x 25	11,4	303	110	86	1,62
1 x 35	12,7	401	137	103	1,15
1 x 50	14,6	557	167	122	0,802
1 x 70	16,5	756	216	151	0,565
1 x 95	18,7	976	264	179	0,428
1 x 120	20,5	1.220	308	203	0,335
1 x 150	22,7	1.530	356	230	0,268
1 x 185	25,3	1.870	409	258	0,220
1 x 240	28,3	2.420	485	297	0,166
2 x 1,5	9,0	106	22	22	31,9
2 x 2,5	10,0	138	30	29	19,2
2 x 4	11,8	200	40	38	11,9
2 x 6	12,8	253	51	47	7,92
2 x 10	15,6	398	70	63	4,58
2 x 16	17,7	547	94	81	2,90
3 x 1,5	9,5	125	22	22	31,9
3 x 2,5	10,5	165	30	29	19,2
3 x 4	12,5	243	40	38	11,9
3 x 6	13,6	313	51	47	7,92
3 x 10	16,5	498	70	63	4,58
3 x 16	18,2	680	80	67	2,51
3 x 25	21,0	1.000	101	86	1,62
3 x 35	24,9	1.360	126	103	1,15
3 x 16 + 1 x 10	19,4	780	80	67	2,51
3 x 25 + 1 x 16	23,8	1.200	101	86	1,62
3 x 35 + 1 x 16	26,8	1.530	126	103	1,15
3 x 50 + 1 x 25	31,8	2.280	153	122	0,802
3 x 70 + 1 x 35	36,1	3.080	196	151	0,565
3 x 95 + 1 x 50	41,8	4.060	238	179	0,428
3 x 120 + 1 x 70	45,6	5.090	276	203	0,335
3 x 150 + 1 x 70	50,2	6.250	319	230	0,268
3 x 185 + 1 x 95	55,4	7.610	364	258	0,220
3 x 240 + 1 x 120	62,6	9.850	430	297	0,166
4 x 1,5	10,3	150	18,5	18	27,6
4 x 2,5	11,5	201	25	24	16,6
4 x 4	13,7	298	34	31	10,3
4 x 6	14,9	387	43	39	6,86
4 x 10	18,1	619	60	52	3,97
4 x 16	20,0	835	80	67	2,51
5 x 1,5	11,2	180	18,5	18	27,6
5 x 2,5	12,4	241	25	24	16,6
5 x 4	15,0	360	34	31	10,3
5 x 6	16,3	470	43	39	6,86
5 x10	19,8	752	60	52	3,97
5 x 16	22,7	1.080	80	67	2,51
6 x 1,5	12,1	212	22	22	31,9
6 x 2,5	14,1	301	30	29	19,2
7 x 1,5	12,1	227	22	22	31,9
7 x 2,5	14,2	329	30	29	19,2
7 x 4	15,7	444	40	38	11,9
7 x 6	17,4	592	51	47	7,92
8 x 1,5	13,3	262	22	22	31,9
8 x 2,5	15,1	366	30	29	19,2
10 x 1,5	14,1	303	22	22	31,9
10 x 2,5	16,7	447	30	29	19,2
12 x 1,5	15,3	351	22	22	31,9
12 x 2,5	18,0	514	30	29	19,2
14 x 1,5	15,9	395	22	22	31,9
14 x 2,5	19,1	584	30	29	19,2
16 x 1,5	16,9	448	22	22	31,9
16 x 2,5	20,1	661	30	29	19,2
19 x 1,5	17,6	506	22	22	31,9
19 x 2,5	21,1	753	30	29	19,2
24 x 1,5	19,7	617	22	22	31,9
24 x 2,5	23,4	914	30	29	19,2
27 x 1,5	20,9	673	22	22	31,9
30 x 1,5	21,5	727	22	22	31,9
37 x 1,5	23,1	874	22	22	31,9
44 x 1,5	25,4	1.040	22	22	31,9
52 x 1,5	27,3	1.210	22	22	31,9
61 x 1,5	29,1	1.400	22	22	31,9

For further technical data please request this cable's technical datasheet.

Top Cable reserves the right to carry out any modification to the data sheets whatsoever without giving previous notice.

Top Cable

LOW VOLTAGE 300/500 V

Based on: HD21 - UNE 21031

RoHS compliant

SCREENFLEX 110

LiYCY

Safe signal transmission.

DESIGN

Conductor

Electrolytic copper, class 5, based on EN 60228

Insulation

PVC.

The standard identification is the following:

2 x	Blue + Brown
3 G	Blue + Brown + Yellow/green
4 G	Brown + Black + Grey + Yellow/green
4 x	Brown + Black + Grey + Blue
5 G	Brown + Black + Grey + Yellow/green + Blue
6 or more	Black numbered + Yellow/green.

Other identifications (JZ, OZ, J, Z) are available upon request.

Separator

Polyester tape

Screen

Tinned copper braided screening

Outer sheath

Flexible PVC, Black or grey colour.

APPLICATIONS

Screenflex 110 is a screened control cable. It is used in all types of signal transmission connections where the voltage induced by an exterior electromagnetic field may affect the signal transmitted. Its most common applications are: control circuits, electronic equipment connections, computer systems, etc.

CHARACTERISTICS

- Flexible conductor class 5
- Minimum service temperature: -40ºC (Fixed and protected installation)
- Maximum service temperature 70ºC
- Maximum short-circuit temperature: 160ºC (max. 5 s)
- Minimum bending radius 5x cable diameter
- Meter by meter marking
- Flame non-propagation
- Fire non-propagation (only grey outer sheath)
- Impact resistance: AGI weak impact
- Outdoor installation: occasional
- Water resistance AD5 water jet
- Che,ical & Oil resistance: good
- Electric fields resistant

INSTALLATION CONDITIONS

- Industrial use
- Domestic use
- Damp environment

National Norm / European: EN 60332-1 / EN 60332-3 International norm: IEC 60332-1 / IEC 60332-3

Top Cable

SCREENFLEX 110 LiYCY

DIMENSIONS

Cross section (mm²)	Diameter (mm)	Weight (Kg/km)	Open Air 30ºC (A)	Buried 20ºC (A)	Voltage drop (V/A · km)
2 x 1	7,4	72	10	-	46,8
2 x 1,5	7,8	83	16	-	31,9
3 G 1	7,6	86	10	-	46,8
3 G 1,5	8,5	106	16	-	31,9
4 G 1	8,1	103	10	-	46,8
4 G 1,5	9,2	129	16	-	31,9
5 G 1	9,2	126	10	-	46,8
5 G 1,5	10,2	161	16	-	31,9
6 G 1	10,0	153	10	-	46,8
6 G 1,5	11,6	202	16	-	31,9
7 G 1	10,0	163	10	-	46,8
7 G 1,5	11,6	217	16	-	31,9
8 G 1	11,1	188	10	-	46,8
8 G 1,5	12,6	246	16	-	31,9
10 G 1	12,0	220	10	-	46,8
10 G 1,5	13,9	297	16	-	31,9
12 G 1	13,0	260	10	-	46,8
12 G 1,5	14,6	343	16	-	31,9
14 G 1	13,2	287	10	-	46,8
14 G 1,5	15,7	389	16	-	31,9
16 G 1	14,6	328	10	-	46,8
16 G 1,5	16,9	447	16	-	31,9
19 G 1	15,5	380	10	-	46,8
19 G 1,5	17,6	508	16	-	31,9
24 G 1	16,8	458	10	-	46,8
24 G 1,5	19,8	631	16	-	31,9
30 G 1	18,3	552	10	-	46,8
30 G 1,5	21,7	763	16	-	31,9
37 G 1	20,4	672	10	-	46,8
37 G 1,5	23,5	924	16	-	31,9

For further technical data please request this cable's technical datasheet.

Top Cable reserves the right to carry out any modification to the data sheets whatsoever without giving previous notice.

Top Cable

LOW VOLTAGE 0.6/1KV

Based on: IEC 60502

RoHS compliant

SCREENFLEX 200 VC4V-K

Power transmission without interference

DESIGN

Conductor

Electrolytic copper, class 5, based on EN 60228

Insulation

PVC.

The standard identification is the following:

1 x	natural
2 x	Brown + Blue
3 x	Brown + Black + Grey
3G	Blue + Brown + Yellow/green
3 x + 1 x	Brown + Black + Grey + Blue (reduced cross section)
4 x	Brown + Black + Grey + Blue
5 G	Brown + Black + Grey + Yellow/green + Blue
6 G	Black numbered + Yellow/green.

Other identifications (JZ, OZ, J, Z) are available upon request.

Separator

Polyester tape

Screen

Tinned copper braided screening

Outer sheath

Flexible PVC, Black or grey colour.

APPLICATIONS

Screenflex 200 is a screened power supply and control cable. It is used in power supply connections to minimize the generation of electromagnetic fields, in order to protect nearby electronic equipment or signal cables.

CHARACTERISTICS

Flexible conductor class 5
Minimum bending radius 5x cable diameter
Impact resistance: AG2 medium impact
Electric fields resistant

Minimum service temperature: -40ºC (Fixed and protected installation)
Meter by meter marking
Outdor installation: permanent

Maximum service temperature 70ºC
Flame non-propagation
Water resistance AD5 water jet

Maximum short-circuit temperature: 160ºC (max. 5 s)
Fire non-propagation (only grey outer sheath)
Che,ical & Oil resistance: good

INSTALLATION CONDITIONS

Industrial use
Damp environment
Open air
In conduit
Buried

National Norm / European: EN 60332-1 / EN 60332-3 International norm: IEC 60332-1 / IEC 60332-3

Top Cable

SCREENFLEX 200 VC4V-K

DIMENSIONS

Cross section (mm²)	Diameter (mm)	Weight (Kg/km)	Open Air 30ºC (A)	Buried 20ºC (A)	Voltage drop (V/A · km)
1 x 10	11,7	225	60	52	3,97
1 x 16	12,6	290	82	67	2,51
1 x 25	14,5	401	110	86	1,62
1 x 35	15,6	510	137	103	1,15
1 x 50	17,5	672	167	122	0,802
1 x 70	19,6	897	216	151	0,565
1 x 95	21,7	1.138	264	179	0,428
1 x 120	23,3	1.392	308	203	0,335
1 x 150	25,6	1.714	356	230	0,268
1 x 185	27,4	2.010	409	258	0,220
1 x 240	31,4	2.649	485	297	0,166
1 x 300	34,3	3.251	561	336	0,133
2x 2,5	9,5	123	30	29	19,2
2 x 4	11,3	168	40	38	11,9
2 x 6	12,4	213	51	47	7,92
2 x 10	15,2	335	70	63	4,58
2 x 16	17,5	463	94	81	2,90
2 x 25	21,4	667	119	104	1,87
2 x 35	24,2	892	148	125	1,33
3 G 2,5	10,7	165	30	29	19,2
3 G 4	11,7	215	40	38	11,9
3 G 6	12,9	284	51	47	7,92
3 G 10	16,1	450	70	63	4,58
3 x 16	18,7	628	80	67	2,51
3 x 25	23,1	961	101	86	1,62
3 x 35	25,2	1.251	126	103	1,15
3 x 50	29,6	1.744	153	122	0,802
3 x 70	33,6	2.360	196	151	0,565
3 x 16 + 1 x 10	21,5	812	80	67	2,51
3 x 25 + 1 x 16	24,6	1.122	101	86	1,62
3 x 35 + 1 x 16	27,3	1.437	126	103	1,15
3 x 50 + 1 x 25	31,1	1.983	153	122	0,802
3 x 70 + 1 x 35	35,4	2.738	196	151	0,565
3 x 95 + 1 x 50	40,9	3.599	238	179	0,428
4 x 2,5	11,7	204	25	24	16,6
4 x 4	12,6	272	34	31	10,3
4 x 6	14,4	358	43	29	6,86
4 x 10	17,5	570	60	52	3,97
4 x 16	20,1	814	80	67	2,51
4 x 25	24,5	1.224	101	86	1,62
4 x 35	28,2	1.654	126	103	1,15
4 x 50	32,3	2.266	153	122	0,802
4 x 70	37,5	3.102	196	151	0,565
4 x 95	42,6	4.017	238	179	0,428
5 G 2,5	12,6	246	25	24	16,6
5 G 4	14,3	336	34	31	10,3
5 G 6	16,0	447	43	39	6,86
5 G 10	19,6	722	60	52	3,97
5 G 16	22,3	1.030	80	67	2,51
5 G 25	28,1	1.562	101	86	1,62
5 G 35	31,3	2.097	126	103	1,15
6 G 2,5	14,0	291	30	29	19,2
7 G 2,5	13,7	314	30	29	19,2
10 G 2,5	16,3	434	30	29	19,2
12 G 2,5	17,5	505	30	29	19,2
14 G 2,5	19,8	593	30	29	19,2
16 G 2,5	20,0	660	30	29	19,2
19 G 2,5	21,0	755	30	29	19,2
24 G 2,5	24,1	974	30	29	19,2
27 G 2,5	25,0	1.054	30	29	19,2
30 G 2,5	26,0	1.153	30	29	19,2
37 G 2,5	28,5	1.377	30	29	19,2

For further technical data please request this cable's technical datasheet.

Top Cable reserves the right to carry out any modification to the data sheets whatsoever without giving previous notice.

Top Cable

LOW VOLTAGE 0,6/1KV

Based on: IEC 60502 - UNE 21123-2

CEBEC KEMA KEUR BUREAU VERITAS AENOR RoHS compliant

POWERFLEX RV-K

The universal flexible cable for power transmission.

DESIGN

Conductor

Electrolytic copper, class 5 (flexible), based on EN 60228

Insulation

XLPE.

The standard identification is the following:

1 x	Natural
2 x	Blue + Brown
3 G	Blue + Brown + Yellow/green
3 x	Brown + Black + Grey
3 x + 1 x	Brown + Black + Grey + Blue (reduced cross-section)
4 G	Brown + Black + Grey + Yellow/green
4 x	Brown + Black + Grey + Blue
5 G	Brown + Black + Grey + Yellow/green + Blue

Outer sheath

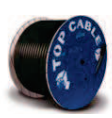
Flexible PVC outer sheath, black colour.

APPLICATIONS

This cable for power distribution is suitable for all types of low voltage industrial-type connections, in urban grids, building installations, etc. Its high flexibility makes the installation process substantially easier and, as a result, is particularly suitable for use in difficult layouts. It can be buried or installed in a tube as well as outdoors without requiring additional protection. The Powerflex RV-K cable can withstand damp conditions including total immersion in water.

Packaging

Available in rolls (lengths of 50 and 100 m) and coils.



CHARACTERISTICS

Flexible conductor class 5
Minimum bending radius: 5 x cable diameter
Outdor installation: permanent

Minimum service temperature: -40ºC (Fixed and protected installation)
Meter by meter marking
Water resistance AD7 immersion

Maximum service temperature 90ºC
Flame non-propagation
Chemical & oil resistance: good

Maximum short-circuit temperature: 250ºC (max. 5 s)
Impact resistance: AG2 medium impact

INSTALLATION CONDITIONS

Industrial use
Damp environment
Open air
Buried
In conduit

National norm / European: EN 60332-1 International norm: IEC 60332-1

Top Cable

POWERFLEX RV-K

DIMENSIONS

Cross section (mm²)	Diameter (mm)	Weight (Kg/km)	Open Air 30ºC (A)	Buried 20ºC (A)	Voltage drop (V/A · km)
1 x 1,5	5,7	42	23	22	29,5
1 x 2,5	6,2	54	29	29	17,7
1 x 4	6,7	70	40	37	11,0
1 x 6	7,3	90	53	46	7,32
1 x 10	8,2	133	74	61	4,23
1 x 16	9,2	189	101	79	2,68
1 x 25	11,0	284	135	101	1,73
1 x 35	12,1	381	169	122	1,23
1 x 50	13,8	517	207	144	0,860
1 x 70	15,7	712	268	178	0,603
1 x 95	17,6	923	328	211	0,457
1 x 120	19,2	1.165	383	240	0,357
1 x 150	21,5	1.446	444	271	0,286
1 x 185	23,9	1.748	510	304	0,235
1 x 240	26,9	2.280	607	351	0,178
1 x 300	29,6	2.829	703	396	0,142
1 x 400	33,8	3.731	823	464	0,108
1 x 500	37,4	4.776	946	525	0,085
1 x 630	42,7	6.276	1088	596	0,064
2 x 1,5	8,2	90	26	26	34,0
2 x 2,5	9,2	120	36	34	20,4
2 x 4	10,3	161	49	44	12,7
2 x 6	11,3	211	63	56	8,45
2 x 10	13,2	316	86	73	4,89
2 x 16	14,9	450	115	95	3,10
3 G 1,5	8,9	108	26	26	34,0
3 G 2,5	9,8	144	36	34	20,4
3 G 4	11,0	198	49	44	12,7
3 G 6	12,1	263	63	56	8,45
3 G 10	14,3	405	86	73	4,89
3 x 16	16,4	593	100	79	2,68
3 x 25	21,3	975	127	101	1,73
3 x 35	24,1	1.319	158	122	1,23
3 x 50	27,8	1.812	192	144	0,860
3 x 70	30,8	2.463	246	178	0,603
3 x 16 + 1 x 10	17,6	696	100	79	2,68
3 x 25 + 1 x 16	22,7	1.136	127	101	1,73
3 x 35 + 1 x 16	25,0	1.461	158	122	1,23
3 x 50 + 1 x 25	29,1	2.033	192	144	0,860
3 x 70 + 1 x 35	33,8	2.834	246	178	0,603
3 x 95 + 1 x 50	38,2	3.702	298	211	0,457
3 x 120 + 1 x 70	42,1	4.723	346	240	0,357
3 x 150 + 1 x 70	46,8	5.779	399	271	0,286
3 x 185 + 1 x 95	53,5	7.202	456	304	0,235
3 x 240 + 1 x 120	60,4	9.306	538	351	0,178
4 G 1,5	9,7	129	23	22	29,5
4 G 2,5	10,7	175	32	29	17,7
4 G 4	12,0	243	42	37	11,0
4 G 6	13,4	328	54	46	7,32
4 G 10	15,7	505	75	61	4,23
4 x 16	18,2	749	100	79	2,68
4 x 25	24,1	1.245	127	101	1,73
4 x 35	26,3	1.671	158	122	1,23
4 x 50	31,3	2.313	192	144	0,860

For further technical data please request this cable's technical datasheet.

Top Cable reserves the right to carry out any modification to the data sheets whatsoever without giving previous notice.

Top Cable

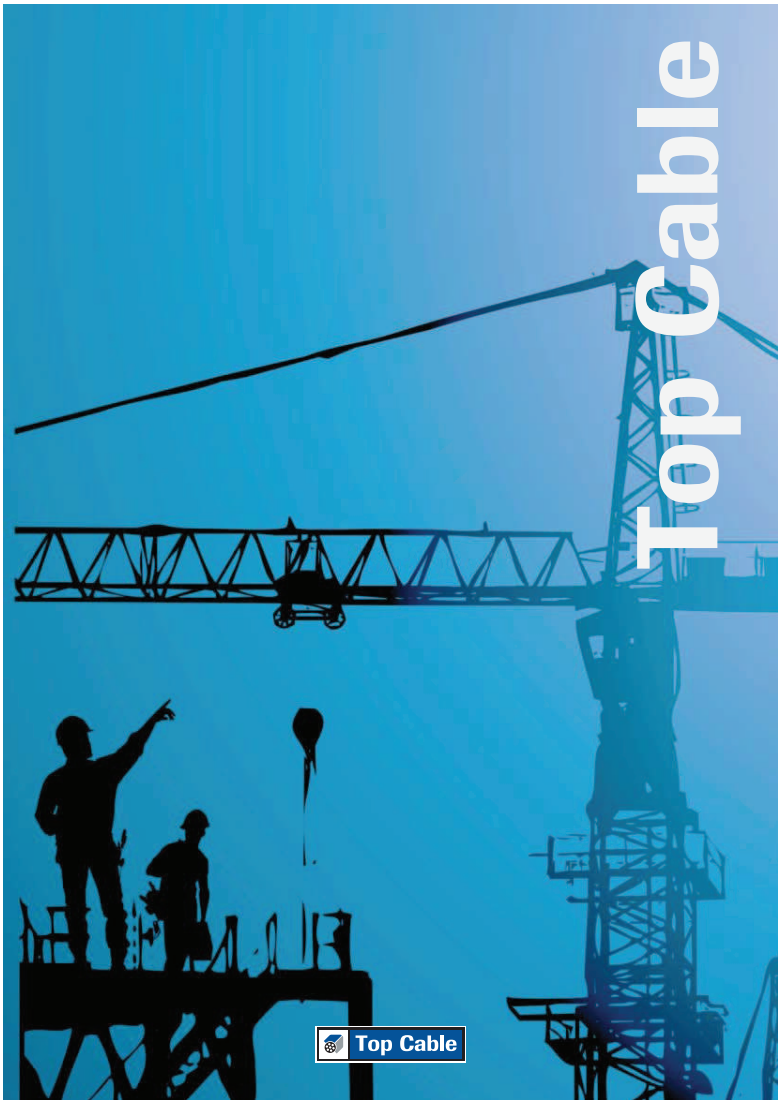
POWERFLEX RV-K

DIMENSIONS

Cross section (mm²)	Diameter (mm)	Weight (Kg/km)	Open Air 30ºC (A)	Buried 30ºC (A)	Voltage drop (V/A · km)
4 x 70	36,1	3.204	246	178	0,603
4 x 95	40,2	4.126	298	211	0,457
4 x 120	44,6	5.245	346	240	0,357
4 x 150	49,8	6.573	399	271	0,286
4 x 185	56,1	8.050	456	304	0,235
4 x 240	64,5	10.695	538	351	0,178
5 G 1,5	10,4	153	23	22	29,5
5 G 2,5	11,6	213	32	29	17,7
5 G 4	13,2	298	42	37	11,0
5 G 6	14,7	403	54	46	7,32
5 G 10	17,2	624	75	61	4,23
5 G 16	20,2	931	100	79	2,68
5 G 25	26,6	1.555	127	101	1,73
5 G 35	29,3	2.076	158	122	1,23
5 G 50	34,5	2.878	192	144	0,860
5 G 70	38,7	3.929	246	178	0,603
5 G 95	44,6	5.189	298	211	0,457
5 G 120	49,7	6.560	346	240	0,357
5 G 150	55,6	8.144	399	271	0,286
5 G 185	62,5	9.971	456	304	0,235
5 G 240	71,8	13.206	538	351	0,178

For further technical data please request this cable's technical datasheet.

