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ALCOBRE

A MEMBER OF HENGTONG GROUP

ENLIGHTENING THE FUTURE

GENERAL CATALOG

LOW VOLTAGE CABLES

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ENLIGHTENING THE FUTURE

ALCOBRE is dedicated to the manufacture of power cables, construction, control railway, signaling, industrial, solar, and other special applications.

ALCOBRE has more than 110 years of experience in the manufacture of metallic cables, Copper and Aluminum, and presence in the European and World markets. Having as customers many of the largest energy suppliers, engineering, construction, and cable distributors in general.

ALCOBRE represents and distributes the products of the other units that the group manufactures in several countries.

With this catalogue, we intend to make known the range of products we manufacture and sell around the world.

In addition to the entire range of cables presented, ALCOBRE can and is able to develop various proposals that meet the technical requirements demanded or requested by customers, such as cables with better fire behavior or cables with specific environmental requirements.

Every effort has been made to ensure the information contained in this catalogue is correct. ALCOBRE disclaim responsibility for any action, proceedings, liabilities, claims, damages, costs, losses and expense in relation to or arising out of incorrect utilization of this information. ALCOBRE reserves the right to change the product specifications from time to time to effect improvements and/or enhancements and accepts no liability arising from any differences between the parameters of this data sheet and the finished product, unless by prior written agreement. This document cannot be reproduced or copied, partially or in entirety, without the express written permission by ALCOBRE.

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CONTENT

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SYMBOLS

Maximum operating temperature (70°C)

Maximum operating temperature (90°C)

No Flame propagation

No Fire propagation

Fire resistant

Low smoke emission

Low corrosive fume emission

Halogen-free

Mechanical protection aganist Rodents

Tear resistance

Mechanical resistance

Abrasion resistance

Weathering test resistance

Resistance to Water absorption

Water tight

Resistance to Ultraviolet rays (UV)

Resistance To Ozone

Hidrocarbon resistance

Resistance to Mineral oils

Electro-magnetic Interference protection

Reduced bending radius

High flexibility

Work at very low temperatures

Photovoltaic solar installations

Design life expectancy

Resistance to extreme temperatures (max. 120°C / min.-40°C)

Environmentally friendly

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The data contained in the technical specifications depend on manufacturing tolerance, or standards. Other constructions on request. Please contact us for latest information.

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CABLES FOR INDOOR APPLICATIONS

PVC STANDARD

- H05V-U / H07V-U
- H07V-R
- H07V-K
- H05VV-F / 05VV-F
- 05VVH2-U
- FR-N07V-AR

HALOGEN-FREE

- H07Z1-K type 2 (AS)

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H05V-U / H07V-U

Product group 300/301(E):2024-01 **Rated Voltage U_0/U - 300/500 V / 450/750 V**

CABLE STANDARDS

Construction	Fire performance
EN 50525-2-31	EN 60332-1 / IEC 60332-1 Flame non-propagation
IEC 60227-3	EN 50575:2014+A1:2016

CABLE DESIGN

1. Conductor Electrolytic copper, class 1
according to IEC 60228 and EN 60228

2. Insulation PVC polyvinyl chloride, type TI1 according to EN 50363-3,
and type PVC/C according to IEC 60227-1
The standard identification of insulated conductors is the following:

- Blue (RAL 5012)
- Dark Blue (RAL 5010)
- Brown (RAL 8003)
- Black (RAL 9005)
- Grey (RAL 7015)
- Green/Yellow (RAL 6018/1021)
- Red (RAL 3000)
- White (RAL 9013)
- Orange (RAL 2003)

Other colors available on request.

Marking of cables by printing on the insulation, according to the standard, or customer upon agreement.
The packaging labels of these cables include the CE marking according to the Construction Product Regulation UE N. 305/2011 articles 8 and 9.
Minimum content for the external marking of the cable. There may be additional marks respecting what is indicated in the cable construction regulations.

GENERAL APPLICATIONS

Indoor applications, electric cabinet wiring e domestic use.

Transporting power in domestic or industrial environments (offices, units, indoor wiring, signaling circuits, etc.), as they are installed in surface-mounted, panels, built-in conductors, or similar enclosed systems. Extra sliding cable facilitating installation.

APPROVALS

Range **HAR H05V-U**: 1 x (≤ 1 mm^2)
Range **HAR H07V-U**: 1 x (≤ 6 mm^2)

ALCOBRE reserves the right to alter or modify the specifications and materials according to future technical development that may result in modifications to the technical data provided. The data contained in the technical specifications depend on manufacturing tolerance, or standards. Other constructions on request. Please contact us for latest information.