Top Cable reserves the right to carry out any modification to the data sheets whatsoever without giving previous notice.



Top Cable

Based on: IEC 60502 / IEC 60502 / NF C 32-321

NF-USE

LOW VOLTAGE 0,6/1kV

POWERHARD

RV / U-1000 R2V

Flexible cable for power transmission

DESIGN

Conductor

Electrolytic copper, class 5 (flexible), based on IEC 60228

Insulation

XLPE

The standard identification is the following:

1 x ..... Natural
2 x ..... Blue + Brown
3G ..... Blue + Brown + Yellow/Green
3x ..... Brown + Black + Grey
4G ..... Brown + Black + Grey+ Yellow/Green
4x ..... Brown + Black + Grey + Blue
5G ..... Brown + Black + Grey + Yellow/Green + Blue

Outer sheath

Flexible PVC outer sheath, black colour.

APPLICATIONS

The cable Powerhard RV / U-1000 R2V for energy distribution is suitable for all types of low voltage industrial-type connections, in urban grids, building installations, etc. It can be buried or installed in a tube as well as outdoors without requiring additional protection. Lastly, the Powerhard RV / U-1000 R2V cable can withstand damp conditions including total immersion in water.

CHARACTERISTICS

- Flexible conductor class 5
- Minimum bending radius: 5 x cable diameter
- Outdor installation: permanent
- Minimum service temperature: -40ºC (Fixed and protected installation)
- Meter by meter marking
- Water resistance AD7 immersion
- Maximum service temperature 90ºC
- Flame non-propagation
- Chemical & oil resistance: good
- Maximum short-circuit temperature: 250ºC (max. 5 s)
- Impact resistance: AG2 medium impact

INSTALLATION CONDITIONS

- Industrial use
- Damp environment
- Open air
- Buried
- In conduit

National norm / European: NF C 32-070 (C2) / EN 60332-1 International norm: IEC 60332-1

Top Cable

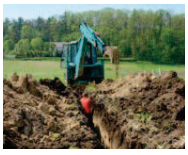
POWERHARD RV / U-1000 R2V

DIMENSIONS

Cross section (mm²)	Diameter (mm)	Weight (Kg/km)	Open Air 30ºC (A)	Buried 20ºC (A)	Voltage drop (V/A · km)
1 x 6	7,3	100	53	46	6,83
1 x 10	7,9	139	74	61	4,06
1 x 16	8,8	199	101	79	2,55
1 x 25	10,8	306	135	101	1,61
1 x 35	11,9	407	169	122	1,16
1 x 50	13,4	526	207	144	0,860
1 x 70	15,3	742	268	178	0,594
1 x 95	16,5	1.002	328	211	0,428
1 x 120	18,6	1.253	383	240	0,339
1 x 150	20,4	1.536	444	271	0,275
1 x 185	22,4	1.922	510	304	0,220
1 x 240	25,5	2.457	607	351	0,167
1 x 300	29,4	3.060	703	396	0,133
1 x 400	33,6	3.982	823	464	0,104
2 x 1,5	8,3	98	26	26	31,0
2 x 2,5	8,9	124	36	34	19,0
2 x 4	10,1	169	49	44	11,8
2 x 6	11,7	238	63	56	7,88
2 x 10	13,1	333	86	73	4,68
2 x 16	15,9	524	115	95	2,94
3 x 1,5	8,7	114	23	22	26,8
3 x 2,5	9,6	152	32	29	16,4
3 x 4	10,6	207	42	37	10,2
3 x 6	12,4	295	54	46	6,83
3 x 10	13,8	422	75	61	4,06
3 x 16	16,9	668	100	79	2,55
3 x 25	21,2	1.051	127	101	1,61
3 x 35	24,0	1.421	158	122	1,16
3 x 50	27,4	1.853	192	144	0,860
3 x 70	31,4	2.595	246	178	0,594
4 x 1,5	9,5	138	23	22	26,8
4 x 2,5	10,3	183	32	29	16,4
4 x 4	11,6	254	42	37	10,2
4 x 6	13,2	361	54	46	6,83
4 G 10	14,9	526	75	61	4,06
4 x 16	18,3	831	100	79	2,55
4 x 25	23,8	1.348	127	101	1,61
4 x 35	26,4	1.807	158	122	1,16
4 x 50	30,3	2.349	192	144	0,860
4 x 70	34,6	3.284	246	178	0,594
4 x 95	37,9	4.414	298	211	0,428
4 x 120	42,7	5.494	346	240	0,339
4 x 150	47,2	6.827	399	271	0,275
4 x 185	52,2	8.519	456	304	0,220
4 x 240	59,7	11.097	538	351	0,167
5 G 1,5	10,3	164	23	22	26,8
5 G 2,5	11,3	222	32	29	16,4
5 G 4	12,6	308	42	37	10,2
5 G 6	14,8	444	54	46	6,83
5 G 10	16,7	653	75	61	4,06
5 G 16	20,2	1.026	100	79	2,55
5 G 25	26,1	1.660	127	101	1,61
5 G 35	29,1	2.224	158	122	1,16
5 G 50	33,8	2.936	192	144	0,860

For further technical data please request this cable's technical datasheet.

Top Cable reserves the right to carry out any modification to the data sheets whatsoever without giving previous notice.



Based on: HD 604 / KEMA 42C-1-4-D / NBN-IEC 502 NAD

Top Cable

LOW VOLTAGE 0,6/1kV

POWERFLEX PLUS YMvK mb ss XVB-F2

The universal cable for power transmission with improved fire proof propierties.

DESIGN

Conductor

Electrolytic copper, class 2 (flexible), based on IEC 60228

Insulation

XLPE

The standard identification is the following:

1 x	Natural
2 x	Black + Blue
3 + 1	Black + brown + blue + blue
4	Black + brown + blue + green/yellow
5	Black + brown + blue + green/yellow

Outer sheath

Flexible PVC outer sheath, grey colour.

APPLICATIONS

The Powerflex Plus cable for power distribution is suitable for all types of industrial low voltage connections, in urban grids, building installations, etc. This cable is fire retardant and is recommended for use in public places, hazardous industries... Its flexibility makes installation substantially easier, and as a result making it highly suitable for difficult layouts. It can also be used in buried installations or in tubes or outdoors without requiring additional protection. The Powerflex Plus cable withstands damp conditions and even total submersion in water.

CHARACTERISTICS

- Flexible conductor class 2 (flexible)
- Minimum bending radius 5 x cable diameter
- Impact resistance AG2 medium impact
- -40° Minimum service temperature: -40 °C (Fixed and protected installation)
- Meter by meter marking
- Outdoor installation: permanent
- 90° Maximum service temperature 90ºC
- Flame non-propagation
- Water resistance AD7 immersion
- 250° Maximum short-circuit temperature: 250ºC (max. 5 s)
- Fire non-propagation
- Chemical & Oil resistance: good

INSTALLATION CONDITIONS

- Industrial use
- Damp environment
- Open air
- Buried
- In conduit

National norm / European: EN 60332-1 / EN 60332-3 / NBN-C-30-004-F2 International norm: IEC 60332-1 / IEC 60332-3

Top Cable

POWERFLEX PLUS YMvK mb ss XVB-F2

DIMENSIONS

Cross section (mm²)	Diameter (mm)	Weight (Kg/km)	Open Air 30ºC (A)	Buried 20ºC (A)	Voltage drop (V/A · km)
1 x 10	8,1	139	74	61	4,23
1 x 16	9,2	199	101	79	2,68
1 x 25	11,0	302	135	101	1,73
1 x 35	12,1	395	169	122	1,23
1 x 50	13,8	517	207	144	0,860
1 x 70	15,8	717	268	178	0,603
1 x 95	17,9	972	328	211	0,457
1 x 120	19,5	1.213	383	240	0,357
1 x 150	21,3	1.497	444	271	0,286
1 x 185	23,9	1.870	510	304	0,235
1 x 240	27,4	2.454	607	251	0,178
1 x 300	29,6	3.024	703	396	0,142
1 x 400	34,3	3.876	823	464	0,108
1 x 630	42,7	6.390	1.088	596	0,064
2 x 10	14,7	393	86	73	4,89
2 x 16	16,6	549	115	95	3,10
2 x 25	20,8	868	149	121	2,00
3 x 10	15,4	479	75	61	4,23
3 x 16	17,6	685	100	79	2,68
3 x 25	21,6	1.074	127	101	1,73
3 x 35	23,9	1.382	158	122	1,23
3 x 50	28,0	1.872	192	144	0,860
3 x 70	31,1	2.546	246	178	0,603
3 x 95	36,9	3.490	298	211	0,457
3 x 120	40,7	4.358	346	240	0,357
3 x 150	44,5	5.360	399	271	0,286
3 x 185	50,3	6.747	456	304	0,235
3 x 240	57,3	8.842	538	251	0,178
3 x 16 + 1 x 10	18,6	789	100	79	2,68
3 x 25+ 1 x 16	22,8	1.228	127	101	1,73
3 x 35+ 1 x 25	25,5	1.632	158	122	1,23
3 x 50+ 1 x 25	29,1	2.092	192	144	0,860
3 x 70+ 1 x 35	33,6	2.887	246	178	0,603
3 x 95+ 1 x 50	38,3	3.885	298	211	0,457
4 x 10	16,8	589	75	61	4,23
4 x 16	19,3	854	100	79	2,68
4 x 25	24,1	1.348	127	101	1,73
4 x 35	26,1	1.750	158	122	1,23
4 x 50	31,3	2.359	192	144	0,860
4 x 70	36,3	3.291	246	178	0,603
4 x 95	41,1	4.426	298	211	0,457
4 x 120	46,1	5.641	346	240	0,357
4 x 150	49,4	6.875	399	271	0,286
4 x 185	56,1	8.675	456	304	0,235
4 x 240	64,3	11.405	538	251	0,178
4 x 35 + 1 G 25	28,5	2.041	158	122	1,23
4 x 50+ 1 G 25	33,1	2.659	192	144	0,860
4 x 70+ 1 G 35	38,1	3.662	246	178	0,603
4 x 95 + 1 G 50	43,7	4.981	298	211	0,457
5 G 10	18,3	842	75	61	4,23
5 G 16	21,1	1.045	100	79	2,68
5 G 25	26,1	1.647	127	101	1,73
5 G 35	29,1	2.171	158	122	1,23
5 G 50	34,5	2.927	192	144	0,860
5 G 70	39,2	4.012	246	178	0,603
5 G 95	46,8	5.644	298	211	0,457
5 G 120	51,0	7.042	346	240	0,357
5 G 150	55,3	8.534	399	271	0,286
5 G 185	62,8	10.757	456	304	0,235
5 G 240	72,2	14.164	538	251	0,178

For further technical data please request this cable's technical datasheet.

Based on: IEC 60502 - UNE 21123-2

Top Cable

LOW VOLTAGE 0,6/1kV

POWERHARD F RVFV-K & VVFV-K

Protected power transmission.

DESIGN

Conductor

Electrolytic copper, class 5, based on EN 60228

Insulation

XLPE for RVFV or PVC for VVFV. The standard identification is the following

1 x	natural
2 x	Blue + Brown
3 G	Blue + Brown + Yellow/green
3 x	Brown + Black + Grey
3 x + 1 x	Brown + Black + Grey+ Blue (reduced cross section)
4 G	Brown + Black + Grey + Yellow/green
4 x	Brown + Black + Grey + Blue
5 G	Brown + Black + Grey + Yellow/green + Blue
6 G or more	Black numbered + Yellow/green.

Armour bedding

PVC.

Armour

Double steel or aluminium tape armour. Aluminium armour is used in single-core cables to avoid parasite currents that may overheat the cable. Steel type is used in the multi-core cables.

Outer sheath

PVC, black colour.

APPLICATIONS

Due to its design, this cable is especially suitable for fixed installations that may be subject to mechanical aggression. It is highly recommended for use in installations in warehouses, production plants and agricultural facilities where the presence of rodents could imply a threat to the cable. At the same time, its use is recommended for street lighting installations.

CHARACTERISTICS

- Flexible conductor class 5
- Minimum bending radius: 10 x cable diameter
- Outdor installation: permanent
- -40° Minimum service temperature: -40ºC (Fixed and protected installation)
- Meter by meter marking
- Water resistance AD7 immersion
- 90° 70° Maximum service temperature 90ºC/70ºC
- Flame non-propagation
- Chemical & oil resistance: good
- 250° 160° Maximum short-circuit temperature: 250ºC /160ºC (max. 5 s)
- Impact resistance: AG4 high impact

INSTALLATION CONDITIONS

- Industrial use
- Damp environment
- Open air
- Rodent proof
- Buried
- In conduit

National norm / European: EN 60332-1 International norm: IEC 60332-1

Top Cable

POWERHARD F RVFV-K

DIMENSIONS

Cross section (mm²)	Diameter (mm)	Weight (Kg/km)	Open Air 30ºC (A)	Buried 30ºC (A)	Voltage drop (V/A · km)
1 x 16	14,4	370	101	79	2,55
1 x 25	16,0	485	135	101	1,61
1 x 35	17,1	593	169	122	1,16
1 x 50	18,6	727	207	144	0,860
1 x 70	20,3	958	268	178	0,594
1 x 95	22,4	1.251	328	211	0,428
1 x 120	24,4	1.509	383	240	0,339
1 x 150	26,3	1.807	444	271	0,275
1 x 185	28,3	2.215	510	304	0,220
1 x 240	31,3	2.803	607	351	0,167
1 x 300	34,0	3.418	703	396	0,133
2 x 1,5	12,3	225	26	26	31,0
2 x 2,5	13,2	267	36	34	19,0
2 x 4	14,1	320	49	44	11,8
2 x 6	15,7	416	63	56	7,88
2 x 10	17,1	529	86	73	4,68
2 x 16	18,6	686	115	95	2,94
3 x 1,5	12,8	251	23	22	26,8
3 x 2,5	13,8	300	32	29	16,4
3 x 4	15,1	376	42	37	10,2
3 x 6	16,4	482	54	46	6,83
3 x 10	17,8	628	75	61	4,06
3 x 16	19,6	843	100	79	2,55
3 x 25	23,9	1.269	127	101	1,61
3 x 35	26,2	1.630	158	122	1,16
3 x 50	29,8	2.102	192	144	0,860
3 x 70	33,3	2.752	246	178	0,594
3 x 95	40,1	3.959	298	211	0,428
3 x 16 + 1x10	20,5	957	100	79	2,55
3 x 25 + 1x16	25,0	1.352	127	101	1,61
3 x 35 + 1x16	27,3	1.693	158	122	1,16
3 x 50 + 1x25	31,5	2.315	192	144	0,860
3 x 70 + 1x35	36,0	3.117	246	178	0,594
3 x 95 + 1x50	41,6	4.421	298	211	0,428
3 x 120 + 1x70	46,8	5.893	346	240	0,339
3 x 150 + 1x70	51,5	7.004	399	271	0,275
3 x 185 + 1x95	56,5	8.726	456	304	0,220
3 x 240 + 1x120	63,4	11.036	538	351	0,167
3x300 + 1 x 150	70,2	12.901	621	396	0,133
4 x 1,5	13,7	284	23	22	26,8
4 x 2,5	14,6	344	32	29	16,4
4 x 4	16,1	436	42	37	10,2
4 x 6	17,2	560	54	46	6,83
4 x 10	18,9	748	75	61	4,06
4 x 16	21,0	1.021	100	79	2,55
4 x 25	26,0	1.559	127	101	1,61
4 x 35	28,8	2.049	158	122	1,16
4 x 50	32,8	2.645	192	144	0,860
4 x 70	39,9	3.899	246	178	0,594
4 x 95	43,8	4.894	298	211	0,428
5 G 1,5	14,3	315	23	22	26,8
5 G 2,5	15,6	395	32	29	16,4
5 G 4	17,0	499	42	37	10,2
5 G 6	18,6	625	54	46	6,83
5 G 10	20,7	900	75	61	4,06
5 G 16	23,1	1.242	100	79	2,55
5 G 25	28,5	1.784	127	101	1,61
5 G 35	31,5	2.355	158	122	1,16
5 G 50	37,1	3.255	192	144	0,860
5 G 70	42,5	4.725	246	178	0,594
5 G 95	47,9	6.065	298	211	0,428
5 G 120	53,5	7.580	346	240	0,339
5 G 150	59,5	9.300	399	271	0,275

For further technical data please request this cable's technical datasheet.

Top Cable

POWERHARD F VVFV-K

DIMENSIONS

Cross section (mm²)	Diameter (mm)	Weight (Kg/km)	Open Air 30ºC (A)	Buried 30ºC (A)	Voltage drop (V/A · km)
6 G 1,5	15,3	376	22	22	31,9
7 G 1,5	15,3	391	22	22	31,9
10 G 1,5	17,3	492	22	22	31,9
12 G 1,5	18,0	546	22	22	31,9
14 G 1,5	19,1	609	22	22	31,9
16 G 1,5	20,1	672	22	22	31,9
19 G 1,5	20,8	741	22	22	31,9
24 G 1,5	22,8	873	22	22	31,9
27 G 1,5	24,0	950	22	22	31,9
37 G 1,5	26,5	1.190	22	22	31,9
52 G 1,5	30,7	1.576	22	22	31,9
61 G 1,5	32,3	1.782	22	22	31,9
6 G 2,5	17,1	488	30	29	19,2
7 G 2,5	17,1	513	30	29	19,2
10 G 2,5	19,5	656	30	29	19,2
12 G 2,5	20,6	740	30	29	19,2
14 G 2,5	22,1	833	30	29	19,2
16 G 2,5	23,1	923	30	29	19,2
19 G 2,5	24,0	1.028	30	29	19,2
24 G 2,5	26,3	1.217	30	29	19,2
27 G 2,5	27,6	1.322	30	29	19,2
37 G 2,5	31,1	1.692	30	29	19,2
6 G 4	20,1	678	40	38	11,9
7 G 4	20,2	716	40	38	11,9
10 G 4	23,0	907	40	38	11,9
12 G 4	23,8	992	40	38	11,9
14 G 4	26,1	1.170	40	38	11,9
16 G 4	27,2	1.301	40	38	11,9
19 G 4	29,5	1.521	40	38	11,9

For further technical data please request this cable's technical datasheet.

Top Cable reserves the right to carry out any modification to the data sheets whatsoever without giving previous notice.

Top Cable

Based on: IEC 60502 - UNE 21123-2

RoHS compliant

LOW VOLTAGE 0,6/1kV

POWERHARD M

RVMV-K & VVMV-K

Highly protected power transmission

DESIGN

Conductor

Electrolytic copper, class 5, based on EN 60228

Isulation

XLPE for RVMV-K or PVC for VVMV-K

The standard identification is the following

1 x	natural
2 x	Blue + Brown
3 G	Blue + Brown + Yellow/green
3 x	Brown + Black + Grey
3 x + 1 x	Brown + Black + Grey+ Blue (reduced cross section)
4 G	Brown + Black + Grey + Yellow/green
4 x	Brown + Black + Grey + Blue
5 G	Brown + Black + Grey + Yellow/green + Blue

Armour bedding

PVC.

Armour

Galvanized steel wire armour, is wound around the separation sheath. For single-core cables (RVMAV-K or VVMAV-K), aluminium wire armour is used to avoid parasite currents that may overheat the cable.

Outer sheath

PVC, black colour.

APPLICATIONS

The Powerhard M cable's design is especially suitable for fixed installation in potentially explosion hazard locations. It is highly recommended for use in petrol stations, petro-chemical plants, flammable product warehouses, etc. At the same time, it can be used in installations such as production plants, agricultural facilities, street lighting and installations in general where the cable is subject to risk of mechanical aggression.

CHARACTERISTICS

- Flexible conductor class 5
- Minimum bending radius: 10x cable diameter
- Impact resistance: AG3. High impact.
- Suited for explosion proof installations.
- Minimum service temperature: -40ºC (Fixed and protected installation)
- Meter by meter marking
- Outdor installation: permanent
- Maximum service temperature 90ºC/70ºC
- Flame non-propagation
- Water resistance ADT immersion
- Maximum short-circuit temperature: 250ºC/160ºC (max. 5 s)
- Fire non-propagation
- Chemical & oil resistance: good

INSTALLATION CONDITIONS

- Industrial use
- Damp environment
- Open air
- Rodent proof
- Buried
- In conduit

National Norm / European: EN 60332-1 / EN 60332-3 International norm: IEC 60332-1 / IEC 60332-3

Top Cable

POWERHARD M RVMV-K

DIMENSIONS

Cross section (mm²)	Diameter (mm)	Weight (Kg/km)	Open Air 30ºC (A)	Buried 20ºC (A)	Voltage drop (V/A · km)
1 x 16	13,6	336	101	79	2,68
1 x 25	15,6	469	135	101	1,73
1 x 35	16,8	583	169	122	1,23
1 x 50	18,2	719	207	144	0,860
1 x 70	19,9	949	268	178	0,603
1 x 95	23,6	1.353	328	211	0,457
1 x 120	25,6	1.623	383	240	0,357
1 x 150	27,5	1.933	444	271	0,286
1 x 185	29,7	2.358	510	304	0,235
1 x 240	32,7	2.967	607	351	0,178
1 x 300	35,6	3.416	703	396	0,142
1 x 400	40,0	4.381	823	464	0,108
1 x 500	44,3	5.621	946	525	0,085
1 x 630	50,3	7.284	1.088	596	0,064
2 x 1,5	13,1	315	26	26	34,0
2 x 2,5	14,0	362	36	34	20,4
2 x 4	14,9	423	49	44	12,7
2 x 6	16,1	502	63	56	8,45
2 x 10	17,9	658	86	73	4,89
2 x 16	19,4	750	115	95	3,10
2 x 25	25,1	1.533	149	121	2,00
2 x 35	27,1	1.854	185	146	1,42
2 x 50	30,6	2.306	225	173	0,99
3 x 1,5	13,8	350	23	22	29,5
3 x 2,5	14,5	398	32	29	17,7
3 x 4	15,8	482	42	37	11,0
3 x 6	16,9	572	54	46	7,32
3 x 10	18,6	764	75	61	4,23
3 x 16	20,4	996	100	79	2,68
3 x 25	26,3	1.799	127	101	1,73
3 x 35	28,8	2.241	158	122	1,23
3 x 50	32,4	2.790	192	144	0,860
3 x 70	35,5	3.541	246	178	0,603
3 x 95	41,5	4.560	298	211	0,457
3 x 16 + 1x10	22,9	1.413	100	79	2,68
3 x 25 + 1x16	27,6	1.922	127	101	1,73
3 x 35 + 1x16	29,9	2.330	158	122	1,23
3 x 50 + 1x25	34,1	3.043	192	144	0,860
4 x 1,5	14,6	389	23	22	29,5
4 x 2,5	15,4	452	32	29	17,7
4 x 4	16,8	551	42	37	11,0
4 x 6	18,2	667	54	46	7,32
4 x 10	19,8	892	75	61	4,32
4 x 16	23,4	1.491	100	79	2,68
4 x 25	28,6	2.153	127	101	1,73
5 G 1,5	15,5	432	23	22	29,5
5 G 2,5	16,4	509	32	29	17,7
5 G 4	17,8	628	42	37	11,0
5 G 6	19,5	772	54	46	7,32
5 G 10	23,1	1.349	75	61	4,32
5 G 16	25,5	1.766	100	79	2,68
5 G 25	30,9	2.436	127	101	1,73
5 G 35	34,1	3.093	158	122	1,23
5 G 50	39,5	4.119	192	144	0,860
5 G 70	44,5	5.364	246	178	0,603

For further technical data please request this cable's technical datasheet.

Top Cable reserves the right to carry out any modification to the data sheets whatsoever without giving previous notice.

Top Cable

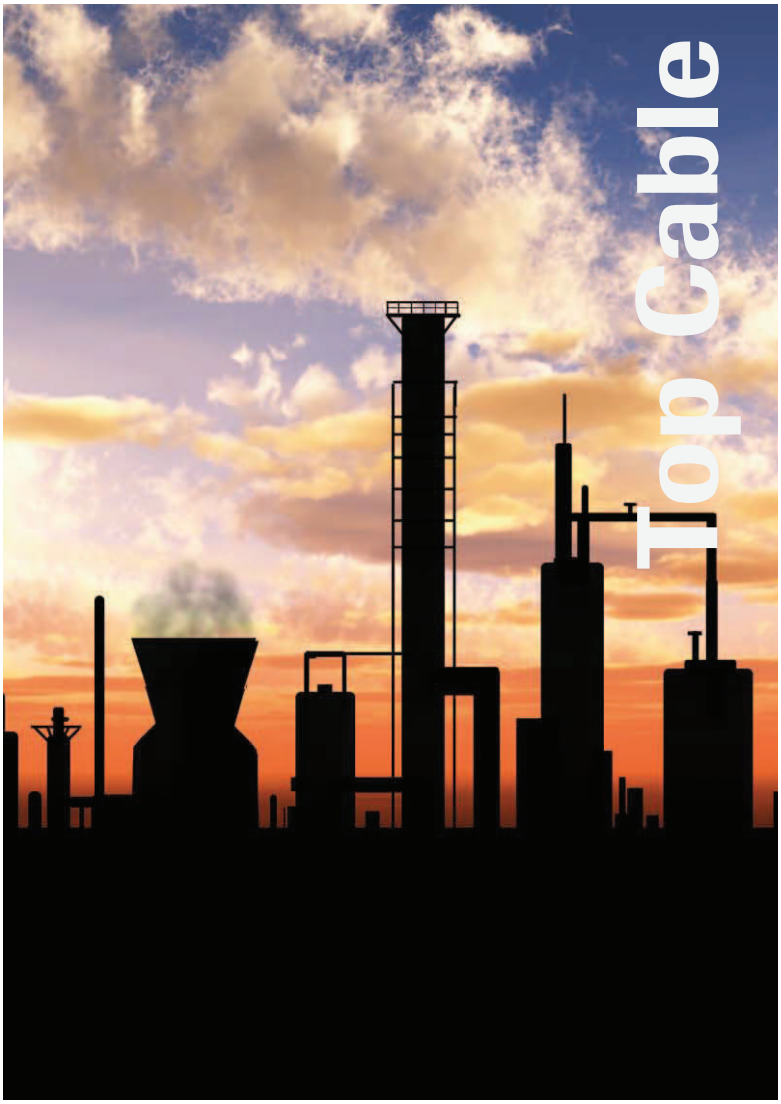
POWERHARD M **VVMV-K**

DIMENSIONS

Cross section (mm²)	Diameter (mm)	Weight (Kg/km)	Open Air 30ºC (A)	Buried 20ºC (A)	Voltage drop (V/A · km)
6 G 1,5	16,1	488	22	22	31,9
7 G 1,5	16,1	503	22	22	31,9
10 G 1,5	18,1	624	22	22	31,9
12 G 1,5	18,8	685	22	22	31,9
14 G 1,5	19,9	756	22	22	31,9
16 G 1,5	22,5	1.117	22	22	31,9
19 G 1,5	23,2	1.1196	22	22	31,9
24 G 1,5	25,2	1.380	22	22	31,9
27 G 1,5	26,4	1.496	22	22	31,9
37 G 1,5	29,1	1.802	22	22	31,9
6 G 2,5	17,9	616	30	29	19,2
7 G 2,5	17,9	641	30	29	19,2
10 G 2,5	20,3	805	30	29	19,2
12 G 2,5	23,0	1.196	30	29	19,2
14 G 2,5	24,5	1.329	30	29	19,2
16 G 2,5	25,5	1.445	30	29	19,2
19 G 2,5	26,4	1.575	30	29	19,2
24 G 2,5	28,9	1.828	30	29	19,2
27 G 2,5	30,4	1.973	30	29	19,2
37 G 2,5	33,8	2.422	30	29	19,2

For further technical data please request this cable's technical datasheet.

Top Cable reserves the right to carry out any modification to the data sheets whatsoever without giving previous notice.



Top Cable

LOW VOLTAGE 0,6/1kV

Based on: UNE-HD 603-5N / NF C 32-321

NF-USE AENOR RoHS compliant

POWERHARD

RV AL / U-1000 AR2V

Aluminium cable for power transmission

DESIGN

Conductor

Aluminium, class 2 based on EN 60228

Insulation

XLPE natural colour.

Outer sheath

PVC, Black or grey colour.

APPLICATIONS

This cable is suitable for all types of underground networks for public power distribution, as well as low voltage connexions in industrial plants, urban networks, buildings, etc.

CHARACTERISTICS

- Rigid aluminium conductor class 2
- Minimum bending radius: 15x cable diameter
- Outdor installation: permanent
- -40° Minimum service temperature: -40ºC (Fixed and protected installation)
- Meter by meter marking
- Water resistance AD7 immersion
- 90° Maximum service temperature 90ºC
- Flame non-propagation
- Chemical & oil resistance: good
- 250° Maximum short-circuit temperature: 250ºC (max. 5 s)
- Impact resistance: AG2. medium impact.

INSTALLATION CONDITIONS

- Industrial use
- Damp environment
- Open air
- Buried
- In conduit

National Norm / European: NFC 30-070 (C2) / EN 60332-1 International norm: IEC 60332-1

Top Cable

POWERHARD **U-1000 / RV AL**

DIMENSIONS

Cross section (mm²)	Diameter (mm)	Weight (Kg/km)	Open Air 30ºC (A)	Buried 20ºC (A)	Voltage drop (V/A · km)
1 x 50	13,1	231	125	135	1,42
1 x 70	14,8	307	160	165	0,982
1 x 95	16,7	396	200	200	0,709
1 x 120	18,0	484	235	225	0,561
1 x 150	20,0	582	290	260	0,457
1 x 185	22,2	735	335	295	0,364
1 x 240	24,8	894	390	340	0,277
1 x 300	27,5	1.111	455	385	0,222
1 x 400	30,9	1.530	540	445	0,172

For further technical data please request this cable's technical datasheet.

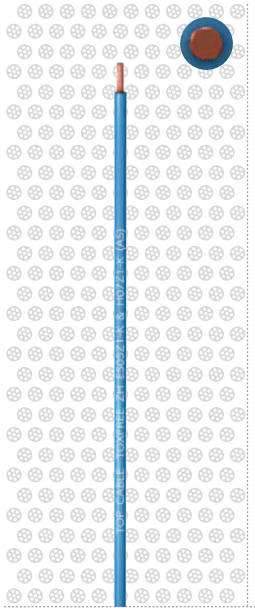
Top Cable reserves the right to carry out any modification to the data sheets whatsoever without giving previous notice.

Based on: HD 21.15 - UNE 211002

TOXFREE ZH

ES05Z1-K & H07Z1-K (AS)

Safety connections.



DESIGN

Conductor

Electrolytic copper, class 5 (flexible), based on EN 60228

Insulation

LSZH poliolefin insulation, with extra sliding properties.

The standard identification is the following:

Blue	RAL 5015
Brown	RAL 8002
Black	RAL 9011
Grey	RAL 7046
Yellow/Green	RAL 1021/6028
Red	RAL 3000
White	RAL 1013

Other colours available upon request

APPLICATIONS

The Toxfree ES05Z1- K & ES07Z1-K (AS) halogen free single core cable is a safety cable. In the event of fire, it does not emit toxic gases, thereby protecting people. Nor does it give off corrosive gases, avoiding any possible damage to electronic equipment. For these reasons it is highly recommended for use in public places such as: hospitals, schools, museums, airports, bus terminals, shops in general, etc., as well as in computer rooms, offices, production plants, switchboard wiring, laboratories, etc.

Packaging

Small cross sections (from 0,75 mm² to 6 mm²) are supplied in high-resistant boxes. Medium cross sections (from 10 mm² to 35 mm²) are supplied in 100 m sealed coils. Greater cross sections (>35 mm²) are supplied in drums.

CHARACTERISTICS

- Rated voltage: ES05Z1-K (AS) (up to 1mm²) :300/500 V. H07Z1-K (AS) (from 1,5mm² on wards): 450/750 V.
- Maximum short-circuit temperature: 160ºC (max. 5 s)
- LSZH
- Water resistance A2 drip
- Public places
- Flexible conductor class 5
- Minimum bending radius 5x cable diameter
- Low smoke emission: Light transmittance >60%
- Che,ical & Oil resistance: good
- Domestic use
- Minimum service temperature: -40ºC (Fixed and protected installation)
- Flame non-propagation
- Low corrosive gases emission
- Marine
- In conduit
- Maximum service temperature 90ºC
- Fire non-propagation
- Environmentally friendly
- Electrical panel wiring

INSTALLATION CONDITIONS

National Norm / European: EN 60332-1 / EN 60332-3 / EN 50267-1 / EN 50267-2 / EN 61034
International norm: IEC 60332-1 / IEC 60332-3 / IEC 60754-1 / IEC 60754-2 / IEC 61034

TOXFREE ZH ES05Z1-K & H07Z1-K (AS)

DIMENSIONS

Cross section (mm²)	Diameter (mm)	Weight (Kg/km)	Open Air (2 cores)	Buried (3cores)	Voltage drop (V/A · km)
1 x 0,75	2,3	11	11	-	62,4
1 x 1	2,5	13	14	-	46,8
1 x 1,5	2,9	19	17,5	15,5	31,9
1 x 2,5	3,5	30	24	21	19,2
1 x 4	4,1	44	32	28	11,9
1 x 6	4,6	62	41	36	7,92
1 x 10	6,0	106	57	50	4,58
1 x 16	6,9	157	76	68	2,90
1 x 25	8,8	246	101	89	1,87
1 x 35	9,9	336	125	110	1,33
1 x 50	11,8	476	151	134	0,926
1 x 70	13,5	657	192	171	0,653
1 x 95	15,6	873	232	207	0,494
1 x 120	17,0	1.096	269	239	0,386
1 x 150	18,9	1.375	309	275	0,310
1 x 185	21,5	1.678	353	314	0,254
1 x 240	24,5	2.205	415	370	0,192

For further technical data please request this cable's technical datasheet.

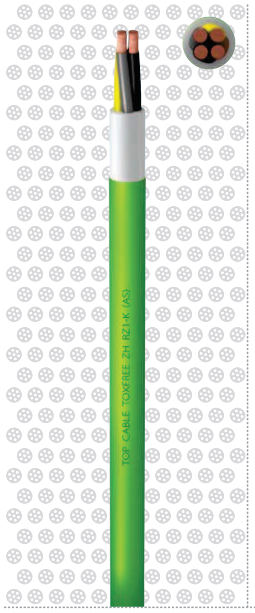
Top Cable reserves the right to carry out any modification to the data sheets whatsoever without giving previous notice.

Based on: IEC 60502 - UNE 21123-4

TOXFREE ZH

RZ1-K (AS)

The halogen free power cable.



DESIGN

Conductor

Electrolytic copper, class 5 (flexible), based on EN 60228

Insulation

XLPE.

The standard identification is the following:

1 x	Natural
2 x	Blue + Brown
3 G	Blue + Brown + Yellow/green
3 x	Brown + Black + Grey
3 x + 1 x	Brown + Black + Grey + Blue (reduced cross section)
4 G	Brown + Black + Grey + Yellow/green
4 x	Brown + Black + Grey + Blue
5 G	Brown + Black + Grey + Yellow/green + Blue

Outer sheath

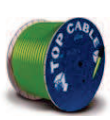
LSZH poliolefin outer sheath. Green colour, non-toxic and fire retardant.

APPLICATIONS

The Toxfree RZ1-K (AS) cable with zero halogens is a safety cable. In case of fire, it does not emit toxic or corrosive gases, thereby protecting public health and avoiding any possible damage to electronic equipment. For this reason, its use is highly recommended in public places such as: hospitals, schools, museums, airports, bus terminals, shops in general, tunnels, the underground, etc., as well as in calculation centres, offices, production plants, laboratories, etc.

Packaging

Available in rolls (lengths of 50 and 100 m) and coils.



CHARACTERISTICS

- Flexible conductor Clas 5
- Minimum bending radius 5x cable diameter
- LSZH
- Impact resistance AG2 medium impact
- Public places
- In conduit
- Minimum service temperature: -40ºC (Fixed and protected installation)
- Meter by meter marking
- Low smoke emission: Light transmittance >60%
- Outdoor installation: permanent
- Industrial use
- Maximum service temperature 90ºC
- Flame non-propagation
- Low corrosive gases emission
- Water resistance AD3 aspersión
- Open air
- Maximum short-circuit temperature: 250ºC (max. 5 s)
- Fire non-propagation
- Environmentally friendly
- Chemical & Oil resistance: permanent
- Buried

INSTALLATION CONDITIONS

National Norm / European: EN 60332-1 / EN 60332-3 / EN 50267-1 / EN 50267-2 / EN 61034
International norm: IEC 60332-1 / IEC 60332-3 / IEC 60754-1 / IEC 60754-2 / IEC 61034

TOXFREE ZH RZ1-K (AS)

DIMENSIONS

Cross section (mm²)	Diameter (mm)	Weight (Kg/km)	Open Air 30ºC (A)	Buried 20ºC (A)	Voltage drop (V/A · km)
1 x 2,5	6,1	57	29	29	17,7
1 x 4	6,7	73	40	37	11,0
1 x 6	7,1	93	53	46	7,32
1 x 10	8,1	136	74	61	4,23
1 x 16	9,1	192	101	79	2,68
1 x 25	11,0	288	135	101	1,73
1 x 35	12,1	380	169	122	1,23
1 x 50	13,8	520	207	144	0,860
1 x 70	15,9	716	268	178	0,603
1 x 95	17,6	924	328	211	0,457
1 x 120	19,4	1.167	383	240	0,357
1 x 150	21,5	1.456	444	271	0,286
1 x 185	24,1	1.762	510	304	0,235
1 x 240	26,9	2.283	607	351	0,178
1 x 300	29,6	2.851	703	396	0,142
1 x 400	33,8	3.735	823	464	0,108
1 x 500	38,0	4.845	946	525	0,085
1 x 630	43,1	6.311	1088	596	0,064
2 x 1,5	8,3	97	26	26	34,0
2 x 2,5	9,2	127	36	34	20,4
2 x 4	10,2	168	49	44	12,7
2 x 6	11,1	217	63	56	8,45
2 x 10	13,0	323	86	73	4,89
2 x 16	15,8	490	115	95	3,10
3 G 1,5	9,0	116	26	26	34,0
3 G 2,5	9,8	151	36	34	20,4
3 G 4	11,0	206	49	44	12,7
3 G 6	11,9	269	63	56	8,45
3 G 10	14,1	412	86	73	4,89
3 x 16	16,9	624	100	79	2,68
3 x 25	20,6	953	127	101	1,73
3 x 35	23,4	1.276	158	122	1,23
3 x 50	26,8	1.752	192	144	0,860
3 x 70	31,5	2.436	246	178	0,603
3 x 16+1x10	18,0	724	100	79	2,68
3 x 25+1x16	21,8	1.097	127	101	1,73
3 x 35+1x16	24,1	1.405	158	122	1,23
3 x 50+1x25	28,1	1.970	192	144	0,860
3 x 70+1x35	32,6	2.722	246	178	0,603
3 x 95+1x50	37,0	3.597	298	211	0,457
3 x 120+1x70	41,5	4.609	346	240	0,357
3 x 150+1x70	44,9	5.579	399	271	0,286
3 x 185+1x95	51,5	6.926	456	304	0,235
3 x 240+1x120	58,8	9.030	538	351	0,178
4 G 1,5	9,7	136	23	22	29,5
4 G 2,5	10,8	184	32	29	17,7
4 G 4	12,0	252	42	37	11,0
4 G 6	13,2	334	54	46	7,32
4 G 10	15,4	513	75	61	4,23
4 x 16	18,7	783	100	79	2,68
4 x 25	23,1	1.204	127	101	1,73
4 x 35	25,5	1.616	158	122	1,23
4 x 50	30,3	2.242	192	144	0,860
4 x 70	35,3	3.119	246	178	0,603
4 x 95	39,4	4.035	298	211	0,457
4 x 120	43,6	5.104	346	240	0,357
4 x 150	49,8	6.569	399	271	0,286
4 x 185	56,5	8.063	456	304	0,235
4 x 240	63,1	10.421	538	351	0,178
5 G 1,5	10,3	159	23	22	29,5
5 G 2,5	11,6	217	32	29	17,7
5 G 4	13,0	302	42	37	11,0
5 G 6	14,4	404	54	46	7,32
5 G 10	16,9	627	75	61	4,23
5 G 16	20,4	956	100	79	2,68
5 G 25	25,1	1.469	127	101	1,73
5 G 35	28,1	1.968	158	122	1,23
5 G 50	33,7	2.779	192	144	0,860
5 G 70	39,3	39,3	246	178	0,603
5 G 95	45,0	45,0	298	211	0,457

For further technical data please request this cable's technical datasheet.

Top Cable reserves the right to carry out any modification to the data sheets whatsoever without giving previous notice.

Top Cable

LOW VOLTAGE 0,6/1kV

Based on: IEC 60502

RoHS compliant

TOXFREE ZH

Z1C4Z1-K (AS)

The halogen free screened control cable

DESIGN

Conductor

Electrolytic copper, class 5 (flexible), based on EN 60228

Insulation

LSZH Polyolephine insulation.

The standard identification is the following.

6 or more conductors: ..... Black numbered + Yellow/green.

Separator

Polyester tape separator to avoid direct contact between the insulated conductors and the copper braid.

Screen

Tinned copper braided screening.

Outer sheath

LSZH poliolefin outer sheath. Green colour, non-toxic and fire retardant.

APPLICATIONS

The screened and halogen free control cable Toxfree ZH Z1C4Z1-K (AS) is a safety cable. In case of fire, it does not emit toxic or corrosive gases, thereby protecting public health and avoiding any possible damage to electronic equipment. For this reason, its use is highly recommended for public places and for all installations where it is necessary avoid electric interference of nearby circuits.

CHARACTERISTICS

Flexible conductor class 5

Minimum bending radius 5x cable diameter

LSZH

Impact resistance AG2 medium impact

Public places

In conduit

-40° Minimum service temperature: -40ºC (Fixed and protected installation)

Meter by meter marking

Low smoke emission: Light transmittance >60%

Outdoor installation: permanent

Industrial use

70° Maximum service temperature 70ºC

Flame non-propagation

Low corrosive gases emission

Water resistance AD3 aspersión

Open air

160° Maximum short-circuit temperature: 160ºC (max. 5 s)

Fire non-propagation

Environmentally friendly

Chemical & Oil resistance: permanent

Buried

INSTALLATION CONDITIONS

National Norm / European: EN 60332-1 / EN 60332-3 / EN 50267-1 / EN 50267-2 / EN 61034

International norm: IEC 60332-1 / IEC 60332-3 / IEC 60754-1 / IEC 60754-2 / IEC 61034

Top Cable

TOXFREE ZH Z1C4Z1-K (AS)

DIMENSIONS

Cross section (mm²)	Diameter (mm)	Weight (Kg/km)	Open Air 30ºC (A)	Buried 20ºC (A)	Voltage drop (V/A · km)
7 G 1,5	12,0	205	22	22	31,9
12 G 1,5	15,4	316	22	22	31,9
14 G 1,5	16,3	358	22	22	31,9
16 G 1,5	17,2	402	22	22	31,9
19 G 1,5	18,1	462	22	22	31,9
24 G 1,5	21,1	578	22	22	31,9
27 G 1,5	21,6	647	22	22	31,9
7 G 2,5	14,0	295	30	29	19,2
12 G 2,5	18,4	463	30	29	19,2
14 G 2,5	19,3	531	30	29	19,2
16 G 2,5	20,4	595	30	29	19,2
19 G 2,5	21,6	702	30	29	19,2
24 G 2,5	25,4	873	30	29	19,2
27 G 2,5	26,0	977	30	29	19,2

For further technical data please request this cable's technical datasheet.