H05V-U / H07V-U 300/500 V / 450/750 V

PANEL WIRE CABLES - PVC STANDARD

CABLE SPECIFICATIONS & OTHER CHARACTERISTICS

ELECTRICAL PERFORMANCE

Rated Voltage: H05V-U 300/500 V A.C. (U_0/U)
Voltage test: 2.000 V A.C

Maximum admissible voltages (EN 50565-1)
Alternating current (A.C.):
Phase conductor and earth: 320 A
Two phase conductors: 550 A
Direct current (D.C.):
Phase conductor and earth: 410 A
Two phase conductors: 820 A

Rated Voltage: H07V-U 450/750 V A.C. (U_0/U)
Voltage test: 2.500 V A.C

Maximum admissible voltages (EN 50565-1)
Alternating current (A.C.):
Phase conductor and earth: 480 A
Two phase conductors: 825 A
Direct current (D.C.):
Phase conductor and earth: 620 A
Two phase conductors: 1.240 A

FIRE PERFORMANCE

Flame non-propagation
based on EN 60332-1 / IEC 60332-1 (H≤425 mm)

Reduced halogen emission. Chlorine <15%

REACTION TO FIRE (EN 50575:2014+A1:2016)

Class E_{ca}
It satisfies the non-flame propagation test, without additional classifications.

DECLARATION of PERFORMANCE

DoP: 003/rev.**

System 3 Notified body N. 0028

PACKAGING

Available in rolls and drums:

Maximum storage temperature: 40 ºC

APPLICATIONS (FIXED INSTALLATION)

Electrical panel use

Domestic use

CHEMICAL PERFORMANCE

Chemical & Oil resistance: acceptable

MINIMUM BENDING RADIUS

D= Overall diameter of the insulated conductor (in mm).

Handling and during Installation: 5xD (D ≤ 8)

Fixed: 4xD (≤ 8 D ≤ 12)

Minimum bending radii at cable temperature of 20 ºC (± 10 ºC)

THERMAL PERFORMANCE

Maximum conductor temperatures:
Maximum operation: 70 ºC
Short circuit: 160 ºC (t≤5s)

MINIMUM SERVICE TEMPERATURE

-40 ºC (fixed and protected installations)

MAXIMUM PULLING FORCE (N)

The maximum pulling force must not exceed:

F = 50 x S (N), where "S" is the cross-sectional area of the conductors (mm^2) and 50 N/mm^2 is the permissible tensile stress for cables with copper conductors If the traction force is applied on the conductors.

Recommended not to exceed 1000 N.

WATER PERFORMANCE

Water resistance: AD3 water sprays

APPROVALS

Certif HAR / CE / REACH / RoHS / CPR

SUITABLE FOR THE FOLLOWING INSTALLATIONS

In tube, cable ducting or similar closed systems

Individual by-pass

Indoor or receiver installations

Public premises

Maximum installation and handling temperature: +5 ºC

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H05V-U / H07V-U 300/500 V / 450/750 V

PANEL WIRE CABLES - PVC STANDARD

PHYSICAL AND ELECTRICAL CHARACTERISTICS

Type	Alcobre Code	Cross Section nc x mm²	Thickness of insulation mm	Nominal insulation diameter mm	Nominal weight kg/km	Max. DC resistance conductor at 20ºC Ω/km	Max. current rating Air 30 ºC A	Voltage drop Cos φ= 0,8 V/A.km
H05V-U	30004000	1x1,0	0,6	2,4	16	18,100	10	34,790
H07V-U	30101000	1x1,5	0,7	2,8	21	12,10	15,5	26,671
	30102000	1x2,5	0,8	3,4	32	7,41	21	13,192
	30103000	1x4	0,8	3,8	48	4,61	28	8,942
	30104000	1x6	0,8	4,3	67	3,08	38	6,007

- On the Air the current rating is in according to IEC 60364-5-52 table B.52.4, installation method B1, three loaded conductors.

➢ Nominal values subject to variation depending on manufacturing or standard tolerance.

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H07V-R

Product group 302(E):2024-01 | **Rated Voltage U_0/U - 450/750 V**

CABLE STANDARDS

Construction	Fire performance
EN 50525-2-31	EN 60332-1 / IEC 60332-1 Flame non-propagation
IEC 60227-3	EN 50575:2014+A1:2016 (CPR)

CABLE DESIGN

1. Conductor Electrolytic annealed copper, class 2 (-R) according to IEC 60228 and EN 60228

2. Insulation PVC polyvinyl chloride, type TI1 according to EN 50363-3, and type PVC/C according to IEC 60227-1

The standard identification of insulated conductors is the following:

- Blue (RAL 5012)
- Brown (RAL8003)
- Black (RAL 9005)
- Grey (RAL 7015)
- Green/Yellow (RAL 6018/1021)
- Red (RAL 3000)

Other colors available on request.

Marking of cables by printing on the insulation, according to the standard, or customer upon agreement.

The packaging labels of these cables include the CE marking according to the Construction Product Regulation UE N. 305/2011 articles 8 and 9.

Minimum content for the external marking of the cable. There may be additional marks respecting what is indicated in the cable construction regulations.

GENERAL APPLICATIONS

Indoor applications, electric cabinet wiring and domestic use.

Transporting power in domestic or industrial environments (offices, units, indoor wiring, signaling circuits, etc.), as they are installed in surface-mounted, panels, built-in conductors, or similar enclosed systems. Extra sliding cable facilitating installation.