Top Cable reserves the right to carry out any modification to the data sheets whatsoever without giving previous notice.

Top Cable

LOW VOLTAGE 0,6/1kV

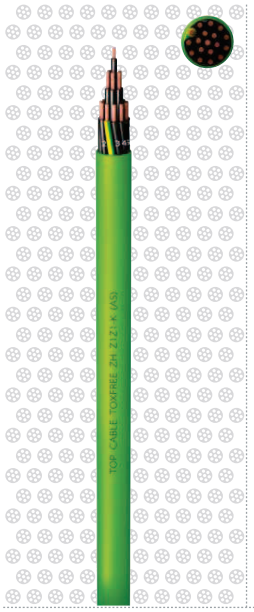
Based on: IEC 60502

RoHS compliant

TOXFREE ZH

Z1Z1-K (AS)

The halogen free control cable.



DESIGN

Conductor

Electrolytic copper, class 5 (flexible), based on EN 60228

Insulation

LSZH Polyolephine insulation.

The standard identification is the following:

6 or more conductors ..... Black numbered + Yellow/green.

Outer sheath

LSZH polyolefin outer sheath. Green colour, non-toxic and fire retardant.

APPLICATIONS

The Toxfree Z1Z1-K (AS) cable with zero halogens is a safety cable. In case of fire, it does not emit toxic or corrosive gases, thereby protecting public health and avoiding any possible damage to electronic equipment. For this reason, its use is highly recommended in public places such as: hospitals, schools, museums, airports, bus terminals, shops in general, tunnels, the underground, etc., as well as in, offices, production plants, laboratories, etc.

CHARACTERISTICS

Flexible conductor class 5

Minimum bending radius 5x cable diameter

LSZH

Impact resistance AG2 medium impact

Public places

In conduit

-40° Minimum service temperature: -40ºC (Fixed and protected installation)

Meter by meter marking

Low smoke emission: Light transmittance >60%

Outdoor installation: permanent

Industrial use

70° Maximum service temperature 90ºC

Flame non-propagation

Low corrosive gases emission

Water resistance AD3 aspersión

Open air

160° Maximum short-circuit temperature: 160ºC (max. 5 s)

Fire non-propagation

Environmentally friendly

Chemical & Oil resistance: permanent

Buried

INSTALLATION CONDITIONS

National Norm / European: EN 60332-1 / EN 60332-3 / EN 50267-1 / EN 50267-2 / EN 61034

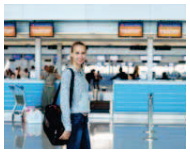
International norm: IEC 60332-1 / IEC 60332-3 / IEC 60754-1 / IEC 60754-2 / IEC 61034

Top Cable

TOXFREE ZH Z1Z1-K (AS)

DIMENSIONS

Cross section (mm²)	Diameter (mm)	Weight (Kg/km)	Open Air 30ºC (A)	Buried 20ºC (A)	Voltage drop (V/A · km)
7 G 1,5	11,5	199	22	22	31,9
12 G 1,5	14,8	308	22	22	31,9
14 G 1,5	15,8	354	22	22	31,9
16 G 1,5	16,6	397	22	22	31,9
19 G 1,5	17,5	450	22	22	31,9
24 G 1,5	20,8	569	22	22	31,9
27 G 1,5	21,0	601	22	22	31,9
7 G 2,5	13,3	282	30	29	19,2
12 G 2,5	17,7	462	30	29	19,2
14 G 2,5	18,7	523	30	29	19,2
16 G 2,5	19,5	578	30	29	19,2
19 G 2,5	20,9	680	30	29	19,2
24 G 2,5	23,5	807	30	29	19,2
27 G 2,5	24,4	913	30	29	19,2



For further technical data please request this cable's technical datasheet.

Top Cable reserves the right to carry out any modification to the data sheets whatsoever without giving previous notice.

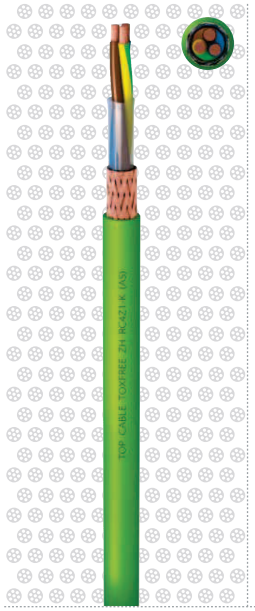
Based on: IEC 60502 - UNE 21123-4

RoHS compliant

TOXFREE ZH

RC4Z1-K (AS)

The halogen free screened power cable



DESIGN

Conductor

Electrolytic copper, class 5 (flexible), based on EN 60228

Insulation

XLPE.

The standard identification is the following:

1 x	natural
2x	Blue + Brown
3 G	Blue + Brown + Yellow/green
3 x	Brown+ Black+ Grey
4 G	Brown + Black + Grey + Yellow/green
4 x	Brown + Black + Grey + Blue
5 G	Brown + Black + Grey + Yellow/green + Blue

Separator

Polyester tape separator to avoid direct contact between the insulated conductors and the copper braid.

Screen

Tinned copper braided screening

Outer sheath

LSZH poliolefin outer sheath. Green colour, non-toxic and fire retardant.

APPLICATIONS

The screened and halogen free cable Toxfree ZH RC4Z1-K (AS) is a safety cable. In case of fire, it does not emit toxic or corrosive gases, thereby protecting public health and avoiding any possible damage to electronic equipment. For this reason, its use is highly recommended for public places and for all installations where it is necessary avoid to electric interference of nearby circuits .

CHARACTERISTICS

Flexible conductor class 5
Minimum bending radius 5x cable diameter
LSZH
Outdoor installation: permanent
Public places
In conduit
Minimum service temperature: -40ºC (Fixed and protected installation)
Meter by meter marking
Low smoke emission: Light transmittance >60%
Water resistance AD3 aspersión
Industrial use
Maximum service temperature 90ºC
Flame non-propagation
Low corrosive gases emission
Chemical & Oil resistance: permanent
Open air
Maximum short-circuit temperature: 250ºC (max. 5 s)
Fire non-propagation
Impact resistance AG2 medium impact
Electric fields resistant
Buried

INSTALLATION CONDITIONS

National Norm / European: EN 60332-1 / EN 60332-3 / EN 50267-1 / EN 50267-2 / EN 61034
International norm: IEC 60332-1 / IEC 60332-3 / IEC 60754-1 / IEC 60754-2 / IEC 61034

TOXFREE ZH RC4Z1-K (AS)

DIMENSIONS

Cross section (mm²)	Diameter (mm)	Weight (Kg/km)	Open Air 30ºC (A)	Buried 20ºC (A)	Voltage drop (V/A · km)
1 x 10	11,9	231	74	61	4,23
1 x 16	13,1	300	101	79	2,68
1 x 25	14,2	389	135	101	1,73
1 x 35	15,3	489	169	122	1,23
1 x 50	16,8	637	207	144	0,860
1 x 70	18,7	835	268	178	0,603
1 x 95	21,1	1.098	328	211	0,457
1 x 120	22,6	1.331	383	240	0,357
1 x 150	24,7	1.628	444	271	0,286
1 x 185	26,9	1.975	510	304	0,235
1 x 240	30,0	2.514	607	351	0,178
1 x 300	33,2	3.114	703	396	0,142
1 x 400	37,1	4.044	823	464	0,108
2 x 1,5	9,0	96	26	26	34,0
2 x 2,5	9,9	122	36	34	20,4
2 x 4	10,7	156	49	44	12,7
2 x 6	11,8	202	63	56	8,45
2 x 10	13,8	296	86	73	4,89
2 x 16	16,3	436	115	95	3,10
2 x 25	19,5	646	149	121	2,00
2 x 35	22,5	880	185	146	1,42
3 G 1,5	9,6	117	26	26	34,0
3 G 2,5	11,2	172	36	34	20,4
3 G 4	12,0	216	49	44	12,7
3 G 6	13,4	286	63	56	8,45
3 G 10	15,7	422	86	73	4,89
3 x 16	17,6	594	100	79	2,68
3 x 25	21,2	872	127	101	1,73
3 x 35	24,4	1.195	158	122	1,23
3 x 50	28,6	1.669	192	144	0,860
3 x 70	33,3	2.301	246	178	0,603
4 G 1,5	10,3	141	23	22	29,5
4 G 2,5	11,2	183	32	29	17,7
4 G 4	13,1	275	42	37	11,0
4 G 6	14,8	355	54	46	7,32
4 G 10	17,1	529	75	61	4,23
4 x 16	19,5	755	100	79	2,68
4 x 25	22,5	1.079	127	101	1,73
4 x 35	25,7	1.506	158	122	1,23
4 x 50	30,1	2.037	192	144	0,860
4 x 70	35,0	2.804	246	178	0,603
4 x 95	40,2	3.741	298	211	0,457
5 G 1,5	11,2	167	23	22	29,5
5 G 2,5	12,7	233	32	29	17,7
5 G 4	14,0	310	42	37	11,0
5 G 6	16,0	431	54	46	7,32
5 G 10	18,1	619	75	61	4,23
5 G 16	21,5	928	100	79	2,68
5 G 25	25,7	1.387	127	101	1,73
5 G 35	29,8	1.905	158	122	1,23

For further technical data please request this cable's technical datasheet.

Top Cable reserves the right to carry out any modification to the data sheets whatsoever without giving previous notice.

Based on: IEC 60502 - UNE 21123-4

RoHS compliant

TOXFREE ZH

RZ1FZ1-K (AS)

The halogen free cable with light armour

DESIGN

Conductor

Electrolytic copper, class 5 (flexible), based on EN 60228

Insulation

XLPE.

The standard identification is the following:

1 x	Natural
2x	Blue + Brown
3 G	Blue + Brown + Yellow/green
3 x	Brown+ Black+ Grey
4 G	Brown + Black + Grey + Yellow/green
4 x	Brown + Black + Grey + Blue
5 G	Brown + Black + Grey + Yellow/green + Blue

Armour bedding

LSZH polyolephine inner sheath

Armour

Galvanised steel or aluminium tape armour. Aluminium armour is used in single core cables to avoid parasite currents that may overheat the cables.

Outer sheat

LSZH poliolefin outer sheath. Green colour, non-toxic and fire retardant.

APPLICATIONS

The armoured and halogen free cable Toxfree ZH RZ1FZ1-K (AS) is a safety cable. In case of fire, it does not emit toxic or corrosive gases, thereby protecting public health and avoiding any possible damage to electronic equipment. For this reason, its use is highly recommended for public places, in installations with presence of rodents, and installations in general where the cable is subject to risk of mechanical aggresion.

CHARACTERISTICS

Flexible conductor Clas 5
Minimum bending radius 10x cable diameter
LSZH
Impact resistance AG3 strong impact
Public places
In conduit
Minimum service temperature: -40ºC (Fixed and protected installation)
Meter by meter marking
Low smoke emission: Light transmittance >60%
Outdoor installation: permanent
Industrial use
Rodent proof
Maximum service temperature 90ºC
Flame non-propagation
Low corrosive gases emission
Water resistance AD3 aspersión
Open air
Maximum short-circuit temperature: 250ºC (max. 5 s)
Fire non-propagation
Environmentally friendly
Chemical & Oil resistance: permanent
Buried

INSTALLATION CONDITIONS

National Norm / European: EN 60332-1 / EN 60332-3 / EN 50267-1 / EN 50267-2 / EN 61034
International norm: IEC 60332-1 / IEC 60332-3 / IEC 60754-1 / IEC 60754-2 / IEC 61034

TOXFREE ZH RZ1FZ1-K (AS)

DIMENSIONS

Cross section (mm²)	Diameter (mm)	Weight (Kg/km)	Open Air 30ºC (A)	Buried 20ºC (A)	Voltage drop (V/A · km)
1 x 10	15,6	355	74	61	4,23
1 x 16	15,6	391	101	79	2,68
1 x 25	16,2	463	135	101	1,73
1 x 35	17,3	575	169	122	1,23
1 x 50	19,0	733	207	144	0,860
1 x 70	20,9	955	268	178	0,603
1 x 95	22,6	1.187	328	211	0,457
1 x 120	24,2	1.443	383	240	0,357
1 x 150	26,3	1.741	444	271	0,286
1 x 185	28,7	2.074	510	304	0,235
1 x 240	31,7	2.645	607	351	0,178
1 x 300	34,4	3.258	703	396	0,142
1 x 400	38,6	4190	823	464	0,108
1 x 500	42,5	5300	946	525	0,085
1 x 630	47,3	6825	1088	596	0,064
2 x 1,5	12,3	233	26	26	34,0
2 x 2,5	13,2	275	36	34	20,4
2 x 4	14,3	334	49	44	12,7
2 x 6	15,3	400	63	56	8,45
2 x 10	17,2	535	86	73	4,89
2 x 16	19,0	697	115	95	3,10
2 x 25	23,0	1.014	149	121	2,00
2 x 35	25,1	1.278	185	146	1,42
3 G 1,5	13,0	262	26	26	34,0
3 G 2,5	13,9	311	36	34	20,4
3 G 4	15,0	380	49	44	12,7
3 G 6	16,1	463	63	56	8,45
3 G 10	18,3	640	86	73	4,89
3 x 16	20,3	583	100	79	2,68
3 x 25	23,8	1.220	127	101	1,73
3 x 35	26,6	1.585	158	122	1,23
3 x 50	30,3	2.113	192	144	0,860
3 x 70	34,9	2.868	246	178	0,603
3 x 95	40,1	4.025	298	211	0,457
3 x 120	43,8	4.936	346	240	0,357
3 x 150	48,7	6.051	399	271	0,286
3 x 185	54,9	7.403	456	304	0,235
3 x 240	61,5	9.449	538	351	0,178
4 G 1,5	13,8	295	23	22	29,5
4 G 2,5	14,7	352	32	29	17,7
4 G 4	16,0	440	42	37	11,0
4 G 6	17,4	547	54	46	7,32
4 G 10	19,7	762	75	61	4,23
4 x 16	22,2	1.039	100	79	2,68
4 x 25	25,8	1.481	127	101	1,73
4 x 35	28,5	1.936	158	122	1,23
4 x 50	33,7	2.645	192	144	0,860
4 x 70	39,7	3.939	246	178	0,603
4 x 95	44,0	4.979	298	211	0,457
4 x 120	48,6	6.202	346	240	0,357
4 x 150	54,2	7.672	399	271	0,286
4 x 185	60,1	9.211	456	304	0,235
4 x 240	67,6	11.866	538	351	0,178
4 x 300	74,9	14.760	622	396	0,142
4 x 500	97,3	25.241	-	525	0,085
5 G 1,5	14,7	332	23	22	29,5
5 G 2,5	15,6	401	32	29	17,7
5 G 4	17,2	509	42	37	11,0
5 G 6	18,7	638	54	46	7,32
5 G 10	21,2	898	75	61	4,23
5 G 16	24,1	1.241	100	79	2,68
5 G 25	28,5	1.802	127	101	1,73
5 G 35	31,5	2.355	158	122	1,23

For further technical data please request this cable's technical datasheet.

Top Cable reserves the right to carry out any modification to the data sheets whatsoever without giving previous notice.

Based on: IEC 60502 - UNE 21123-4

RoHS compliant

TOXFREE ZH

RZ1MZ1-K (AS)

The halogen free cable with high mechanical strength

DESIGN

Conductor

Electrolytic copper, class 5 (flexible), based on EN 60228

Insulation

XLPE.

The standard identification is the following:

1 x	natural
2x	Blue + Brown
3 G	Blue + Brown + Yellow/green
3 x	Brown+ Black+ Grey
4 G	Brown + Black + Grey + Yellow/green
4 x	Brown + Black + Grey + Blue
5 G	Brown + Black + Grey + Yellow/green + Blue

Armour bedding

LSZH polyolephine inner sheath

Armour

Galvanised steel wire armour, is wound over the separation sheath. For single core cables (type RZ1MAZ1-K), aluminium wire armour is used to avoid parasite currents that may overheat the cables.

Outer sheath

LSZH poliolefin outer sheath. Green colour, non-toxic and fire retardant.

APPLICATIONS

The armoured and halogen free cable Toxfree ZH RZ1MZ1-K (AS) is a safety cable. In case of fire, it does not emit toxic or corrosive gases, thereby protecting public health and avoiding any possible damage to electronic equipment. For this reason, its use is highly recommended for public places, in hazardous areas with explosive gas atmospheres, and installations in general where the cable is subject to risk of mechanical aggresion.

CHARACTERISTICS

Flexible conductor class 5
Minimum bending radius 10x cable diameter
LSZH
Outdoor installation: permanent
Public places
In conduit
Minimum service temperature: -40ºC (Fixed and protected installation)
Meter by meter marking
Low smoke emission: Light transmittance >60%
Water resistance AD3 aspersion
Industrial use
Rodent proof
Maximum service temperature 90ºC
Flame non-propagation
Low corrosive gases emission
Chemical & Oil resistance: permanent
Open air
Maximum short-circuit temperature: 250ºC (max. 5 s)
Fire non-propagation
Impact resistance AG3 strong impact
Suited for explosion proof installations.
Buried

INSTALLATION CONDITIONS

Norma nacional / Europea: EN 60332-1 / EN 60332-3 / EN 50267-1 / EN 50267-2 / EN 61034
Norma internacional: IEC 60332-1 / IEC 60332-3 / IEC 60754-1 / IEC 60754-2 / IEC 61034

TOXFREE ZH RZ1MZ1-K (AS)

DIMENSIONS

Cros section (mm²)	Diameter (mm)	Weight (Kg/km)	Open Air 30ºC (A)	Buried 20ºC (A)	Voltage drop (V/A · km)
1 x 10	14,6	341	74	61	4,23
1 x 16	15,3	405	101	79	2,68
1 x 25	16,4	501	135	101	1,73
1 x 35	16,9	564	169	122	1,23
1 x 50	18,6	723	207	144	0,860
1 x 70	20,9	981	268	178	0,603
1 x 95	23,1	1.247	328	211	0,457
1 x 120	25,4	1.551	383	240	0,357
1 x 150	27,5	1.944	444	271	0,286
1 x 185	29,9	2.204	510	304	0,235
1 x 240	32,9	2.791	607	351	0,178
1 x 300	37,7	3.665	703	396	0,142
1 x 400	42,1	4.665	823	464	0,108
1 x 500	45,8	5.795	946	525	0,085
1 x 630	51,6	7.500	1.088	596	0,064
2 x 1,5	13,1	320	26	26	34,0
2 x 2,5	14,0	367	36	34	20,4
2 x 4	15,1	435	49	44	12,7
2 x 6	16,1	509	63	56	8,45
2 x 10	18,0	664	86	73	4,89
2 x 16	20,8	908	115	95	3,10
2 x 25	24,3	1.269	149	121	2,00
2 x 35	27,7	1.669	185	146	1,42
3 G 1,5	13,8	355	26	26	34,0
3 G 2,5	14,7	410	36	34	20,4
3 G 4	15,8	489	49	44	12,7
3 G 6	16,9	580	63	56	8,45
3 G 10	19,1	777	86	73	4,89
3 x 16	22,6	1.289	100	79	2,68
3 x 25	26,2	1.739	127	101	1,73
3 x 35	29,0	2.174	158	122	1,23
3 x 50	32,8	2.809	192	144	0,860
4 G 1,5	14,6	395	23	22	29,5
4 G 2,5	15,4	458	32	29	17,7
4 G 4	16,8	558	42	37	11,0
4 G 6	18,2	675	54	46	7,32
4 G 10	20,4	908	75	61	4,23
4 x 16	24,5	1.527	100	79	2,68
4 x 25	28,7	2.083	127	101	1,73
4 x 35	30,9	2.582	158	122	1,23
5 G 1,5	15,9	446	23	22	29,5
5 G 2,5	16,4	512	32	29	17,7
5 G 4	18,0	638	42	37	11,0
5 G 6	19,5	775	54	46	7,32
5 G 10	23,6	1.361	75	61	4,23
5 G 16	26,4	1.773	100	79	2,68
5 G 25	30,9	2.437	127	101	1,73
5 G 35	34,2	3.135	158	122	1,23
5 G 50	39,3	4.135	192	144	0,860
5 G 70	45,5	6.055	246	178	0,603
5 G 95	51,2	7.570	298	211	0,457

For further technical data please request this cable's technical datasheet.

Top Cable reserves the right to carry out any modification to the data sheets whatsoever without giving previous notice.

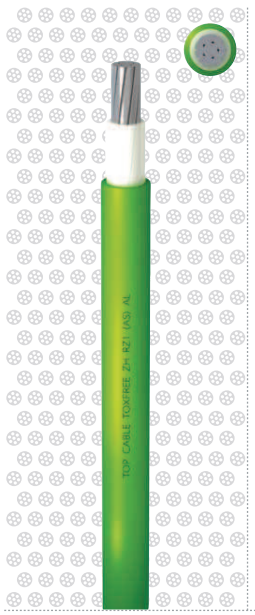
Based on: IEC 60502 - UNE 21123-4

RoHS compliant

TOXFREE ZH

RZ1 (AS) AL

Aluminium non fire propagator cable for power transmission



DESIGN

Conductor

Aluminium, class 2 based on EN 60228

Insulation

XLPE natural colour.

Outer sheath

LSZH poliolefin outer sheath. Green colour, non-toxic and fire retardant.

APPLICATIONS

Aluminium LSZH cable for fixed installations. Suitable for transport and distribution of electric power. These cables are especially recommended for installation in public places and in instalations where safety is a priority. Safety (AS) cable, Non-Flame and non-Fire-Propagator.

CHARACTERISTICS

Rigid aluminium conductor class 2
Minimum bending radius 15 x cable diameter
LSZH
Impact resistance AG2 medium impact
Public places
Minimum service temperature: -40ºC (Fixed and protected installation)
Meter by meter marking
Low smoke emission: Light transmittance >60%
Outdoor installation: permanent
Industrial use
Maximum service temperature 90ºC
Flame non-propagation
Low corrosive gases emission
Water resistance AD3 aspersion
Open air
Maximum short-circuit temperature: 250ºC (max. 5 s)
Fire non-propagation
Environmentally friendly
Chemical & Oil resistance: permanent
Buried

INSTALLATION CONDITIONS

Norma nacional / Europea: EN 60332-1 / EN 60332-3 / EN 50267-1 / EN 50267-2 / EN 61034
Norma internacional: IEC 60332-1 / IEC 60332-3 / IEC 60754-1 / IEC 60754-2 / IEC 61034

TOXFREE ZH RZ1 (AS) AL

DIMENSIONS

Cros section (mm²)	Diameter (mm)	Weight (Kg/km)	Open Air 30ºC (A)	Buried 20ºC (A)	Voltage drop (V/A · km)
1 x 50	12,8	224	140	180	1,42
1 x 70	15,1	309	180	220	0,982
1 x 95	16,5	392	220	260	0,709
1 x 120	18,4	487	260	295	0,561
1 x 150	20,0	584	300	330	0,457
1 x 185	22,4	727	350	375	0,364
1 x 240	24,8	929	420	430	0,277
1 x 300	28,2	1.131	480	485	0,222
1 x 400	31,2	1.436	560	550	0,172

For further technical data please request this cable's technical datasheet.

Top Cable reserves the right to carry out any modification to the data sheets whatsoever without giving previous notice.

Top Cable

LOW VOLTAGE 0,6/1kV

Based on: UNE-HD 603-5X

AENOR

RoHS compliant

TOXFREE ZH

XZ1 (S) AL

Aluminium non-flame propagator cable for power transmission

DESIGN

Conductor

Aluminium, class 2 based on EN 60228

Insulation

XLPE natural colour.

Outer sheath

LSZH polyolefin, black colour.

APPLICATIONS

The aluminium cable Toxfree ZH XZ1 (S) is suitable for public low voltage power distribution. This cable is a non flame propagator and LSZH. For use indoors, outdoors and buried.

CHARACTERISTICS

- Rigid aluminium conductor, class 2
- Minimum bending radius 15x cable diameter
- Low smoke emission: Light transmittance > 60%
- Water resistance AD3 aspersion
- Public places
- Minimum service temperature: -40ºC (Fixed and protected installation)
- Meter by meter marking
- Low corrosive gases emission
- Chemical & Oil resistance: acceptable
- Industrial use
- Maximum service temperature 90ºC
- Flame non-propagation
- Impact resistance AG2 medium impact
- Environmentally friendly
- Open air
- Maximum short-circuit temperature: 250ºC (max. 5 s)
- LSZH
- Outdoor installation: permanent
- Buried

INSTALLATION CONDITIONS

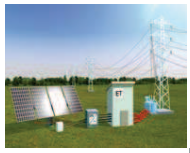
Norma nacional / Europea: EN 60332-1 / EN 50267-1 / EN 50267-2 / EN 61034
Norma internacional: IEC 60332-1 / IEC 60754-1 / IEC 60754-2 / IEC 61034

Top Cable

TOXFREE ZH XZ1 (S) AL

DIMENSIONS

Cros section (mm²)	Diameter (mm)	Weight (Kg/km)	Open Air 30ºC (A)	Buried 20ºC (A)	Voltage drop (V/A · km)
1 x 25	10,5	128	88	95	2,66
1 x 35	11,3	157	100	110	1,92
1 x 50	12,9	203	125	135	1,42
1 x 70	14,8	279	160	165	0,982
1 x 95	16,3	353	200	200	0,709
1 x 120	17,8	444	235	225	0,561
1 x 150	19,6	528	290	260	0,457
1 x 185	22,2	665	335	295	0,364
1 x 240	24,4	833	390	340	0,277



For further technical data please request this cable's technical datasheet.

Top Cable reserves the right to carry out any modification to the data sheets whatsoever without giving previous notice.

Top Cable

LOW VOLTAGE 0,6/1kV

Based on: IEC 60502- UNE 211025

RoHS compliant

TOXFREE PLUS 331 ZH

SZ1-K (AS+) / RZ1-K (AS+)

The fire resistant power cable

DESIGN

Conductor

Electrolytic copper, class 5 (flexible), based on EN 60228

Insulation

Preferred constructions:

SZ1-K: Silicone rubber up to 4 mm2

RZ1-K: Mica tape + XLPE from 6 mm2

The standard identification is the following:

1 x	Natural
2x	Blue + Brown
3 G	Blue + Brown + Yellow/green
4 G	Brown + Black + Grey + Yellow/green
5 G	Brown + Black + Grey + Yellow/green + Blue

Outer sheath

LSZH polyolefin outer sheath, orange colour.

APPLICATIONS

The Toxfree Plus 331 ZH SZ1-K (AS+) / RZ1-K (AS+) is specially designed to transmit electric power in extrem conditions such as durning a fire. Where it is necessary to enscure the power supply to emergency circuits, signaling lights, fume extractors, acustic alarms, water pumps, etc. In case of fire, it does not emit toxic or corrosive gases, thereby protecting public health and avoiding any possible damage to electronic equipment. For this reason, its use is highly recommended in public places such as: hospitals, schools, museums, airports, bus terminals, shops in general, tunnels, the underground, etc., as well as in, offices, production plants, laboratories, etc.

CHARACTERISTICS

- Flexible conductor, Class 5
- Minimum bending radius 5x cable diameter
- Fire resistant 120 min at 840º PH120
- Impact resistance AG2 medium impact
- Emergency circuits
- Buried
- Minimum service temperature: -40ºC (Fixed and protected installation)
- Meter by meter marking
- LSZH
- Outdoor installation: permanent
- Public places
- In conduit
- Maximum service temperature 90ºC
- Flame non-propagation
- Low smoke emission: Light transmittance > 60%
- Water resistance AD3 aspersion
- Industrial use
- Maximum short-circuit temperature: 250ºC (max. 5 s)
- Fire non-propagation
- Low corrosive gases emission
- Chemical & Oil resistance: acceptable
- Open air

INSTALLATION CONDITIONS

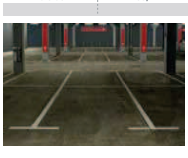
Norma nacional / Europea: EN 60332-1 / EN 60332-3 / EN 50267-1 / EN 50267-2 / EN 61034 / EN 50200 / EN 50363
Norma internacional: IEC 60332-1 / IEC 60332-3 / IEC 60754-1 / IEC 60754-2 / IEC 61034 / IEC 60331-1 / IEC 60331-2

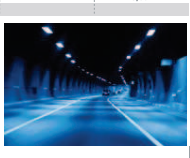
Top Cable

TOXFREE PLUS 331 ZH SZ1-K (AS+) / RZ1-K (AS+)

DIMENSIONS

Cros section (mm²)	Diameter (mm)	Weight (Kg/km)	Open Air 30ºC (A)	Buried 20ºC (A)	Voltage drop (V/A · km)
1 x 1,5	5,9	48	23	22	29,5
1 x 2,5	6,6	64	29	29	17,7
1 x 4	7,3	84	40	37	11
1 x 6	7,9	106	53	46	7,32
1 x 10	9,2	159	74	61	4,23
1 x 16	10,2	219	101	79	2,68
1 x 25	12	298	135	101	1,73
1 x 35	13,1	391	169	122	1,23
1 x 50	14,8	533	207	144	0,86
1 x 70	16,9	732	268	178	0,603
1 x 95	18,6	942	328	211	0,457
1 x 120	20,4	1.188	383	240	0,357
1 x 150	22,5	1.479	444	271	0,286
1 x 185	25,1	1.788	510	304	0,235
1 x 240	27,9	2.312	607	351	0,178
1 x 300	30,6	2.884	703	396	0,142
1 x 400	34,8	3.773	823	464	0,108
1 x 500	39	4.890	946	525	0,085
1 x 630	44,1	6.363	1.088	596	0,064
2 x 1,5	8,5	105	26	26	34
2 x 2,5	10,3	153	36	34	20,4
2 x 4	11,8	210	49	44	12,7
2 x 6	12,9	266	63	56	8,45
2 x 10	15,6	410	86	73	4,89
3 G 1,5	9,2	126	26	26	34
3 G 2,5	10,9	180	36	34	20,4
3 G 4	12,5	250	49	44	12,7
3 G 6	13,7	323	63	56	8,45
3 x 10	16,2	498	86	73	4,89
3 x 16	18,9	715	100	79	2,68
3 x 25	22,7	982	127	101	1,73
3 x 35	25,5	1.310	158	122	1,23
3 x 50	28,9	1.792	192	144	0,86
3 x 70	33,6	2.484	246	178	0,603
4 G 1,5	10,3	155	23	22	29,5
4 G 2,5	11,8	217	32	29	17,7
4 G 4	13,6	305	42	37	11
4 G 6	15	397	54	46	7,32
4 x 10	18,22	626	75	61	4,23
4 x 16	20,8	893	100	79	2,68
4 x 25	25,5	1.242	127	101	1,73
4 x 35	27,9	1.661	158	122	1,23
4 x 50	32,7	2.295	192	144	0,86
4 x 70	37,7	3.183	246	178	0,603
4 x 95	41,8	4.109	298	211	0,457
4 x 120	46	5.187	346	240	0,357
4 x 150	52,2	6.661	399	271	0,286
4 x 185	58,9	8.166	456	304	0,235
4 x 240	65,5	10.538	538	351	0,178
5 G 1,5	11,2	183	23	22	29,5
5 G 2,5	12,9	258	32	29	17,7
5 G 4	15	363	42	37	11
5 G 6	16,4	477	54	46	7,32
5 G 10	20,1	764	75	61	4,23
5 G 16	23	1093	100	79	2,68
5 G 25	27,8	1.517	127	101	1,73
5 G 35	30,8	2.024	158	122	1,23
5 G 50	36,4	2.846	192	144	0,86





For further technical data please request this cable's technical datasheet.

Top Cable reserves the right to carry out any modification to the data sheets whatsoever without giving previous notice.

Based on: HD 22.13 / UNE 21027-13

RoHS compliant

Top Cable

LOW VOLTAGE 450/750 V

TOXFREE ZH XTREM

H07ZZ-F (AS)

The extra-flexible LSZH rubber cable.

DESIGN

Conductor

Electrolytic copper, class 5 (flexible), based on EN 60228

Insulation

LSZH Rubber (type EI8).

The standard identification is the following:

1 x ..... Natural
2 x ..... Brown + Blue
3 G ..... Brown + Blue + amararillo/verde
4 G ..... Brown + Black + Grey + Yellow/green
5 G ..... Brown + Black + Grey + Blue + Yellow/green

Outer sheath

LSZH thermosetting rubber (type EM8). Black colour.

APPLICATIONS

Flexible cable for mobile service, suitable for instalations where low smoke and halogen free fumes under fire conditions are required. Suitable for installations where the cable must withstand medium mechanical stress, for machines in industrial and agricultural workshops, for motors and transportable machines on construction sites, for windmills and for agricultural applications.

CHARACTERISTICS

- Flexible conductor, class 5
- Minimum bending radius 3x cable diameter
- LSZH
- Impact resistance AG2 medium impact
- Public places
- Windmills
- -40° Minimum service temperature: -40ºC (Fixed and protected installation)
- Meter by meter marking
- Low smoke emission: Light transmittance >60%
- Outdoor installation: permanent
- Industrial use
- Open air
- 70° Maximum service temperature 70ºC
- Flame non-propagation
- Low corrosive gases emission
- Water resistance AD7 immersion
- Industrial mobile use
- Damp environment
- 250° Maximum short-circuit temperature: 250ºC (max. 5 s)
- Fire non-propagation
- Environmentally friendly
- Chemical & Oil resistance: excellent
- Heavy mobile use

INSTALLATION CONDITIONS

Norma nacional / Europea: EN 60332-1 / EN 60332-3 / EN 50267-1 / EN 50267-2 / EN 61034
Norma internacional: IEC 60332-1 / IEC 60332-3 / IEC 60754-1 / IEC 60754-2 / IEC 61034

Top Cable

TOXFREE ZH XTREM **H07ZZ-F (AS)**

DIMENSIONS

Cros section (mm²)	Diameter (mm)	Weight (Kg/km)	Open Air 30ºC (A)	Buried 20ºC (A)	Voltage drop (V/A · km)
1 x 6	8,2	114	43	-	6,86
1 x 10	9,9	177	60	-	3,97
1 x 16	11,2	253	82	-	2,51
1 x 25	13,1	366	110	-	1,62
1 x 35	14,7	482	137	-	1,15
1 x 50	17,1	670	167	-	0,802
1 x 70	19,2	892	216	-	0,565
1 x 95	21,7	1.122	264	-	0,428
1 x 120	23,8	1.425	308	-	0,335
1 x 150	26,2	1.766	356	-	0,268
1 x 185	28,8	2.126	409	-	0,220
1 x 240	32,0	2.733	485	-	0,166
1 x 300	34,9	3.356	561	-	0,133
2 x 1	8,3	91	17	-	46,8
2 x 1,5	8,7	108	22	-	31,9
2 x 2,5	10,4	158	30	-	19,2
2 x 4	12,0	219	40	-	11,9
2 x 6	13,5	288	51	-	7,92
2 x 10	17,8	504	70	-	4,58
2 x 16	21,4	726	94	-	2,90
2 x 25	25,5	1.058	119	-	1,87
3 G 1	8,8	109	17	-	46,8
3 G 1,5	9,7	136	22	-	31,9
3 G 2,5	11,4	197	30	-	19,2
3 G 4	13,0	272	40	-	11,9
3 G 6	14,3	354	51	-	7,92
3 G 10	19,8	646	70	-	4,58
3 G 16	22,4	891	94	-	2,90
3 G 25	26,8	1.308	119	-	1,87
3 G 35	26,2	1.699	148	-	1,33
3 G 50	35,4	2.393	180	-	0,926
3 G 70	39,6	3.155	232	-	0,653
4 G 1	9,7	133	14	-	40,5
4 G 1,5	10,6	167	18,5	-	27,6
4 G 2,5	12,6	243	25	-	16,6
4 G 4	14,5	340	34	-	10,3
4 G 6	16,3	458	43	-	6,86
4 G 10	21,3	789	60	-	3,97
4 G 16	24,3	1.101	80	-	2,51
4 G 25	30,2	1.681	101	-	1,62
4 G 35	33,3	2.176	126	-	1,15
4 G 50	38,6	3.019	153	-	0,802
4 G 70	43,1	3.995	196	-	0,565
4 G 95	50,5	5.260	238	-	0,428
5 G 1	10,5	160	14	-	40,5
5 G 1,5	11,6	205	18,5	-	27,6
5 G 2,5	13,9	295	25	-	16,6
5 G 4	16,3	435	34	-	10,3
5 G 6	17,9	554	43	-	6,86
5 G 10	23,6	975	60	-	3,97
5 G 16	27,3	1.376	80	-	2,51
5 G 25	33,0	2.053	101	-	1,62

For further technical data please request this cable's technical datasheet.

Top Cable reserves the right to carry out any modification to the data sheets whatsoever without giving previous notice.

Based on: IEC 60502

RoHS compliant

Top Cable

LOW VOLTAGE 0,6/1kV

TOXFREE ZH

XTREM DZ-K (AS)

The 1.000 V rubber LSZH cable for fixed installations

DESIGN

Conductor

Electrolytic copper, class 5 (flexible), based on IEC 60228

Insulation

Thermosetting rubber (type EPR)

Outer sheath

LSZH thermosetting rubber (type EM8). Black colour.

APPLICATIONS

Flexible LSZH cable for fixed installations. Suitable for transport and distribution of electric power. This cable is manufactured with flexible conductors in order to facilitate installations with complex layouts. For indoor and outdoor use.

CHARACTERISTICS

- Flexible conductor class 5
- Minimum bending radius 5 x cable diameter
- LSZH
- Impact resistance AG2 medium impact
- Public places
- Open air
- -40° Minimum service temperature: -40 ºC (Fixed and protected installation)
- Meter by meter marking
- Low smoke emission: Light transmittance >60%
- Outdoor installation: permanent
- Industrial use
- Damp environment
- 90° Maximum service temperature 90ºC
- Flame non-propagation
- Low corrosive gases emission
- Water resistance AD7 immersion
- Heavy mobile use
- 250° Maximum short-circuit temperature: 250ºC (max. 5 s)
- Fire non-propagation
- Environmentally friendly
- Chemical & Oil resistance: excellent
- Windmills

INSTALLATION CONDITIONS

Norma nacional / Europea: EN 60332-1 / EN 60332-3 / EN 50267-1 / EN 50267-2 / EN 61034
Norma internacional: IEC 60332-1 / IEC 60332-3 / IEC 60754-1 / IEC 60754-2 / IEC 61034

Top Cable

LOW VOLTAGE 0,6/1kV

Based on: UNE 21150 / UL 758

TOXFREE ZH

XTREM DZ-F (AS)

The 1.000 V LSZH rubber cable for heavy duty

DESIGN

Conductor

Electrolytic copper, class 5 (flexible), based on IEC 60228

Insulation

Thermosetting rubber (type EPR). Style 3775.

Outer sheath

LSZH thermosetting rubber (type EM8). Style 21465. Black colour.

APPLICATIONS

Flexible LSZH cable for mobile installations. Suitable for transport and distribution of electric power. This cable is manufactured with flexible conductors in order to facilitate installations with complex layouts.. For indoor and outdoor use.

CHARACTERISTICS

- Flexible conductor class 5
- Minimum service temperature: -40 °C (Fixed and protected installation)
- Maximum service temperature 90ºC
- Maximum short-circuit temperature: 250ºC (max. 5 s)
- Minimum bending radius 5 x cable diameter
- Meter by meter marking
- Flame non-propagation
- Fire non-propagation
- LSZH
- Low smoke emission: Light transmittance >60%
- Low corrosive gases emission
- Environmentally friendly
- Impact resistance AG2 medium impact
- Outdoor installation: permanent
- Water resistance AD7 immersion
- Chemical & Oil resistance: excellent

INSTALLATION CONDITIONS

- Public places
- Industrial use
- Industrial mobile use
- Heavy mobile use
- Windmills
- Open air
- Damp environment

Norma nacional / Europea: EN 60332-1 / EN 60332-3 / EN 50267-1 / EN 50267-2 / EN 61034
Norma internacional: IEC 60332-1 / IEC 60332-3 / IEC 60754-1 / IEC 60754-2 / IEC 61034

Top Cable

LOW VOLTAGE CA: 0,6/1kV · CC: 1,8 kV

Based on: TÜV 2Pfg 1169-08 / UTE C 32-502

TOPSOLAR PV

ZZ-F

Cables for photovoltaic solar installations

DESIGN

Conductor

Class 5 tinned copper, based on EN 60228

Insulation

LSZH thermosetting Rubber (EI6 type)

Outer sheath

LSZH thermosetting rubber (type EM8). Red or black colour.

APPLICATIONS

Flexible cables for mobile service and for fixed installations. Specially designed for the connection of photovoltaic panels.

Packaging

Available in rolls (lengths of 50 and 100 m) and coils.

CHARACTERISTICS

- Flexible conductor Class 5/6
- Minimum service temperature: -40 °C (Fixed and protected installation)
- Maximum service temperature 120ºC
- Maximum short-circuit temperature: 250ºC (max. 5 s)
- Minimum bending radius 3 x cable diameter
- Meter by meter marking
- Flame non-propagation
- Outdoor installation: occasional
- Impact resistance AG2 medium impact
- Water resistance AD7 immersion
- Chemical & Oil resistance: good
- Low extreme temperature resistance: excellent
- UV resistant
- Estimated lifetime 30 years
- Grease & mineral oils resistance: excellent
- Abrasion resistance: excellent

INSTALLATION CONDITIONS

- Photovoltaics solar installations
- Open air

National norm / European: EN 60332-1 / EN 50267-1 / EN 50267-2 / EN 61034 / NFC 32-070 (C2)
International norm: IEC 60332-1 / IEC 60754-1 / IEC 60754-2 / IEC 61034

Top Cable

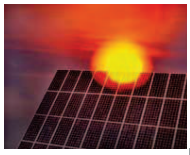
TOPSOLAR PV ZZ-F

DIMENSIONS

Sección (mm2)	Diámetro (mm)	Weight (Kg/km)	Open Air (A)	inst. on surface (A)	inst. adjadjoining to surface (A)	Voltage drop (V/A · km)
1 x 1,5	4,9	40	30	29	24	38,0
1 x 2,5	5,0	45	41	39	33	23,0
1 x 4	5,6	61	55	52	44	14,3
1 x 6	6,2	80	70	67	57	9,49
1 x 10	7,2	125	98	93	79	5,46
1 x 16	8,2	180	132	125	107	3,47
1 x 25	10,8	294	176	167	142	2,23
1 x 35	11,9	390	218	207	176	1,58

For further technical data please request this cable's technical datasheet.

Top Cable reserves the right to carry out any modification to the data sheets whatsoever without giving previous notice.



3.1 Cable designation

Each cable has a designation code according to the standard.This description is made up of by a set of letters and numbers, each one representing a different aspect of the cables composition.

Each cable is defined by a series of characteristics of the product (materials, nominal voltage, etc.) that help the buyer/installer to choose the type of cable that is suited to their needs. The cable name aids the logistics department in identifying the actual cable ordered by the client.

We have divided the following cable designation into three blocks:

3.1.1. Low Voltage Cables .....0,6 / 1 kV

3.1.2. Low Voltage Cables .....up to 750 V

3.1.3. Low Voltage Cables .....(s/VDE 0245)

3.1.1. Low Voltage Cables 0,6 / 1 kV

Top Cable Powerflex .....RV-K
Top Cable Powerhard.....RV
Top Cable Powerhard F.....RVFV, VVFV & VVFV-K
Top Cable Powerhard M.....RVRV, VVMV & VVMV-K
Top Cable Flextel 200.....VV-K
Top Cable Screenflex 200.....VV-K
Top Cable Toxfree ZH .....RZ1-K, Z1Z1-K, Z1Z1FZ1-K, Z1Z1C4Z1-K, RC4Z1-K, RZ1FZ1-K & RZ1MZ1-K, RZ1 AL, XZ1 AL
Top Cable Toxfree PLUS 331 ZH.....SZ1-K (AS+)
Top Cable XTREM .....DN-F & DN-K
Top Cable TOPSOLAR PV .....ZZ-F & XZ1FA3Z-K

	A.	B.	C.	D.	E.	F.	G.	H.	I.
	NAME OF MANUFACTURER AND TRADEMARK	INSULATION	OUTER SHEATH, INTERNAL COATING, SCREEN ARMOUR	SHIELD TYPE	OUTER SHEATH	CONDUCTOR	ASSIGNED NOMINAL VOLTAGE IN kV	NUMBER OF CONDUCTORS, SYMBOL AND SECTION	STANDARD FOR CABLE DESIGN
EXAMPLE	TOP CABLE POWERFLEX	R			V	-K	0,6/1 kV	4G 16	UNE 21123 IEC 60502

A. Name of manufacturer and Trademark

After the name of the manufacturer (Top Cable, in this case) and of the Trademark (Powerflex), the letters and the numbers refer to the coverings of the cable, from the other sheaths, to the type of conductor, the nominal voltage and the final composition of the cable.