APPROVALS

Range **HAR**: 1 x (1,5 - 120) mm^2

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CABLE SPECIFICATIONS & OTHER CHARACTERISTICS

ELECTRICAL PERFORMANCE

Rated Voltage: 450/750 V A.C. (U_0/U)

Voltage test: 2.500 V A.C

Maximum admissible voltages (EN 50565-1)

Alternating current (A.C.):
Phase conductor and earth: 480 A
Two phase conductors: 825 A

Direct current (D.C.):
Phase conductor and earth: 620 A
Two phase conductors: 1.240 A

FIRE PERFORMANCE

Flame non-propagation
based on EN 60332-1 / IEC 60332-1 (H≤425 mm)

Reduced halogen emission. Chlorine <15%

REACTION TO FIRE (EN 50575:2014+A1:2016)

Class E_{ca}

It satisfies the non-flame propagation test, without additional classifications.

DECLARATION of PERFORMANCE

DoP: 004/rev.**

System 3 Notified body N. 0028

PACKAGING

Available in rolls and drums:

Maximum storage temperature: 40 ºC

APPLICATIONS (FIXED INSTALLATION)

Electrical panel use

Domestic use

CHEMICAL PERFORMANCE

Chemical & Oil resistance: acceptable

MINIMUM BENDING RADIUS

D= Overall diameter of the insulated conductor (in mm).

Handling and during Installation:
4xD (D ≤ 8); 5xD (8 < D ≤ 12); 6xD (12 < D ≤ 20); 6xD (D > 20)

Fixed: 3xD (≤ 8 D ≤ 12); 4xD (12 D ≤ 20); 4xD (D > 20)

Minimum bending radii at cable temperature of: 20 ºC (± 10ºC)

THERMAL PERFORMANCE

Maximum conductor temperatures:
Maximum operation: 70 ºC
Short circuit: 160 ºC (t≤5s)

MINIMUM SERVICE TEMPERATURE

-40 ºC (fixed and protected installations)

MAXIMUM PULLING FORCE (N)

The maximum pulling force must not exceed:

F = 50 x S (N), where "S" is the cross-sectional area of the conductors (mm^2) and 50 N/mm^2 is the permissible tensile stress for cables with copper conductors If the traction force is applied on the conductors.

Recommended not to exceed 1000 N.

WATER PERFORMANCE

Water resistance: AD3 water sprays

APPROVALS

Certif HAR / CE / REACH / RoHS / CPR

SUITABLE FOR THE FOLLOWING INSTALLATIONS

In tube, cable ducting or similar closed systems

Individual by-pass

Indoor or receiver installations

Public premises

Maximum installation and handling temperature: +5 ºC

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H07V-R 450/750 V

PVC STANDARD

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PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section	Thickness of insulation	Nominal insulation diameter	Nominal weight	Max. DC resistance conductor at 20ºC	Max. current rating Air 30 ºC	Voltage drop Cos φ= 0,8
	nc x mm²	mm	mm	kg/km	Ω/km	A	V/A.km
30201001	1x1,5	0,7	3,0	22	12,10	16	23,292
30202001	1x2,5	0,8	3,7	35	7,41	21	14,313
30206001	1x4	0,8	4,2	50	4,61	28	8,942
30207001	1x6	0,8	4,5	68	3,08	36	6,006
30208001	1x10	1,0	5,7	111	1,83	50	3,612
30209001	1x16	1,0	6,6	167	1,15	68	2,305
30210001	1x25	1,2	8,3	262	0,727	89	1,294
30211001	1x35	1,2	9,3	349	0,524	110	0,955
30212001	1x50	1,4	10,8	473	0,387	134	0,727
30213001	1x70	1,4	12,3	676	0,268	171	0,526
30214001	1x95	1,6	14,4	925	0,193	207	0,400
30215001	1x120	1,6	15,8	1.148	0,153	239	0,332
30216004	1x150	1,8	18,0	1.416	0,124	262	0,284
30217001	1x185	2,0	19,8	1.792	0,0991	296	0,242
30218001	1x240	2,2	22,4	2.281	0,0754	346	0,202

- On the Air the current rating is in according to IEC 60364-5-52 table B.52.4, installation method B1, three loaded conductors.

➢ Nominal values subject to variation depending on manufacturing or standard tolerance.

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H07V-K

Product group 317(E):2024-01

Rated Voltage U_0/U - 450/750 V

CABLE STANDARDS

Construction	Fire performance
EN 50525-2-31	EN 60332-1 / IEC 60332-1 Flame non-propagation
IEC 60227-3	EN 50575:2014+A1:2016

CABLE DESIGN

1. Conductor Flexible electrolytic annealed copper, class 5 (-K) according to IEC 60228 and EN 60228

2. Insulation PVC polyvinyl chloride, type TI1 according to EN 50363-3, and type PVC/C according to IEC 60227-1

The standard identification of insulated conductors is the following:

- Blue (RAL 5012)
- Dark Blue (RAL 5010)
- Brown (RAL8003)
- Black (RAL 9005)
- Grey (RAL 7015)
- Green/Yellow (RAL 6018/1021)
- Red (RAL 3000)
- White (RAL 9013)
- Orange (RAL 2003)

Other colors available on request.