The meaning of each letter within each section is as follows:

B. Insulation:

R .....Cross-linked Polyethylene (XLPE).
X.....Cross-linked Polyethylene (XLPE).
Z1 .....Thermoplastic halogen free Polyolefin.
Z.....Cross-linked halogen free Elastomer
V .....Polyvinyl chloride (PVC).
S.....Cross-linked halogen free silicone compound.
D .....Ethylene-Propylene Rubber (EPR).

C. Screen, internal coating, screen armour:

C3 .....Screen corrugated copper tape.
C4 .....Braided copper screen.
V .....Polyvinyl chloride (PVC).
Z1 .....LSZH Poliolefin
If there is no internal covering or any screen armour, no letter is used.

D. Type of armour:

F.....Helicoidal steel ribbon.
FA.....Helicoidal aluminium ribbon.
FA3.....Lengthwise corrugated aluminium ribbon.
M.....Steel wire armour.
MA.....Aluminium wire armour.

E. Outer sheath:

V:.....Polyvinyl chloride (PVC).
Z1 .....Thermoplastic halogen free Polyolefin.
Z.....Cross-linked halogen free Elastomer.
N .....Vulcanized Chlorinated Polymer.

F. Conductor:

-K .....Flexible copper (class 5) for fixed installations.
-F .....Flexible copper (class 5) for mobile services.
-D .....Flexible for welding machine cables.

When there is no letter, the conductor if rigid copper, class 1 or 2

AL.....If the conductor is aluminium, (AL) is indicated.

G. Nominal voltage:

0,6/1 kV .....Nominal voltage 1.000V

H. Number of conductors, symbol and cross section:

nGS.....number and cross section of the conductors, in mm2, one of tem being yellow/green conductor
nxS.....number and cross section of the conductors, in mm2, one of tem being yellow/green conductor

I. Standards for cable design:

The references to the standards for the design of the cable in question are indicated
UNE 21123 / IEC 60502 / UNE 21150, ...

Lastly, the markings of the cable can contain additional details like:

CE.....Obligatory CE marking for commercial products in the European Community The mark can be on the product or on the packing

Date of manufacturing .....(YYMMDD) the date of manufacturing is usually indicated for tracking purposes. Tracking allows us to know when the cable was produced, the materials and more useful information.

3.1.2. Low Voltage Cables up to 750 V

Top Cable Topflex H05V-K, H07V-K
Top Cable Topflex .....Tri-Rated
Top Cable Topflex .....VV-F & H05VV-F
Top Cable Topflat.....H07VVH6-F
Top Cable Flextel 140 .....H05VV5-F
Top Cable Toxfree ZH.....ES05Z1, ES07Z1 & H07Z1
Top Cable Toxfree XTREM H07ZZ-K
Top Cable Xtrem H07RN-F
Top Cable Topweld.....H01N2-D

	A.	B.	C.	D.	E.	F.	G.	H.	I.	J.
	NAME OF MANUFACTURER AND TRADEMARK	STANDARDS SYMBOL	ASSIGNED VOLTAGE	INSULATION	METALLIC COATINGS	OUTER SHEATH	CONSTITUTIVE ELEMENTS AND SPECIAL CONSTRUCTION	CONDUCTOR	NUMBER OF CONDUCTORS, SYMBOL AND SECTION	CERTIFICATION
EXAMPLE	TOP CABLE Xtrem	H	07	R		N		-F	4x50	AENOR <HAR>

A. Name of manufacturer and Trademark:

After the name of the manufacturer (in this case, Top Cable) and of the Trademark (Xtrem), the letters and numbers refer to its standardization, the nominal voltage, the cable insulations, metallic coverings, the type of conductors, and the final composition of the cable.

The meaning of each letter within each section is as follows:

B. Standards Symbol:

H .....Means that the cable is designed and made according to harmonized standards.

C. Assigned voltage:

01 .....100/100V
03.....300/300V
05 .....300/500V
07.....450/750V

D. Insulation:

R .....Rubber (EI4)
B .....Ethylene-Propylene Rubber (EPR).
G .....Copolymer ethylene vinyl acetate (EVA).
N .....Elastomer polychloroprene.
R .....Natural rubber (NR) or styrene-butadiene rubber (SBR).
S.....Silicone rubber.
V .....Polyvinyl chloride (PVC).
V2 .....PVC (90ºC service).
V3 .....PVC (low temperature service).
V4 .....Polyvinyl chloride (cross-linked).
Z.....Polyolefin with low emission of corrosive gases and smoke.
Z1 .....Thermoplastic polyolefin with low emission of corrosive gases and smoke.

E. Metallic coatings:

C4 .....Copper braided screen.

F. Outer sheath:

B .....Ethylene-Propylene Rubber (EPR).
G .....Copolymer ethylene vinyl acetate (EVA).
J.....Plaited fibreglass.
N .....Polychloroprene (or similar product).
N4 .....Chlorosulfonated Polyethylene (CM).
N8 .....Special polychloroprene, water resistant.
Q .....Thermoplastic Polyurethane (TPU).
R .....Natural rubber (NR) or styrene-butadiene rubber (SBR).
S.....Silicone rubber.
T.....Textile braided over insulated conductors.
V .....Polyvinyl chloride (PVC).
V2 .....PVC (90ºC service).
V3 .....PVC (low temperature service).
V4 .....Polyvinyl chloride (reticulated).
V5 .....PVC (oil resistant).
Z.....Cross-linked polyolefin with low emission of corrosive gases and smoke.
Z1 .....Thermoplastic polyolefin with low emission of corrosive gases and smoke.

G. Constitutive elements and special construction:

None .....Round cable.
D3 .....Conducting element made up of one or more components (metallic or textile) located in the centre of a round cable or distributed across the width of a flat cable.
H .....Flat cables, with or without an outer sheath, with insulated conductors that can be separated.
H2 .....Flat cables, with insulated conductors that cannot be separated.
H6 .....Flat cables with three or more insulated conductors.
H7 .....Double sheath of extruded insulation.
H8 .....Extendable cable.

H. Conductor:

-D .....Flexible for welding machine cables.
-E .....Very Flexible for use in welding machines.
-F .....Flexible copper for mobile installations (class 5 of IEC 60228).
-H .....Extra-flexible (class 6 of IEC 60228).
-K .....Flexible copper for fixed installations (class 5 of IEC 60228).
-R .....Rigid, with round section, of various wired cables.
-U .....Solid strand copper.
-Y .....Copper strips wrapped helicoidally round a textile support (Oropel).

I. Number of conductors, symbol and cross section:

nGS.....number and cross section of the conductors, in mm2, one of them being yellow/green conductor.
nxS.....number and cross section of the conductors, in mm2, one of them being yellow/green conductor.

J. Certification:

AENOR <HAR> .....Means that the product is subject to a regular control of manufacturing by an external organisation (AENOR), and having the corresponding certificate. It is a certified product <HAR>

Lastly, the markings of the cable can contain additional details like:

CE.....Obligatory CE marking for commercial products in the European Community This mark can be on the product or on the packing.

Date of manufacturing .....(YYMMDD) the date of manufacturing is usually indicated for tracking purposes. Tracking us to know when the cable was produced, the materials and more useful information.

3.1.3. Low Voltage Cables (s/VDE 0245):

Top Cable Flextel 110 ..... YSLY
Top Cable Screenflex 110 ..... LiYCY

Abbreviations for designation of s/VDE 0245 cables:

After the name of the manufacturer (in this case, Top Cable) and of the Trademark, the letters and numbers refer to the cable sheathings, metallic coverings, the type of conductors, and the final composition of the cable.

Following is a list of the meanings of the most important letters:

A ..... Cables for outdoor use.
G ..... Cables for mines.
J ..... Cables for indoor use.
JE ..... Cables for interior use in industrial electronic control systems or data processing.
S ..... Cables for telephone switchboards.
Li ..... Flexible conductor within the cable.
2Y ..... Insulation or sheath of solid PE.
H ..... Halogen free insulation.
02Y ..... Cellular PE insulation.
02YS ..... Foam-skin insulation (double layer, cellular PE and solid).
Y ..... PVC insulation.
F ..... Nucleus of cable filled with jelly (petrolate ...).
C ..... Copper braided screen.
(L) ..... Screen (tape) of aluminium-copolymer.
b ..... Armour of strands or steel tape.
Bd ..... Cables in groups.
BdiMF ..... Screened groups with metallic tape.
P ..... Pairs.
PiMF ..... Screened pairs with metallic tape.
ViMF ..... Screened quads with metallic tape.
Lg ..... Cables in concentric layers.

Types of armour:

R ..... Round steel wires.
F ..... Steel bands (flat wires).
2B ..... Double layers of steel bands.

Example **Screenflex 110 LiYCY**

Li ..... Flexible conductor of the cable.
Y ..... PVC insulation.
C ..... Copper plait (screen).
Y ..... PVC sheath.

Now that we have seen the various elements and codings involved we can proceed to the final cable description see examples and comments (below).

Example 1 **TOP CABLE FLEXTEL 140 H05VV5-F 19G1 UNE 21031 HD 21 AENOR <HAR> CE 120416**

TOP CABLE ..... Manufacturer of the cable.

FLEXTEL 140 ..... Trademark of the manufacturer.

H05VV5-F ..... Harmonized cable (H) of 500V (05), PVC insulation (V), oil resistant PVC sheath (V5) and flexible conductor, for mobile services (F). Cables with the H in the code represent cables carrying the <HAR>, harmonized specification.

19G1 ..... Cable with 19 conductors of 1 mm², being one of them a yellow-green.

UNE 21031 HD 21 ..... Standard for cable design: Spanish and its correlative European.

AENOR <HAR> ..... Means that the product is subject to manufacturing control by an external organization AENOR and it is a certified product <HAR>.

CE ..... Obligatory CE marking for commercial products in the European Community This mark can be on the product or on the packing.

120416 ..... Date of manufacturing (YYMMDD) .

Example 2 **TOP CABLE TOPFLEX H05VV-F AENOR <HAR>**

TOP CABLE ..... Manufacturer of the cable.

TOPFLEX ..... Trademark of the manufacturer.

H05VV5-F ..... Harmonized cable (H) of 500V (05), PVC insulation (V), PVC sheath (V) and flexible conductor, for mobile services (F).

AENOR <HAR> ..... Means that the product is subject to manufacturing control by an external organization AENOR and it is a certified product <HAR>.

Example 3 **TOP CABLE POWERHARD RVMV 0,6/1 kV 3X2,5 UNE 21123 IEC 60502 CE 120416**

TOP CABLE ..... Manufacturer of the cable.

POWERHARD ..... Trademark of the manufacturer.

RVMV ..... Insulated cable with XPLE (R), with a PVC screen (V), steel wire armouring (M) and sheathed with PVC (V).

0,6/1 kV ..... The nominal voltage of the cable is 1000 V.

3X2,5 ..... Cable with three conductors of 2,5 mm².

UNE 21123 IEC 60502 ..... Standard for cable design: In these standards the cable has an exactly defined thicknesses, material qualities, tests to be made, etc. The UNE 21123 is the Spanish design standard The IEC 60502 is the European standard on which the UNE 21123 is founded.

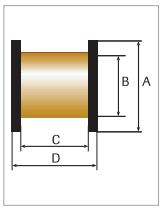
CE ..... Obligatory CE marking for commercial products in the European Community This mark can be on the product or on the packing.

090102 ..... Date of manufacturing (YYMMDD)

3.2 Drum Dimensions

Dimensions table

A	B	C	D	DRUMS
630 mm	315 mm	370 mm	450 mm	BM 00600
800 mm	400 mm	520 mm	600 mm	BM 00800
1.000 mm	500 mm	610 mm	710 mm	BM 001000
1.250 mm	630 mm	710 mm	810 mm	BM 001250
1.400 mm	710 mm	810 mm	930 mm	BM 001400
1.600 mm	900 mm	980 mm	1.100 mm	BM 001600
1.800 mm	1.120 mm	960 mm	1.100 mm	BM 001800
2.000 mm	1.250 mm	960 mm	1.100 mm	BM 002000
2.240 mm	1.400 mm	1.190 mm	1.350 mm	BM 002200
2.500 mm	1.500 mm	1.190 mm	1.350 mm	BM 002500



3.3 Table of capacities ./..

Table of capacities (m)

	External drum diameter (mm)							
ø Cables (mm)	630	800	1.000	1.250	1.400	1.600	1.800	2.000
3	8.650	-	-	-	-	-	-	-
4	4.866	-	-	-	-	-	-	-
5	3.114	7.057	-	-	-	-	-	-
6	2.163	4.901	-	-	-	-	-	-
7	1.589	3.601	6.600	-	-	-	-	-
8	1.216	2.757	5.053	-	-	-	-	-
9	961	2.178	3.992	-	-	-	-	-
10	779	1.764	3.234	5.850	-	-	-	-
11	643	1.458	2.673	4.835	-	-	-	-
12	541	1.225	2.246	4.062	5.789	-	-	-
13	461	1.044	1.914	3.461	4.932	-	-	-
14	397	900	1.650	2.985	4.253	-	-	-
15	346	784	1.437	2.600	3.705	5.388	-	-
16	304	689	1.263	2.285	3.256	4.735	5.263	-
17	269	610	1.119	2.024	2.884	4.195	6.662	-
18	240	545	998	1.805	2.573	3.742	4.159	5.105
19	216	489	896	1.620	2.309	3.358	3.732	4.582
20	195	441	808	1.462	2.084	3.031	3.368	4.135
21	177	400	733	1.326	1.890	2.749	3.055	3.751
22	161	365	668	1.209	1.722	2.505	2.784	3.417
23	147	334	611	1.106	1.576	2.292	2.547	3.127
24	135	306	561	1.016	1.447	2.105	2.339	2.872
25	125	282	517	936	1.334	1.940	2.156	2.646
26	115	261	478	865	1.233	1.793	1.993	2.447
27	-	242	444	802	1.143	1.663	1.848	2.269
28	-	225	412	746	1.063	1.546	1.719	2.110
29	-	210	385	696	991	1.441	1.602	1.967
30	-	196	359	650	926	1.347	1.497	1.838

3.3 Table of capacities ../..

Table of capacities (m)

	External drum diameter (mm)							
ø Cables (mm)	630	800	1.000	1.250	1.400	1.600	1.800	2.000
31	-	184	v337	609	867	1.261	1.402	1.721
32	-	172	316	571	814	1.184	1.316	1.615
33	-	162	297	537	765	1.113	1.237	1.519
34	-	-	280	506	721	1.049	1.166	1.431
35	-	-	264	478	680	990	1.100	1.350
36	-	-	250	451	643	935	1.040	1.276
37	-	-	236	427	609	886	984	1.208
38	-	-	224	405	577	840	933	1.145
39	-	-	213	385	548	797	886	1.087
40	-	-	202	366	521	758	842	1.034
41	-	-	192	348	496	721	802	984
42	-	-	-	332	473	687	764	938
43	-	-	-	316	451	565	729	895
44	-	-	-	302	431	526	696	854
45	-	-	-	289	412	599	665	817
46	-	-	-	276	394	573	637	782
47	-	-	-	265	377	549	610	749
48	-	-	-	254	362	526	585	718
49	-	-	-	244	347	505	561	589
50	-	-	-	234	333	485	539	662
51	-	-	-	225	320	466	518	636
52	-	-	-	216	308	448	498	612
53	-	-	-	-	297	432	480	589
54	-	-	-	-	286	416	462	567
55	-	-	-	-	276	401	445	547
56	-	-	-	-	266	387	430	527
57	-	-	-	-	257	373	415	509
58	-	-	-	-	248	360	401	492
59	-	-	-	-	239	348	387	475
60	-	-	-	-	232	337	374	459

3.4 Anglo-American conversion chart

TABLE OF CONVERSION

	Conduct electricity diameter			Section		Cooper Weigh
AWG Nr	Mils	Mm	Circular mils	Sq. in.	Mm²	Kg./Km
4 / 0	460,0	11,684	211.600	0,1662	107,15	953
3 / 0	409,6	10,404	167.800	0,1318	84,95	756
2 / 0	364,8	9,266	133.100	0,1045	67,49	599
1 / 0	324,9	8,252	105.600	0,08291	53,46	475
1	289,3	7,348	83.690	0,06573	42,43	377
2	257,6	6,544	66.360	0,05212	33,59	299
3	229,4	5,827	52.620	0,04133	26,69	237
4	204,3	5,189	41.740	0,03278	21,16	188
5	181,9	4,621	33.090	0,02599	16,76	149
6	162,0	4,115	26.240	0,02061	13,33	118
7	144,3	3,665	20.820	0,01635	10,52	93,7
8	128,5	3,264	16.510	0,01297	8,347	74,4
9	144,4	2,906	13.090	0,01028	6,651	58,9
10	101,9	2,588	10.380	0,008155	5,269	46,8
11	90,7	2,305	8.230	0,00646	4,155	37,1
12	80,8	2,053	6.530	0,00513	3,301	29,4
13	72,0	1,828	5.180	0,00407	2,630	23,3
14	64,1	1,628	4.110	0,00323	2,087	18,5
15	57,1	1,450	3.260	0,00256	1,651	14,7
16	50,8	1,291	2.580	0,00203	1,307	11,6
17	45,3	1,150	2.050	0,00161	1,039	9,23
18	40,3	1,024	1.620	0,00128	0,8012	7,32
19	35,9	0,912	1.290	0,00101	0,6532	5,80
20	32,0	0,812	1.020	0,000804	0,5166	4,60
21	28,5	0,723	812	0,000638	0,4106	3,65
22	25,4	0,644	645	0,000503	0,3257	2,89
23	22,6	0,573	511	0,000401	0,2579	2,30
24	20,1	0,511	404	0,000317	0,2051	1,82
25	17,9	0,455	320	0,000252	0,1626	1,44
26	15,9	0,405	253	0,000199	0,1288	1,14
27	14,2	0,361	202	0,000158	0,1024	0,912
28	12,6	0,321	159	0,000125	0,08093	0,717
29	11,3	0,286	128	0,000100	0,06240	0,577
30	10,0	0,255	100	0,0000785	0,05107	0,451
31	8,9	0,227	79,2	0,0000622	0,04047	0,357
32	8,0	0,202	64,0	0,0000503	0,03205	0,289
33	7,1	0,180	50,4	0,0000396	0,02545	0,227
34	6,3	0,160	39,7	0,0000312	0,02012	0,179
35	5,6	0,143	31,4	0,0000246	0,01608	0,142
36	5,0	0,127	25,0	0,0000196	0,01267	0,113
37	4,5	0,113	20,2	0,0000159	0,01003	0,0912
38	4,0	0,101	16,0	0,0000126	0,008012	0,0722
39	3,5	0,0897	12,2	0,00000962	0,006182	0,0550
40	3,1	0,0799	9,61	0,00000755	0,004869	0,0433
41	2,8	0,0711	7,84	0,00000618	0,003972	0,0353
42	2,5	0,0635	6,25	0,00000491	0,003167	0,0282
43	2,2	0,0559	4,84	0,00000380	0,002452	0,0218
44	2,0	0,0508	4,00	0,00000314	0,002027	0,0180
45	1,8	0,0457	3,24	0,00000254	0,001642	0,0146
46	1,6	0,0406	2,56	0,00000201	0,001297	0,01155
47	1,4	0,0358	1,96	0,00000154	0,0009931	0,00884
48	1,2	0,0305	1,44	0,00000113	0,0007296	0,00649
49	1,1	0,0279	1,21	0,000000950	0,0006131	0,00545
50	1,0	0,0254	1,00	0,000000785	0,0005067	0,00451