Marking of cables by printing on the insulation, according to the standard, or customer upon agreement.
The packaging labels of these cables include the CE marking according to the Construction Product Regulation UE N. 305/2011 articles 8 and 9.
Minimum content for the external marking of the cable. There may be additional marks respecting what is indicated in the cable construction regulations.

GENERAL APPLICATIONS

Indoor applications, electric cabinet wiring and domestic use.

Transporting power in domestic or industrial environments (offices, units, indoor wiring, signaling circuits, etc.), as they are installed in surface-mounted, panels, built-in conductors, or similar enclosed systems. Extra sliding cable facilitating installation.

APPROVALS

Range **HAR**: 1 x (1,5 - 240) mm^2

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CABLE SPECIFICATIONS & OTHER CHARACTERISTICS

ELECTRICAL PERFORMANCE

Rated Voltage: H07V-K 450/750 V A.C. (U_0/U)

Voltage test: 2.500 V A.C

Maximum admissible voltages (EN 50565-1)

Alternating current (A.C.):

Phase conductor and earth: 480 A
Two phase conductors: 825 A

Direct current (D.C.):

Phase conductor and earth: 620 A
Two phase conductors: 1.240 A

FIRE PERFORMANCE

Flame non-propagation
based on EN 60332-1 / IEC 60332-1 (H≤425 mm)

Reduced halogen emission. Chlorine <15%

REACTION TO FIRE (EN 50575:2014+A1:2016)

Class E_{ca}

It satisfies the non-flame propagation test, without additional classifications.

DECLARATION of PERFORMANCE

DoP: 005/rev.**

System 3 Notified body N. 0028

PACKAGING

Available in rolls and drums:

Maximum storage temperature: 40 ºC

APPLICATIONS (FIXED INSTALLATION)

Electrical panel use

Domestic use

CHEMICAL PERFORMANCE

Chemical & Oil resistance: acceptable

MINIMUM BENDING RADIUS

D= Overall diameter of the insulated conductor (in mm).

Handling and during Installation:
4xD (D ≤ 8); 5xD (8 < D ≤ 12); 6xD (12 < D ≤ 20); 6xD (D > 20)

Fixed: 3xD (≤ 8 D ≤ 12); 4xD (12 D ≤ 20); 4xD (D > 20)

Minimum bending radii at cable temperature of 20 ºC (± 10ºC)

HIGH FLEXIBILITY

Copper conductor class 5

THERMAL PERFORMANCE

Maximum conductor temperature:
Maximum operation: 70 ºC
Short circuit: 160 ºC (t≤5s)

MINIMUM SERVICE TEMPERATURE

-40 ºC (fixed and protected installations)

MAXIMUM PULLING FORCE (N)

The maximum pulling force must not exceed:

F = 50 x S (N), where "S" is the cross-sectional area of the conductors (mm^2) and 50 N/mm^2 is the permissible tensile stress for cables with copper conductors If the traction force is applied on the conductors.

Recommended not to exceed 1000 N.

WATER PERFORMANCE

Water resistance: AD3 water sprays

APPROVALS

Certif HAR / CE / REACH / RoHS / CPR

SUITABLE FOR THE FOLLOWING INSTALLATIONS

In tube, cable ducting or similar closed systems

Individual by-pass

Indoor or receiver installations

Public premises

Maximum installation and handling temperature: +5 ºC

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H07V-K 450/750 V

PANEL WIRE CABLES - PVC STANDARD

PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section nc x mm²	Thickness of insulation mm	Nominal insulation diameter mm	Nominal weight kg/km	Max. DC resistance conductor at 20ºC Ω/km	Max. current rating Air 30 ºC A	Voltage drop Cos φ= 0,8 V/A.km
31701001	1x1,5	0,7	2,9	20	13,3	16	25,581
31702001	1x2,5	0,8	3,6	32	7,98	21	15,392
31703001	1x4	0,8	4,1	46	4,95	28	9,586
31704001	1x6	0,8	4,7	64	3,30	36	6,421
31705001	1x10	1,0	6,1	110	1,91	50	3,759
31706001	1x16	1,0	7,0	161	1,21	68	2,413
31707001	1x25	1,2	8,8	251	0,78	89	1,377
31708001	1x35	1,2	9,8	343	0,554	110	0,999
31709001	1x50	1,4	11,6	493	0,386	134	0,720
31710001	1x70	1,4	13,1	650	0,272	171	0,528
31711001	1x95	1,6	15,0	872	0,206	207	0,419
31712001	1x120	1,6	17,0	1.072	0,161	239	0,342
31713001	1x150	1,8	18,6	1.350	0,129	262	0,290
31714001	1x185	2,0	20,5	1.662	0,106	296	0,252
31715001	1x240	2,2	23,5	2.177	0,0801	346	0,208

- On the Air the current rating is in according to IEC 60364-5-52 table B.52.4, installation method B1, three loaded conductors.

➢ Nominal values subject to variation depending on manufacturing or standard tolerance.

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INDOOR APLICATIONS CABLES

PVC STANDARD UNARMOURED

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H05VV-F / 05VV-F

Product group 321(E):2024-01 **Rated Voltage U_0/U - 300/500 V**

CABLE STANDARDS

Construction	Fire performance
EN 50525-2-11 (H05VV-F)	EN 60332-1 / IEC 60332-1 Flame non-propagation
HD 21.5 (05VV~F)	EN 50575:2014+A1:2016 (CPR)

CABLE DESIGN

1. Conductor

Flexible electrolytic annealed copper, class 5 (-K) according to IEC 60228 and EN 60228

2. Insulation

PVC polyvinyl chloride, type TM2 according to EN 50363-3

≤ 5 Core: Identification based to HD 308 S2
≥ 7 Core Identification based to EN 50334

The order of the colours without Green/Yellow is as follows:

2 Core x	Blue + Brown
3 Core x	Brown + Black + Grey
4 Core x	Blue + Brown + Black + Grey
5 Core x	Blue + Brown + Black + Grey + Black
≥ 6 Core x	Black numbered.

The order of the colours with Green/Yellow is as follows:

3 Core G	Blue + Brown + Green/Yellow
4 Core G	Brown + Black + Grey + Green/Yellow
5 Core G	Blue + Brown + Black + Grey + Green/Yellow
≥ 6 Core G	Black numbered + Green/Yellow

3. Sheath

PVC Flexible polyvinyl chloride, type TM2 according to EN 50363-4-1, and type ST5 according to IEC 60502-1. Normal color Black or White.

Marking of cables by printing on the outer sheath, according to the standard, or customer upon agreement.

The packaging labels of these cables include the CE marking according to the Construction Product Regulation UE N. 305/2011 articles 8 and 9.

Minimum content for the external marking of the cable. There may be additional marks respecting what is indicated in the cable construction regulations

GENERAL APPLICATIONS

Flexible cable for connecting small electrical appliances.

Cables for use in indoor mobile services such as domestic premises, kitchens, offices, small portable appliances, appliances, office equipment, light industry motors, machine tools, etc. They are generally used for medium mechanical stresses.

They are distinguished by their flexibility and handling, which facilitate and save time in installation.

APPROVALS

Range **HAR H05VV-F**: 2 - 5 x (1,5 - 4) mm^2

Range 05VV-F: 2 - 5 x (6 - 25) mm^2

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H05VV-F / 05VV-F 300/500 V

PVC STANDARD UNARMOURED

CABLE SPECIFICATIONS & OTHER CHARACTERISTICS

ELECTRICAL PERFORMANCE

Rated Voltage: 300/500 V A.C. (U_0/U)

Voltage test: 1.500 V A.C. (5 min.)

FIRE PERFORMANCE

Flame non-propagation
based on EN 60332-1 / IEC 60332-1

Reduced halogen emission. Chlorine <15%

REACTION TO FIRE (EN 50575:2014+A1:2016)

Class E_{ca}

E_{ca}: It satisfies the non-flame propagation test, without additional classifications

DECLARATION of PERFORMANCE

DoP: 002/rev.**

System 3 Notified body N. 0028

APPLICATIONS (FIXED INSTALLATION)

Industrial use / Domestic appliances / Domestic Mobile use / Robotics / Temporary appliances.

APPROVALS

Certif HAR / CE / REACH / RoHS / CPR

PACKAGING

Available in rolls and drums.

INSTALLATION CONDITIONS

In conduct

Open Air

Buried in ground

CHEMICAL PERFORMANCE

Chemical & Oil resistance: good

MECHANICAL PERFORMANCE

Impact resistance

AG2 Medium severity

MINIMUM BENDING RADIUS

D= Overall diameter of the insulated conductor (in mm).

Handling, during Installation, and fixed:
3xD (D < 12); 4xD (D ≥ 12)

HIGH FLEXIBILITY

Copper conductor class 5

MAXIMUM PULLING FORCE (N)

The maximum pulling force must not exceed:

F = 15 x S (N), where "S" is the cross-sectional area of the conductors (mm^2) and 15 N/mm^2 is the permissible tensile stress for cables with copper conductors If the traction force is applied on the conductors.