SPECIFICATION TABLE

Calibre	Area	Number & Diameter		External diameter approximate KG/KM	Weigh approximate KG/KM		Resistance CC 20ºC Ohm/km	
AWG o MCM	mm²	strands	mm	mm	copper	aluminium	copper	aluminium
22	0.324	7	0.244	0.737	2.941	-	54.0	-
20	0.519	7	0.307	0.914	4.705	-	33.9	-
19	0.653	7	0.345	1.04	5.922	-	27.2	-
18	0.823	7	0.386	1.17	7.462	-	21.40	-
17	1.04	7	0.437	1.32	9.429	-	17.10	-
16	1.31	7	0.488	1.47	11.86	-	13.40	-
15	1.65	7	0.549	1.65	14.98	-	10.75	-
14	2.08	7	0.615	1.85	18.88	-	8.45	-
13	2.63	7	0.691	2.08	23.82	-	6.69	-
12	3.31	7	0.775	2.34	30.00	9.12	5.32	8.71
11	4.17	7	0.871	2.62	37.80	11.5	4.22	6.92
10	5.26	7	0.978	2.95	47.71	14.5	3.342	5.479
9	6.63	7	1.10	3.30	60.14	18.3	2.652	4.347
8	8.37	7	1.23	3.70	75.9	23.1	2.102	3.446
7	10.55	7	1.39	4.16	95.7	29.1	1.667	2.732
6	13.30	7	1.56	4.67	121	36.7	1.322	2.168
5	16.77	7	1.75	5.24	152	45.2	1.049	1.720
4	21.15	7	1.96	5.88	192	58.3	0.8315	1.363
3	26.87	7	2.20	6.61	242	73.5	0.6595	1.081
2	33.62	7	2.47	7.42	305	92.7	0.5230	0.8574
1	42.41	19	1.69	8.43	385	117	0.4147	0.6798
1/0	53.49	19	1.89	9.46	485	147	0.3288	0.5390
2/0	67.43	19	2.13	10.6	611	186	0.2608	0.4275
3/0	85.01	19	2.39	11.9	771	234	0.2069	0.3391
4/0	107	19	2.68	13.4	972	296	0.1640	0.2689
250	127	37	2.09	14.6	1150	349	0.1388	0.2276
300	152	37	2.28	16.0	1380	419	0.1157	0.1897
350	177	37	2.47	17.3	1610	469	0.09916	0.1626
400	203	37	2.64	18.5	1840	559	0.08677	0.1422
450	228	37	2.80	19.6	2070	629	0.07713	0.1264
500	252	37	2.95	20.7	2300	699	0.6941	0.1138
550	279	61	2.41	21.7	2530	768	0.06310	0.1034
600	304	61	2.52	22.7	2760	838	0.05784	0.09483
650	329	61	2.62	23.6	2990	908	0.05340	0.08753
700	355	61	2.72	24.5	3220	978	0.04958	0.08128
750	380	61	2.82	25.3	3450	1050	0.04628	0.07585
800	405	61	2.91	26.2	3680	1120	0.04338	0.07112
900	456	61	3.09	27.8	4140	1260	0.03856	0.06322
1000	507	61	3.25	29.3	4590	1400	0.03471	0.05690
1100	557	91	2.79	30.7	5050	1540	0.03155	0.05172
1200	608	91	2.92	32.1	5510	1680	0.02892	0.04741
1250	633	91	2.98	32.7	5740	1750	0.02777	0.04552
1300	659	91	3.04	33.4	5970	1820	0.02670	0.04377
1400	709	91	3.15	34.7	6430	1960	0.02479	0.04064
1500	760	91	3.26	35.9	6890	2100	0.02314	0.03793
1600	811	127	2.85	37.1	7350	2240	0.02169	0.03556
1700	861	127	2.94	38.2	7810	2370	0.02042	0.03347
1750	887	127	2.98	38.8	8040	2440	0.01983	0.03251
1800	912	127	3.02	39.3	8270	2510	0.01928	0.03161
1900	963	127	3.11	40.4	8730	2650	0.01827	0.02995
2000	1010	127	3.19	41.5	9190	2790	0.01735	0.02840

3.5 Certifications and approvals

Certified Company

Certificate of the Quality Management system in accord with standard UNE-EN ISO 9001:2000 for all companies integrated in Top Cable Group:

Alcabe S.A.: Rubí / Bellpuig / Salient

Certified Products

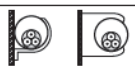
Top Cable products are guaranteed by the following international certifications:

Si vous souhaitez obtenir une copie de ces certificats, veuillez prendre contact avec votre commercial Top Cable habituel ou envoyez votre demande à topcable@topcable.com

1. Methods of installation

Current-carrying capacities

Table A.52.3 – Examples of methods of installation providing instructions for obtaining current-carrying capacity

Item No.	Methods of installation	Description	Reference method of installation to be used to obtain current-carrying capacity (see Annex B)
1		Insulated conductors or single-core cables in conduit in a thermally insulated wall[a, c]	A1
2		Multi-core cables in conduit in a thermally insulated wall[a, c]	A2
3		Multi-core cable direct in a thermally insulated wall[a, c]	A1
4		Insulated conductors or single-core cables in conduit on a wooden or masonry wall or spaced less than 0,3 × conduit diameter from it[c]	B1
5		Multi-core cable in conduit on a wooden or masonry wall or spaced less than 0,3 × conduit diameter from it [c]	B2
6 7		Insulated conductors or single-core cables in cable trunking (includes multi-compartment trunking) on a wooden or masonry wall – run horizontally[b] – run vertically[b, c]	B1
8 9		Multi-core cable in cable trunking (includes multi-compartment trunking) on a wooden or masonry wall – run horizontally[b] – run vertically[b, c]	Under consideration[d] Method B2 may be used

NOTE 1 The illustrations are not intended to depict actual product or installation practices but are indicative of the method described.

NOTE 2 All footnotes can be found on the last page of Table A.52.3.

Table A.52.3 (*continued*)

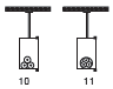
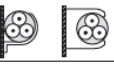
Item No	Methods of installation	Description	Reference method of installation to be used to obtain current-carrying capacity (see Annex B)
10		Insulated conductors or single-core cable in suspended cable trunking[b]	B1
11		Multi-core cable in suspended cable trunking[b]	B2
12		Insulated conductors or single-core cable run in mouldings[c, e]	A1
15		Insulated conductors in conduit or single-core or multi-core cable in architrave[c, f]	A1
16		Insulated conductors in conduit or single-core or multi-core cable in window frames[c, f]	A1
20		Single-core or multi-core cables: – fixed on, or spaced less than 0,3 × cable diameter from a wooden or masonry wall[c]	C
21		Single-core or multi-core cables: – fixed directly under a wooden or masonry ceiling	C, with item 3 of Table B.52.17
22		Single-core or multi-core cables: – spaced from a ceiling	Under consideration Method E may be used
23		Fixed installation of suspended current-using equipment	C, with item 3 of Table B.52.17

Table A.52.3 (*continued*)

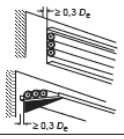
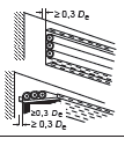
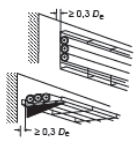
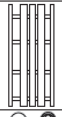
Item No.	Methods of installation	Description	Reference method of installation to be used to obtain current-carrying capacity (see Annex B)
30		Single-core or multi-core cables: On unperforated tray run horizontally or vertically[c, h]	C with item 2 of Table B.52.17
31		Single-core or multi-core cables: On perforated tray run horizontally or vertically[c, h] NOTE Refer to B.52.6.2 for description	E or F
32		Single-core or multi-core cables: On brackets or on a wire mesh tray run horizontally or vertically[c, h]	E or F
33		Single-core or multi-core cables: Spaced more than 0,3 times cable diameter from a wall	E or F or method G[g]
34		Single-core or multi-core cables: On ladder [c]	E or F
35		Single-core or multi-core cable suspended from or incorporating a support wire or harness	E or F
36		Bare or insulated conductors on insulators	G

Table A.52.3 (*continued*)

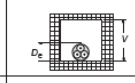
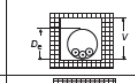
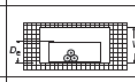
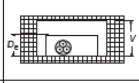
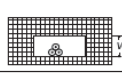
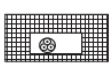
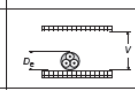
Item No.	Methods of installation	Description	Reference method of installation to be used to obtain current-carrying capacity (see Annex B)
40		Single-core or multi-core cable in a building void[c, h, i]	1,5 $D_e \le V < 5$ D_e B2 5 $D_e \le V < 20$ D_e B1
41		Insulated conductor in conduit in a building void[c, i, j, k]	1,5 $D_e \le V < 20$ D_e B2 $V \ge 20$ D_e B1
42		Single-core or multi-core cable in conduit in a building void[c, k]	Under consideration The following may be used: 1,5 $D_e \le V < 20$ D_e B2 $V \ge 20$ D_e B1
43		Insulated conductors in cable ducting in a building void[c, i, j, k]	1,5 $D_e \le V < 20$ D_e B2 $V \ge 20$ D_e B1
44		Single-core or multi-core cable in cable ducting in a building void[c, k]	Under consideration The following may be used: 1,5 $D_e \le V < 20$ D_e B2 $V \ge 20$ D_e B1
45		Insulated conductors in cable ducting in masonry having a thermal resistivity not greater than 2 K · m/W[c, h, i]	1,5 $D_e \le V < 5$ D_e B2 5 $D_e \le V < 50$ D_e B1
46		Single-core or multi-core cable in cable ducting in masonry having a thermal resistivity not greater than 2 K · m/W[c]	Under consideration The following may be used 1,5 $D_e \le V < 20$ D_e B2 $V \ge 20$ D_e B1
47		Single-core or multi-core cable: – in a ceiling void – in a raised floor[h, i]	1,5 $D_e \le V < 5$ D_e B2 5 $D_e \le V < 50$ D_e B1

Table A.52.3 (*continued*)

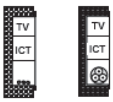
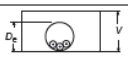
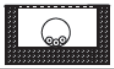
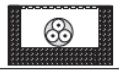
Item No.	Methods of installation	Description	Reference method of installation to be used to obtain current-carrying capacity (see Annex B)
50		Insulated conductors or single-core cable in flush cable trunking in the floor	B1
51		Multi-core cable in flush cable trunking in the floor	B2
52		Insulated conductors or single-core cables in flush cable trunking[c]	B1
53		Multi-core cable in flush trunking[c]	B2
54		Insulated conductors or single-core cables in conduit in an unventilated cable channel run horizontally or vertically[c, i, l, n]	1,5 $D_e \leq V < 20\ D_e$ B2 $V \geq 20\ D_e$ B1
55		Insulated conductors in conduit in an open or ventilated cable channel in the floor[m, n]	B1
56		Sheathed single-core or multi-core cable in an open or ventilated cable channel run horizontally or vertically[n]	B1
57		Single-core or multi-core cable direct in masonry having a thermal resistivity not greater than 2 K·m/W Without added mechanical protection[o, p]	C

Table A.52.3 (*continued*)

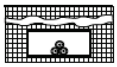
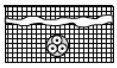
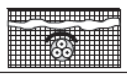
Item No.	Methods of installation	Description	Reference method of installation to be used to obtain current-carrying capacity (see Annex B)
58		Single-core or multi-core cable direct in masonry having a thermal resistivity not greater than 2 K·m/W With added mechanical protection[o, p]	C
59		Insulated conductors or single-core cables in conduit in masonry[p]	B1
60		Multi-core cables in conduit in masonry[p]	B2
70		Multi-core cable in conduit or in cable ducting in the ground	D1
71		Single-core cable in conduit or in cable ducting in the ground	D1
72		Sheathed single-core or multi-core cables direct in the ground – without added mechanical protection[q]	D2

Table A.52.3 (*continued*)

Item No.	Methods of installation	Description	Reference method of installation to be used to obtain current-carrying capacity (see Annex B)
73		Sheathed single-core or multi-core cables direct in the ground – with added mechanical protection[q]	D2

[a] The inner skin of the wall has a thermal conductance of not less than 10 W/m²·K.

[b] Values given for installation methods B1 and B2 in Annex B are for a single circuit. Where there is more than one circuit in the trunking the group reduction factor given in Table B.52-17 is applicable, irrespective of the presence of an internal barrier or partition.

[c] Care shall be taken where the cable runs vertically and ventilation is restricted. The ambient temperature at the top of the vertical section can be increased considerably. The matter is under consideration.

[d] Values for reference method B2 may be used.

[e] The thermal resistivity of the enclosure is assumed to be poor because of the material of construction and possible air spaces. Where the construction is thermally equivalent to methods of installation 6 or 7, reference method B1 may be used.

[f] The thermal resistivity of the enclosure is assumed to be poor because of the material of construction and possible air spaces. Where the construction is thermally equivalent to methods of installation 6, 7, 8, or 9, reference methods B1 or B2 may be used.

[g] The factors in Table B.52.17 may also be used.

[h] D_e is the external diameter of a multi-core cable:
- 2,2 × the cable diameter when three single core cables are bound in trefoil, or
- 3 × the cable diameter when three single core cables are laid in flat formation.

[i] V is the smaller dimension or diameter of a masonry duct or void, or the vertical depth of a rectangular duct, floor or ceiling void or channel. The depth of the channel is more important than the width.

[j] D_e is the external diameter of conduit or vertical depth of cable ducting.

[l] D_e is the external diameter of the conduit.

[m] For multi-core cable installed in method 55, use current-carrying capacity for reference method B2.

[n] It is recommended that these methods of installation are used only in areas where access is restricted to authorized persons so that the reduction in current-carrying capacity and the fire hazard due to the accumulation of debris can be prevented.

[o] For cables having conductors not greater than 16 mm², the current-carrying capacity may be higher.

[p] Thermal resistivity of masonry is not greater than 2 K·m/W, the term "masonry" is taken to include brickwork, concrete, plaster and the like (other than thermally insulating materials).

[q] The inclusion of directly buried cables in this item is satisfactory when the soil thermal resistivity is of the order of 2,5 K·m/W. For lower soil resistivities, the current-carrying capacity for directly buried cables is appreciably higher than for cables in ducts.

Table B.52.1 – Installation reference methods forming basis of tabulated current-carrying capacities

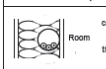
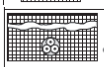
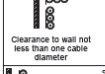
Reference method of installation		Table and column						
		Current-carrying capacities for single circuits					Ambient temperature factor	Group reduction factor
		Thermoplastic insulated		Thermosetting insulated		Mineral insulated		
		Number of cores						
		2	3	2	3	2 and 3		
1	2	3	4	5	6	7	8	9
 Insulated conductors (single-core cables) in conduit in a thermally insulated wall	A1	B.52.2 Col. 2	B.52.4 Col. 2	B.52.3 Col. 2	B.52.5 Col. 2	–	B.52.14	B.52.17
 Multi-core cable in conduit in a thermally insulated wall	A2	B.52.2 Col. 3	B.52.4 Col. 3	B.52.3 Col. 3	B.52.5 Col. 3	–	B.52.14	B.52.17 except D (Table B.52.19 applies)
 Insulated conductors (single-core cables) in conduit on a wooden wall	B1	B.52.2 Col. 4	B.52.4 Col. 4	B.52.3 Col. 4	B.52.5 Col. 4	–	B.52.14	B.52.17
 Multi-core cable in conduit on a wooden wall	B2	B.52.2 Col. 5	B.52.4 Col. 5	B.52.3 Col. 5	B.52.5 Col. 5	–	B.52.14	B.52.17
 Single-core or multi-core cable on a wooden wall	C	B.52.2 Col. 6	B.52.4 Col. 6	B.52.3 Col. 6	B.52.5 Col. 6	70 °C Sheath B.52.6 105 °C Sheath B.52.7	B.52.14	B.52.17
 Multi-core cable in ducts in the ground	D	B.52.2 Col. 7	B.52.4 Col. 7	B.52.3 Col. 7	B.52.5 Col. 7	–	B.52.15	B.52.19
 Sheathed single-core or multi-core cables direct in the ground.	D2	Col 8		Col 8		Col 8	Col 8	Col 8
 Clearance to wall not less than 0,3 times cable diameter Multi-core cable in free air	E	Copper B.52.10 Aluminium B.52.11		Copper B.52.12 Aluminium B.52.13		70 °C Sheath B.52.8 105 °C Sheath B.52.9	B.52.14	B.52.20
 Clearance to wall not less than one cable diameter Single-core cables, touching in free air	F	Copper B.52.10 Aluminium B.52.11		Copper B.52.12 Aluminium B.52.13		70 °C Sheath B.52.8 105 °C Sheath B.52.9	B.52.14	B.52.21
 Single-core cables, spaced in free air	G	Copper B.52.10 Aluminium B.52.11		Copper B.52.12 Aluminium B.52.13		70 °C Sheath B.52.8 105 °C Sheath B.52.9	B.52.14	–

Table B.52.2 – Current-carrying capacities in amperes
for methods of installation in Table B.52.1 –
PVC insulation/two loaded conductors, copper or aluminium –
Conductor temperature: 70 °C, ambient temperature: 30 °C in air, 20 °C in ground

Nominal cross-sectional area of conductor mm²	Installation methods of Table B.52.1						
	A1	A2	B1	B2	C	D1	D2
							
1	2	3	4	5	6	7	8
Copper							
1,5	14,5	14	17,5	16,5	19,5	22	22
2,5	19,5	18,5	24	23	27	29	28
4	26	25	32	30	36	37	38
6	34	32	41	38	46	46	48
10	46	43	57	52	63	60	64
16	61	57	76	69	85	78	83
25	80	75	101	90	112	99	110
35	99	92	125	111	138	119	132
50	119	110	151	133	168	140	156
70	151	139	192	168	213	173	192
95	182	167	232	201	258	204	230
120	210	192	269	232	299	231	261
150	240	219	300	258	344	261	293
185	273	248	341	294	392	292	331
240	321	291	400	344	461	336	382
300	367	334	458	394	530	379	427
Aluminium							
2,5	15	14,5	18,5	17,5	21	22	
4	20	19,5	25	24	28	29	
6	26	25	32	30	36	36	
10	36	33	44	41	49	47	
16	48	44	60	54	66	61	63
25	63	58	79	71	83	77	82
35	77	71	97	86	103	93	98
50	93	86	118	104	125	109	117
70	118	108	150	131	160	135	145
95	142	130	181	157	195	159	173
120	164	150	210	181	226	180	200
150	189	172	234	201	261	204	224
185	215	195	266	230	298	228	255
240	252	229	312	269	352	262	298
300	289	263	358	308	406	296	336

NOTE In columns 3, 5, 6, 7 and 8, circular conductors are assumed for sizes up to and including 16 mm². Values for larger sizes relate to shaped conductors and may safely be applied to circular conductors.

Table B.52.3 – Current-carrying capacities in amperes
for methods of installation in Table B.52.1 –
XLPE or EPR insulation, two loaded conductors/copper or aluminium –
Conductor temperature: 90 °C, ambient temperature: 30 °C in air, 20 °C in ground

Nominal cross-sectional area of conductor mm²	Installation methods of Table B.52.1						
	A1	A2	B1	B2	C	D1	D2
							
1	2	3	4	5	6	7	8
Copper							
1,5	19	18,5	23	22	24	25	27
2,5	26	25	31	30	33	33	35
4	35	33	42	40	45	43	46
6	45	42	54	51	58	53	58
10	61	57	75	69	80	71	77
16	81	76	100	91	107	91	100
25	106	99	133	119	138	116	129
35	131	121	164	146	171	139	155
50	158	145	198	175	209	164	183
70	200	183	253	221	269	203	225
95	241	220	306	265	328	239	270
120	278	253	354	305	382	271	306
150	318	290	393	334	441	306	343
185	362	329	449	384	506	343	387
240	424	386	528	459	599	395	448
300	486	442	603	532	693	446	502
Aluminium							
2,5	20	19,5	25	23	26	26	
4	27	26	33	31	35	33	
6	35	33	43	40	45	42	
.10	48	45	59	54	62	55	
16	64	60	79	72	84	71	76
25	84	78	105	94	101	90	98
35	103	96	130	115	126	108	117
50	125	115	157	138	154	128	139
70	158	145	200	175	198	158	170
95	191	175	242	210	241	186	204
120	220	201	281	242	280	211	233
150	253	230	307	261	324	238	261
185	288	262	351	300	371	267	296
240	338	307	412	358	439	307	343
300	387	352	471	415	508	346	386

NOTE In columns 3, 5, 6, 7 and 8, circular conductors are assumed for sizes up to and including 16 mm². Values for larger sizes relate to shaped conductors and may safely be applied to circular conductors.

Table B.52.4 – Current-carrying capacities in amperes
for methods of installation in Table B.52.1 –
PVC insulation, three loaded conductors/copper or aluminium –
Conductor temperature: 70 °C, ambient temperature: 30 °C in air, 20 °C in ground

Nominal cross-sectional area of conductor mm²	Installation methods of Table B.52.1						
	A1	A2	B1	B2	C	D1	D2
							
1	2	3	4	5	6	7	8
Copper							
1,5	13,5	13	15,5	15	17,5	18	19
2,5	18	17,5	21	20	24	24	24
4	24	23	28	27	32	30	33
6	31	29	36	34	41	38	41
10	42	39	50	46	57	50	54
16	56	52	68	62	76	64	70
25	73	68	89	80	96	82	92
35	89	83	110	99	119	98	110
50	108	99	134	118	144	116	130
70	136	125	171	149	184	143	162
95	164	150	207	179	223	169	193
120	188	172	239	206	259	292	220
150	216	196	262	225	299	217	246
185	245	223	296	255	341	243	278
240	286	261	346	297	403	280	320
300	328	298	394	339	464	316	359
Aluminium							
2,5	14	13,5	16,5	15,5	18,5	18,5	
4	18,5	17,5	22	21	25	24	
6	24	23	28	27	32	30	
10	32	31	39	36	44	39	
16	43	41	53	48	59	50	53
25	57	53	70	62	73	64	69
35	70	65	86	77	90	77	83
50	84	78	104	92	110	91	99
70	107	98	133	116	140	112	122
95	129	118	161	139	170	132	148
120	149	135	186	160	197	150	169
150	170	155	204	176	227	169	189
185	194	176	230	199	259	190	214
240	227	207	269	232	305	218	250
300	261	237	306	265	351	247	282

NOTE In columns 3, 5, 6, 7 and 8, circular conductors are assumed for sizes up to and including 16 mm². Values for larger sizes relate to shaped conductors and may safely be applied to circular conductors.

Table B.52.5 – Current-carrying capacities in amperes
for methods of installation in Table B.52.1 –
XLPE or EPR insulation, three loaded conductors/copper or aluminium –
Conductor temperature: 90 °C, ambient temperature: 30 °C in air, 20 °C in ground

Nominal cross-sectional area of conductor mm²	Installation methods of Table B.52.1						
	A1	A2	B1	B2	C	D1	D2
							
1	2	3	4	5	6	7	8
Copper							
1,5	17	16,5	20	19,5	22	21	23
2,5	23	22	28	26	30	28	30
4	31	30	37	35	40	36	39
6	40	38	48	44	52	44	49
10	54	51	66	60	71	58	65
16	73	68	88	80	96	75	84
25	95	89	117	105	119	96	107
35	117	109	144	128	147	115	129
50	141	130	175	154	179	135	153
70	179	164	222	194	229	167	188
95	216	197	269	233	278	197	226
120	249	227	312	268	322	223	257
150	285	259	342	300	371	251	287
185	324	295	384	340	424	281	324
240	380	346	450	398	500	324	375
300	435	396	514	455	576	365	419
Aluminium							
2,5	19	18	22	21	24	22	
4	25	24	29	28	32	28	
6	32	31	38	35	41	35	
10	44	41	52	48	57	46	
16	58	55	71	64	76	59	64
25	76	71	93	84	90	75	82
35	94	87	116	103	112	90	98
50	113	104	140	124	136	106	117
70	142	131	179	156	174	130	144
95	171	157	217	188	211	154	172
120	197	180	251	216	245	174	197
150	226	206	267	240	283	197	220
185	256	233	300	272	323	220	250
240	300	273	351	318	382	253	290
300	344	313	402	364	440	286	326

NOTE In columns 3, 5, 6, 7 and 8, circular conductors are assumed for sizes up to and including 16 mm². Values for larger sizes relate to shaped conductors and may safely be applied to circular conductors.

Table B.52.6 – Current-carrying capacities in amperes for installation method C of Table B.52.1 – Mineral insulation, copper conductors and sheath – PVC covered or bare exposed to touch (see note 2) – Metallic sheath temperature: 70 °C, reference ambient temperature: 30 °C

Nominal cross-sectional area of conductor mm²	Number and arrangement of conductors for method C of Table B.52.1		
	Two loaded conductors twin or single-core	Three loaded conductors	
		Multi-core or single-core in trefoil formation	Single-core in flat formation
			
1	2	3	4
500 V			
1,5	23	19	21
2,5	31	26	29
4	40	35	38
750 V			
1,5	25	21	23
2,5	34	28	31
4	45	37	41
6	57	48	52
10	77	65	70
16	102	86	92
25	133	112	120
35	163	137	147
50	202	169	181
70	247	207	221
95	296	249	264
120	340	286	303
150	388	327	346
185	440	371	392
240	514	434	457

NOTE 1 For single-core cables the sheaths of the cables of the circuit are connected together at both ends.

NOTE 2 For bare cables exposed to touch, values should be multiplied by 0,9.

NOTE 3 The values of 500 V and 750 V are the rated voltage of the cable.

Table B.52.7 – Current-carrying capacities in amperes for installation method C of Table B.52.1 – Mineral insulation, copper conductors and sheath – Bare cable not exposed to touch and not in contact with combustible material Metallic sheath temperature: 105 °C, reference ambient temperature: 30 °C

Nominal cross-sectional area of conductor mm²	Number and arrangement of conductors for method C of Table B.52.1		
	Two loaded conductors twin or single-core	Three loaded conductors	
		Multi-core or single-core in trefoil formation	Single-core in flat formation
			
1	2	3	4
500 V			
1,5	28	24	27
2,5	38	33	36
4	51	44	47
750 V			
1,5	31	26	30
2,5	42	35	41
4	55	47	53
6	70	59	67
10	96	81	91
16	127	107	119
25	166	140	154
35	203	171	187
50	251	212	230
70	307	260	280
95	369	312	334
120	424	359	383
150	485	410	435
185	550	465	492
240	643	544	572

NOTE 1 For single-core cables, the sheaths of the cables of the circuit are connected together at both ends.

NOTE 2 No correction for grouping need be applied.

NOTE 3 For this table reference method C refers to a masonry wall because the high sheath temperature is not normally acceptable for a wooden wall.

NOTE 4 The values of 500 V and 750 V are the rated voltage of the cable.

Table B.52.8 – Current-carrying capacities in amperes for installation methods E, F and G of Table B.52.1 – Mineral insulation, copper conductors and sheath/PVC covered or bare exposed to touch (see note 2) – Metallic sheath temperature: 70 °C, reference ambient temperature: 30 °C

Nominal cross-sectional area of conductor mm²	Number and arrangement of cables for methods E, F and G of Table B.52.1				
	Two loaded conductors twin or single-core	Three loaded conductors			
		Multi-core or single-core in trefoil formation	Single-core touching	Single-core flat vertical spaced	Single-core horizontal spaced
	Method E or F	Method E or F	Method F	Method G	Method G
					
1	2	3	4	5	6
500 V					
1,5	25	21	23	26	29
2,5	33	28	31	34	39
4	44	37	41	45	51
750 V					
1,5	26	22	26	28	32
2,5	36	30	34	37	43
4	47	40	45	49	56
6	60	51	57	62	71
10	82	69	77	84	95
16	109	92	102	110	125
25	142	120	132	142	162
35	174	147	161	173	197
50	215	182	198	213	242
70	264	223	241	259	294
95	317	267	289	309	351
120	364	308	331	353	402
150	416	352	377	400	454
185	472	399	426	446	507
240	552	466	496	497	565

NOTE 1 For single-core cables the sheaths of the cables of the circuit are connected together at both ends.

NOTE 2 For bare cables exposed to touch, values should be multiplied by 0,9.

NOTE 3 D_e is the external diameter of the cable.

NOTE 4 The values of 500 V and 750 V are the rated voltage of the cable.

Table B.52.9 – Current-carrying capacities in amperes for installation methods E, F and G of Table B.52.1 – Mineral insulation, copper conductors and sheath – Bare cable not exposed to touch (see note 2) – Metallic sheath temperature: 105 °C, reference ambient temperature: 30 °C

Nominal cross-sectional area of conductor mm²	Number and arrangement of cables for methods E, F and G of Table B.52.1				
	Two loaded conductors, twin or single-core	Three loaded conductors			
		Multi-core or single-core in trefoil formation	Single-core touching	Single-core flat vertical spaced	Single-core horizontal spaced
	Method E or F	Method E or F	Method F	Method G	Method G
					
1	2	3	4	5	6
500 V					
1,5	31	26	29	33	37
2,5	41	35	39	43	49
4	54	46	51	56	64
750 V					
1,5	33	28	32	35	40
2,5	45	38	43	47	54
4	60	50	56	61	70
6	76	64	71	78	89
10	104	87	96	105	120
16	137	115	127	137	157
25	179	150	164	178	204
35	220	184	200	216	248
50	272	228	247	266	304
70	333	279	300	323	370
95	400	335	359	385	441
120	460	385	411	441	505
150	526	441	469	498	565
185	596	500	530	557	629
240	697	584	617	624	704

NOTE 1 For single-core cables the sheaths of the cables of the circuit are connected together at both ends.

NOTE 2 No correction for grouping need be applied.

NOTE 3 D_e is the external diameter of the cable.

NOTE 4 The values of 500 V and 750 V are the rated voltage of the cable.

Table B.52.10 – Current-carrying capacities in amperes for installation methods E, F and G of Table B.52.1 – PVC insulation, copper conductors – Conductor temperature: 70 °C, reference ambient temperature: 30 °C

Nominal cross-sectional area of conductor mm²	Installation methods of Table B.52.1						
	Multi-core cables		Single-core cables				
	Two loaded conductors	Three loaded conductors	Two loaded conductors touching	Three loaded conductors trefoil	Three loaded conductors, flat		
					Touching	Spaced	
						Horizontal	Vertical
							
	Method E	Method E	Method F	Method F	Method F	Method G	Method G
1	2	3	4	5	6	7	8
1,5	22	18,5	–	–	–	–	–
2,5	30	25	–	–	–	–	–
4	40	34	–	–	–	–	–
6	51	43	–	–	–	–	–
10	70	60	–	–	–	–	–
16	94	80	–	–	–	–	–
25	119	101	131	110	114	146	130
35	148	126	162	137	143	181	162
50	180	153	196	167	174	219	197
70	232	196	251	216	225	281	254
95	282	238	304	264	275	341	311
120	328	276	352	308	321	396	362
150	379	319	406	356	372	456	419
185	434	364	463	409	427	521	480
240	514	430	546	485	507	615	569
300	593	497	629	561	587	709	659
400	–	–	754	656	689	852	795
500	–	–	868	749	789	982	920
630	–	–	1 005	855	905	1 138	1 070

NOTE 1 Circular conductors are assumed for sizes up to and including 16 mm². Values for larger sizes relate to shaped conductors and may safely be applied to circular conductors.

NOTE 2 D_e is the external diameter of the cable.

Table B.52.11 – Current-carrying capacities in amperes for installation methods E, F and G of Table B.52.1 – PVC insulation, aluminium conductors – Conductor temperature: 70 °C, reference ambient temperature: 30 °C

Nominal cross-sectional area of conductor mm²	Installation methods of Table B.52.1						
	Multi-core cables		Single-core cables				
	Two loaded conductors	Three loaded conductors	Two loaded conductors touching	Three loaded conductors trefoil	Three loaded conductors, flat		
					Touching	Spaced	
						Horizontal	Vertical
							
	Method E	Method E	Method F	Method F	Method F	Method G	Method G
1	2	3	4	5	6	7	8
2,5	23	19,5	–	–	–	–	–
4	31	26	–	–	–	–	–
6	39	33	–	–	–	–	–
10	54	46	–	–	–	–	–
16	73	61	–	–	–	–	–
25	89	78	98	84	87	112	99
35	111	96	122	105	109	139	124
50	135	117	149	128	133	169	152
70	173	150	192	166	173	217	196
95	210	183	235	203	212	265	241
120	244	212	273	237	247	308	282
150	282	245	316	274	287	356	327
185	322	280	363	315	330	407	376
240	380	330	430	375	392	482	447
300	439	381	497	434	455	557	519
400	–	–	600	526	552	671	629
500	–	–	694	610	640	775	730
630	–	–	808	711	746	900	852

NOTE 1 Circular conductors are assumed for sizes up to and including 16 mm². Values for larger sizes relate to shaped conductors and may safely be applied to circular conductors.

NOTE 2 D_e is the external diameter of the cable.

Table B.52.12 – Current-carrying capacities in amperes for installation methods E, F and G of Table B.52.1 – XLPE or EPR insulation, copper conductors – Conductor temperature: 90 °C, reference ambient temperature: 30 °C

Nominal cross-sectional area of conductor mm²	Installation methods of Table B.52.1						
	Multi-core cables		Single-core cables				
	Two loaded conductors	Three loaded conductors	Two loaded conductors touching	Three loaded conductors trefoil	Three loaded conductors, flat		
					Touching	Spaced	
						Horizontal	Vertical
							
	Method E	Method E	Method F	Method F	Method F	Method G	Method G
1	2	3	4	5	6	7	8
1,5	26	23	–	–	–	–	–
2,5	36	32	–	–	–	–	–
4	49	42	–	–	–	–	–
6	63	54	–	–	–	–	–
10	86	75	–	–	–	–	–
16	115	100	–	–	–	–	–
25	149	127	161	135	141	182	161
35	185	158	200	169	176	226	201
50	225	192	242	207	216	275	246
70	289	246	310	268	279	353	318
95	352	298	377	328	342	430	389
120	410	346	437	383	400	500	454
150	473	399	504	444	464	577	527
185	542	456	575	510	533	661	605
240	641	538	679	607	634	781	719
300	741	621	783	703	736	902	833
400	–	–	940	823	868	1085	1008
500	–	–	1083	946	998	1253	1169
630	–	–	1 254	1 088	1 151	1 454	1 362

NOTE 1 Circular conductors are assumed for sizes up to and including 16 mm². Values for larger sizes relate to shaped conductors and may safely be applied to circular conductors.

NOTE 2 D_e is the external diameter of the cable.

Table B.52.13 – Current-carrying capacities in amperes for installation methods E, F and G of Table B.52.1 – XLPE or EPR insulation. aluminium conductors – Conductor temperature: 90 °C, reference ambient temperature: 30 °C

Nominal cross-sectional area of conductor mm²	Installation methods of Table B.52.1						
	Multi-core cables		Single-core cables				
	Two loaded conductors	Three loaded conductors	Two loaded conductors touching	Three loaded conductors trefoil	Three loaded conductors, flat		
					Touching	Spaced	
						Horizontal	Vertical
							
	Method E	Method E	Method F	Method F	Method F	Method G	Method G
1	2	3	4	5	6	7	8
2,5	28	24	–	–	–	–	–
4	38	32	–	–	–	–	–
6	49	42	–	–	–	–	–
10	67	58	–	–	–	–	–
16	91	77	–	–	–	–	–
25	108	97	121	103	107	138	122
35	135	120	150	129	135	172	153
50	164	146	184	159	165	210	188
70	211	187	237	206	215	271	244
95	257	227	289	253	264	332	300
120	300	263	337	296	308	387	351
150	346	304	389	343	358	448	408
185	397	347	447	395	413	515	470
240	470	409	530	471	492	611	561
300	543	471	613	547	571	708	652
400	–	–	740	663	694	856	792
500	–	–	856	770	806	991	921
630	–	–	996	899	942	1 154	1 077

NOTE 1 Circular conductors are assumed for sizes up to and including 16 mm². Values for larger sizes relate to shaped conductors and may safely be applied to circular conductors.

NOTE 2 D_e is the external diameter of the cable.

Table B.52.14 – Correction factor for ambient air temperatures other than 30 °C to be applied to the current-carrying capacities for cables in the air

Ambient temperature[a] °C	Insulation			
	PVC	XLPE and EPR	Mineral[a]	
			PVC covered or bare and exposed to touch 70 °C	Bare not exposed to touch 105 °C
10	1,22	1,15	1,26	1,14
15	1,17	1,12	1,20	1,11
20	1,12	1,08	1,14	1,07
25	1,06	1,04	1,07	1,04
30	1,00	1,00	1,00	1,00
35	0,94	0,96	0,93	0,96
40	0,87	0,91	0,85	0,92
45	0,79	0,87	0,78	0,88
50	0,71	0,82	0,67	0,84
55	0,61	0,76	0,57	0,80
60	0,50	0,71	0,45	0,75
65	–	0,65	–	0,70
70	–	0,58	–	0,65
75	–	0,50	–	0,60
80	–	0,41	–	0,54
85	–	–	–	0,47
90	–	–	–	0,40
95	–	–	–	0,32

[a] For higher ambient temperatures, consult the manufacturer.

Table B.52.15 – Correction factors for ambient ground temperatures other than 20 °C to be applied to the current-carrying capacities for cables in ducts in the ground

Ground temperature °C	Insulation	
	PVC	XLPE and EPR
10	1,10	1,07
15	1,05	1,04
20	1,00	1,00
25	0,95	0,96
30	0,89	0,93
35	0,84	0,89
40	0,77	0,85
45	0,71	0,80
50	0,63	0,76
55	0,55	0,71
60	0,45	0,65
65	–	0,60
70	–	0,53
75	–	0,46
80	–	0,38

Table B.52.16 – Correction factors for cables buried direct in the ground or in buried ducts for soil thermal resistivities other than 2,5 K · m/W to be applied to the current-carrying capacities for reference method D

Thermal resistivity, K · m/W	0,5	0,7	1	1,5	2	2,5	3
Correction factor for cables in buried ducts	1,28	1,20	1,18	1,1	1,05	1	0,96
Correction factor for direct buried cables	1,88	1,62	1,5	1,28	1,12	1	0,90

NOTE 1 The correction factors given have been averaged over the range of conductor sizes and types of installation included in Tables B.52.2 to B.52.5. The overall accuracy of correction factors is within ±5 %.

NOTE 2 The correction factors are applicable to cables drawn into buried ducts; for cables laid direct in the ground the correction factors for thermal resistivities less than 2,5 K · m/W will be higher. Where more precise values are required they may be calculated by methods given in the IEC 60287 series.

NOTE 3 The correction factors are applicable to ducts buried at depths of up to 0,8 m.

NOTE 4 It is assumed that the soil properties are uniform. No allowance had been made for the possibility of moisture migration which can lead to a region of high thermal resistivity around the cable. If partial drying out of the soil is foreseen, the permissible current rating should be derived by the methods specified in the IEC 60287 series.

Table B.52.17 – Reduction factors for one circuit or one multi-core cable or for a group of more than one circuit, or more than one multi-core cable, to be used with current-carrying capacities of Tables B.52.2 to B.52.13

Item	Arrangement (cables touching)	Number of circuits or multi-core cables												To be used with current-carrying capacities, reference
		1	2	3	4	5	6	7	8	9	12	16	20	
1	Bunched in air, on a surface, embedded or enclosed	1,00	0,80	0,70	0,65	0,60	0,57	0,54	0,52	0,50	0,45	0,41	0,38	B.52.2 to B.52.13 Methods A to F
2	Single layer on wall, floor or unperforated cable tray systems	1,00	0,85	0,79	0,75	0,73	0,72	0,72	0,71	0,70	No further reduction factor for more than nine circuits or multicore cables			B.52.2 to B.52.7 Method C
3	Single layer fixed directly under a wooden ceiling	0,95	0,81	0,72	0,68	0,66	0,64	0,63	0,62	0,61				
4	Single layer on a perforated horizontal or vertical cable tray systems	1,00	0,88	0,82	0,77	0,75	0,73	0,73	0,72	0,72				B.52.8 to B.52.13 Methods E and F
5	Single layer on cable ladder systems or cleats etc.,	1,00	0,87	0,82	0,80	0,80	0,79	0,79	0,78	0,78				

NOTE 1 These factors are applicable to uniform groups of cables, equally loaded.

NOTE 2 Where horizontal clearances between adjacent cables exceeds twice their overall diameter, no reduction factor need be applied.

NOTE 3 The same factors are applied to:
- groups of two or three single-core cables;
- multi-core cables.

NOTE 4 If a system consists of both two- and three-core cables, the total number of cables is taken as the number of circuits, and the corresponding factor is applied to the tables for two loaded conductors for the two-core cables, and to the tables for three loaded conductors for the three-core cables.

NOTE 5 If a group consists of *n* single-core cables it may either be considered as *n*/2 circuits of two loaded conductors or *n*/3 circuits of three loaded conductors.

NOTE 6 The values given have been averaged over the range of conductor sizes and types of installation included in Tables B.52.2 to B.52.13 the overall accuracy of tabulated values is within 5 %.

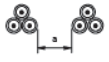
NOTE 7 For some installations and for other methods not provided for in the above table, it may be appropriate to use factors calculated for specific cases, see for example Tables B.52.20 and B.52.21.

Table B.52.18 – Reduction factors for more than one circuit, cables laid directly in the ground – Installation method D2 in Tables B.52.2 to B.52.5 – Single-core or multi-core cables

Number of circuits	Cable to cable clearance[a]				
	Nil (cables touching)	One cable diameter	0,125 m	0,25 m	0,5 m
2	0,75	0,80	0,85	0,90	0,90
3	0,65	0,70	0,75	0,80	0,85
4	0,60	0,60	0,70	0,75	0,80
5	0,55	0,55	0,65	0,70	0,80
6	0,50	0,55	0,60	0,70	0,80
7	0,45	0,51	0,59	0,67	0,76
8	0,43	0,48	0,57	0,65	0,75
9	0,41	0,46	0,55	0,63	0,74
12	0,36	0,42	0,51	0,59	0,71
16	0,32	0,38	0,47	0,56	0,38
20	0,29	0,35	0,44	0,53	0,66

[a] Multi-core cables

[a] Single-core cables



NOTE 1 Values given apply to an installation depth of 0,7 m and a soil thermal resistivity of 2,5 K · m/W. They are average values for the range of cable sizes and types quoted for Tables B.52.2 to B.52.5. The process of averaging, together with rounding off, can result in some cases in errors up to ±10 %. (Where more precise values are required they may be calculated by methods given in IEC 60287-2-1.)

NOTE 2 In case of a thermal resistivity lower than 2,5 K · m/W the corrections factors can, in general, be increased and can be calculated by the methods given in IEC 60287-2-1.

NOTE 3 If a circuit consists of *m* parallel conductors per phase, then for determining the reduction factor, this circuit should be considered as *m* circuits.

Table B.52.19 – Reduction factors for more than one circuit, cables laid in ducts in the ground – Installation method D1 in Tables B.52.2 to B.52.5

A) Multi-core cables in single-way ducts				
Number of cables	Duct to duct clearance[a]			
	Nil (ducts touching)	0,25 m	0,5 m	1,0 m
2	0,85	0,90	0,95	0,95
3	0,75	0,85	0,90	0,95
4	0,70	0,80	0,85	0,90
5	0,65	0,80	0,85	0,90
6	0,60	0,80	0,80	0,90
7	0,57	0,76	0,80	0,88
8	0,54	0,74	0,78	0,88
9	0,52	0,73	0,77	0,87
10	0,49	0,72	0,76	0,86
11	0,47	0,70	0,75	0,86
12	0,45	0,69	0,74	0,85
13	0,44	0,68	0,73	0,85
14	0,42	0,68	0,72	0,84
15	0,41	0,67	0,72	0,84
16	0,39	0,66	0,71	0,83
17	0,38	0,65	0,70	0,83
18	0,37	0,65	0,70	0,83
19	0,35	0,64	0,69	0,82
20	0,34	0,63	0,68	0,82

B) Single-core cables in non-magnetic single-way ducts				
Number of single-core circuits of two or three cables	Duct to duct clearance[b]			
	Nil (ducts touching)	0,25 m	0,5 m	1,0 m
2	0,80	0,90	0,90	0,95
3	0,70	0,80	0,85	0,90
4	0,65	0,75	0,80	0,90
5	0,60	0,70	0,80	0,90
6	0,60	0,70	0,80	0,90
7	0,53	0,66	0,76	0,87
8	0,50	0,63	0,74	0,87
9	0,47	0,61	0,73	0,86
10	0,45	0,59	0,72	0,85
11	0,43	0,57	0,70	0,85
12	0,41	0,56	0,69	0,84
13	0,39	0,54	0,68	0,84
14	0,37	0,53	0,68	0,83
15	0,35	0,52	0,67	0,83
16	0,34	0,51	0,66	0,83
17	0,33	0,50	0,65	0,82
18	0,31	0,49	0,65	0,82
19	0,30	0,48	0,64	0,82
20	0,29	0,47	0,63	0,81

[a] Multi-core cables

[b] Single-core cables

NOTE 1 Values given apply to an installation depth of 0,7 m and a soil thermal resistivity of 2,5 K·m/W. They are average values for the range of cable sizes and types quoted for Tables B.52.2 to B.52.5. The process of averaging, together with rounding off, can result in some cases in errors up to ±10 %. Where more precise values are required they may be calculated by methods given in the IEC 60287series.

NOTE 2 In case of a thermal resistivity lower than 2,5 K·m/W the corrections factors can, in general, be increased and can be calculated by the methods given in IEC 60287-2-1.

NOTE 3 If a circuit consists of *n* parallel conductors per phase, then for determining the reduction factor this circuit shall be considered as *n* circuits.