THERMAL PERFORMANCE

Maximum conductor temperature:
Maximum operation: 70 ºC
Short circuit: 160 ºC (t≤5s)

MINIMUM SERVICE TEMPERATURE

-5 ºC (fixed and protected installations)

WATER PERFORMANCE

Water resistance: AD5 Jets

AMBIENT TEMPERATURE OF USE

Minimum: −5ºC / Maximum: 40ºC

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H05VV-F / 05VV-F 300/500 V

PVC STANDARD UNARMOURED

PHYSICAL AND ELECTRICAL CHARACTERISTICS

Type	Alcobre Code	Cross Section nc x mm²	Thickness of insulation mm	Nominal insulation diameter mm	Thickness of Sheath Mm	Nominal overall diameter mm	Nominal weight kg/km	Max. DC resistance conductor at 20ºC Ω/km	Max. current rating Air 30 ºC A	Voltage drop Cos φ= 0,8 V/A.km
H05VV-F	32109000	2x1,5	0,8	3,6	0,8	8,6	107	7,98	22	25,590
	32113000	2x2,5	0,8	3,6	1,0	9,0	132	7,98	30	15,403
	32117000	2x4	0,8	4,1	1,1	10,2	181	4,95	40	9,589
	32110000	3x1,5	0,8	3,6	0,9	9,4	131	7,98	22	25,590
	32114000	3x2,5	0,8	3,6	1,1	9,8	164	7,98	30	15,403
	32118000	3x4	0,8	4,1	1,2	11,1	229	4,95	40	9,589
	32111000	4x1,5	0,8	3,6	1,1	10,7	165	7,98	19	22,161
	32115000	4x2,5	0,8	3,6	1,1	10,8	199	7,98	25	13,330
	32119000	4x4	0,8	4,1	1,2	12,2	280	4,95	34	8,304
	32112000	5x1,5	0,8	3,6	1,1	11,8	197	7,98	19	22,161
	32116000	5x2,5	0,8	3,6	1,2	12,0	242	7,98	25	13,330
	32120000	5x4	0,8	4,1	1,4	13,7	347	4,95	34	8,304
05VV-F	32151000	2x6	0,8	4,7	1,2	11,6	242	3,30	40	5,212
	32152000	3x6	0,8	4,7	1,2	12,4	300	3,30	37	5,212
	32153000	4x6	0,8	4,7	1,2	13,6	369	3,30	36	5,212
	32154000	5x6	0,8	4,7	1,4	15,3	456	3,30	44	5,918

- Current ratings according to IEC 60364-5-52, table B.52.10, method of installation E, for cross-section ≥ 1,5 mm².

➢ Nominal values subject to variation depending on manufacturing or standard tolerance.

ALCOBRE reserves the right to alter or modify the specifications and materials according to future technical development that may result in modifications to the technical data provided. The data contained in the technical specifications depend on manufacturing tolerance, or standards. Other constructions on request. Please contact us for latest information.

INDOOR APLICATIONS CABLES

PVC STANDARD UNARMOURED

05VVH2-U

Product group 304(E):2024-01 **Rated Voltage U_0/U - 300/500 V**

CABLE STANDARDS

Construction	Fire performance
NP 3324	EN 60332-1 / IEC 60332-1 Flame non-propagation
	EN 50575:2014+A1:2016 (CPR)

CABLE DESIGN

1. Conductor Electrolytic annealed copper, class 1 (-U) according to IEC 60228 and EN 60228

2. Insulation PVC polyvinyl chloride, type TI1 according to EN 50363-3

≤ 5 Core: Identification based to HD 308 S2

The order of the colours without Green/Yellow is as follows:

2 Core x Blue + Brown

The order of the colours with Green/Yellow is as follows:

3 Core G Blue + Brown + Green/Yellow

3. Sheath PVC polyvinyl chloride, type TM1 according to EN 50363-4-1, normal color Cream.

Marking of cables by printing on the outer sheath, according to the standard, or customer upon agreement.

The packaging labels of these cables include the CE marking according to the Construction Product Regulation UE N. 305/2011 articles 8 and 9.

Minimum content for the external marking of the cable. There may be additional marks respecting what is indicated in the cable construction regulations

GENERAL APPLICATIONS

Flat cable for Installations in domestic buildings.

Installations in domestic buildings, fixed in the wall (flat cable).

APPROVALS

Range: 2 - 3 x (1,5 – 2,5) mm^2

ALCOBRE reserves the right to alter or modify the specifications and materials according to future technical development that may result in modifications to the technical data provided. The data contained in the technical specifications depend on manufacturing tolerance, or standards. Other constructions on request. Please contact us for latest information.

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CABLE SPECIFICATIONS & OTHER CHARACTERISTICS

ELECTRICAL PERFORMANCE

Rated Voltage: 300/500 V A.C. (U_0/U)

Voltage test: 2.000 V A.C. (5 min.)

FIRE PERFORMANCE

Flame non-propagation
based on EN 60332-1 / IEC 60332-1

Reduced halogen emission. Chlorine <15%

REACTION TO FIRE (EN 50575:2014+A1:2016)

Class E_{ca}

E_{ca}: It satisfies the non-flame propagation test, without additional classifications

DECLARATION of PERFORMANCE

DoP: 019/rev.**

System 3 Notified body N. 0028

APPLICATIONS (FIXED INSTALLATION)

Domestic use

APPROVALS

CE / REACH / RoHS / CPR

PACKAGING

Available in rolls.

INSTALLATION CONDITIONS

In conduct

Open Air

CHEMICAL PERFORMANCE

Chemical & Oil resistance: acceptable

MECHANICAL PERFORMANCE

Impact resistance

AG2 Medium severity

MINIMUM BENDING RADIUS

D= Flat diameter of the insulated conductor (in mm).

Handling, during Installation, and fixed: 5xD

MAXIMUM PULLING FORCE (N)

The maximum pulling force must not exceed:

F = 50 x S (N), where "S" is the cross-sectional area of the conductors (mm^2) and 50 N/mm^2 is the permissible tensile stress for cables with copper conductors If the traction force is applied on the conductors.

THERMAL PERFORMANCE

Maximum conductor temperature:
Maximum operation: 70 ºC
Short circuit: 160 ºC (t≤5s)

MINIMUM SERVICE TEMPERATURE

-5 ºC (fixed and protected installations)

WATER PERFORMANCE

Water resistance: AD3 water sprays

AMBIENT TEMPERATURE OF USE

Minimum: −5ºC / Maximum: 40ºC

ALCOBRE reserves the right to alter or modify the specifications and materials according to future technical development that may result in modifications to the technical data provided. The data contained in the technical specifications depend on manufacturing tolerance, or standards. Other constructions on request. Please contact us for latest information.

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05VVH2-U 300/500 V

PVC STANDARD UNARMOURED

PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section	Thickness of insulation	Nominal insulation diameter	Thickness of sheath	Nominal dimensions		Nominal weight	Max. DC resistance conductor at 20ºC	Max. current rating Air 30 ºC	Voltage drop Cos φ= 0,8
					width	height				
	nc x mm²	mm	mm		mm	mm	kg/km	Ω/km	A	V/A.km
30403009	2x1,5	0,8	2,9	0,7	4,5	7,3	77	12,10	22	20,182
30405009	2x2,5	0,8	3,3	0,8	5,1	8,5	104	7,41	30	12,403
30404009	3G1,5	0,8	2,9	0,7	4,7	10,3	113	12,10	22	20,182
30406009	3G2,5	0,8	3,3	0,8	5,3	12,1	155	7,41	30	12,403

- Current ratings according to IEC 60364-5-52, table B.52.10, method of installation E, two or three loaded conductors.

➢ Nominal values subject to variation depending on manufacturing or standard tolerance.

ALCOBRE reserves the right to alter or modify the specifications and materials according to future technical development that may result in modifications to the technical data provided. The data contained in the technical specifications depend on manufacturing tolerance, or standards. Other constructions on request. Please contact us for latest information.

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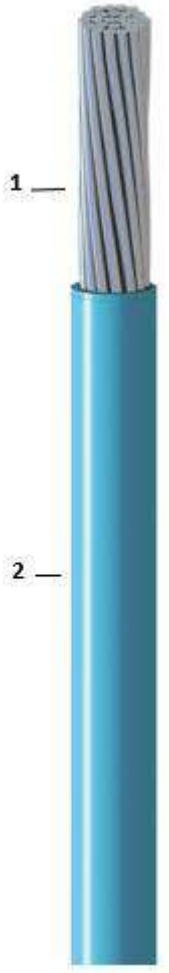
FR-N07V-AR

Product group 352(E):2024-01 **Rated Voltage U_0/U - 450/750 V**

CABLE STANDARDS

Construction	Fire performance
NF C32-208	EN 60332-1-2 / IEC 60332-1-2
NF C32-208/A1	NF C 32-070 2.1 cat. C2
IEC 60227-3	EN 50575:2014+A1:2016 (CPR)

CABLE DESIGN



1. Conductor Aluminium stranded class 2 (-AR) according to IEC 60228 and EN 60228

2. Insulation PVC polyvinyl chloride, type TI1 according to EN 50363-3

The standard identification of insulated conductors is the following:

- Blue (RAL 5012)
- Brown (RAL8003)
- Black (RAL 9005)
- Grey (RAL 7015)

Green/Yellow (RAL 6018/1021)

- Red (RAL 3000)

Other colors available on request.

Marking of cables by printing on the insulation, according to the standard, or customer upon agreement.

The packaging labels of these cables include the CE marking according to the Construction Product Regulation UE N. 305/2011 articles 8 and 9.

Minimum content for the external marking of the cable. There may be additional marks respecting what is indicated in the cable construction regulations.

GENERAL APPLICATIONS

Indoor applications, electric cabinet wiring and domestic use.

Transporting power in domestic or industrial environments (offices, units, indoor wiring, signaling circuits, etc.), as they are installed in surface-mounted or built-in conductors or similar enclosed systems.

APPROVALS

Range **NF USE**: 1 x (16 - 50) mm^2

ALCOBRE reserves the right to alter or modify the specifications and materials according to future technical development that may result in modifications to the technical data provided. The data contained in the technical specifications depend on manufacturing tolerance, or standards. Other constructions on request. Please contact us for latest information.

FR-N07V-R 450/750 V
PVC STANDARD

ELECTRICAL PERFORMANCE

Rated Voltage: 450/750 V A.C. (U_0/U)

Voltage test: 2.500 V A.C

Maximum admissible voltages (EN 50565-1)

Alternating current (A.C.):
Phase conductor and earth: 480 A
Two phase conductors: 825 A

Direct current (D.C.):
Phase conductor and earth: 620 A
Two phase conductors: 1.240 A

FIRE PERFORMANCE

Flame non-propagation
based on EN 60332-1 / IEC 60332-1 (H≤425 mm)

Reduced halogen emission. Chlorine <15%

REACTION TO FIRE (EN 50575:2014+A1:2016)

Class E_{ca}

It satisfies the non-flame propagation test, without additional classifications.

DECLARATION of PERFORMANCE

DoP: 031/rev.**

System 3 Notified body N. 0028

PACKAGING

Available in rolls and drums:

Maximum storage temperature: 40 ºC

APPLICATIONS (FIXED INSTALLATION)

Electrical panel use

Domestic use

CHEMICAL PERFORMANCE

Chemical & Oil resistance: acceptable

MINIMUM BENDING RADIUS

D= Overall diameter of the insulated conductor (in mm).

Handling and during Installation:
4xD (D ≤ 8); 5xD (8 < D ≤ 12); 6xD (12 < D ≤ 20); 6xD (D > 20)

Fixed: 3xD (≤ 8 D ≤ 12); 4xD (12 D ≤ 20); 4xD (D > 20)

Minimum bending radii at cable temperature of 20 ºC (± 10ºC)

THERMAL PERFORMANCE

Maximum conductor temperatures:
Maximum operation: 70 ºC
Short circuit: 160 ºC (t≤5s)

MINIMUM SERVICE TEMPERATURE

-40 ºC (fixed and protected installations)

MAXIMUM PULLING FORCE (N)

The maximum pulling force must not exceed:

F = 30 x S (N), where "S" is the cross-sectional area of the conductors (mm^2) and 30 N/mm^2 is the permissible tensile stress for cables with copper conductors If the traction force is applied on the conductors.

Recommended not to exceed 1000 N.

WATER PERFORMANCE

Water resistance: AD3 water sprays

APPROVALS

NF USE / CE / REACH / RoHS / CPR

SUITABLE FOR THE FOLLOWING INSTALLATIONS

In tube, cable ducting or similar closed systems

Individual by-pass

Indoor or receiver installations

Public premises

Maximum installation and handling temperature: +5 ºC

ALCOBRE reserves the right to alter or modify the specifications and materials according to future technical development that may result in modifications to the technical data provided.
The data contained in the technical specifications depend on manufacturing tolerance, or standards. Other constructions on request. Please contact us for latest information.

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FR-N07V-AR 450/750 V

PVC STANDARD

PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section	Thickness of insulation	Nominal insulation diameter	Nominal weight	Max. DC resistance conductor at 20ºC	Max. current rating Air 40 ºC	Voltage drop Cos φ= 0,8
	nc x mm²	mm	mm	kg/km	Ω/km	A	V/A.km
35209001	1x16	1,0	6,7	71	1,91	67	4,241
35210001	1x25	1,2	8,3	110	1,20	93	2,665
35211001	1x35	1,2	9,4	144	0,868	115	1,928
35212004	1x50	1,4	10,8	191	0,641	140	1,423

- Only one circuit is considered.

➢ Nominal values subject to variation depending on manufacturing or standard tolerance.

ALCOBRE reserves the right to alter or modify the specifications and materials according to future technical development that may result in modifications to the technical data provided. The data contained in the technical specifications depend on manufacturing tolerance, or standards. Other constructions on request. Please contact us for latest information.

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H07Z1-K (AS) Type 2

Product group 319(C):2024-01 **Rated Voltage U_0/U - 450/750 V**

CABLE STANDARDS

Construction
EN 50525-3-31
UNE 211002

Fire performance
EN 60332-1-2 / IEC 60332-1 Flame non-propagation
EN 50399 / IEC 60332-3-24 (Cat. C) Fire non-propagation
EN 60754-1 / IEC 60754-1 LSHF (Low Smoke Halogen Free)
EN 60754-2 / IEC 60754-2 Low corrosive gases emission
EN 61034 / IEC 61034 Low smoke emission (Light transmittance > 60%)
EN 50575:2014+A1:2016 (CPR)

CABLE DESIGN

1. Conductor
Flexible electrolytic annealed copper, class 5 (-K)
according to IEC 60228 and UNE-EN 60228

2. Insulation
Halogen-free thermoplastic polyolefin, type TI 7 according to EN 50363-7.
and type TIZ1 according to UNE 211002.
The standard identification of insulated conductors is the following:

- Blue (RAL 5017)
- Brown (RAL8003)
- Black (RAL 9005)
- Grey (RAL 7012)
- Green/Yellow (RAL 6024/1018)
- Red (RAL 3002)

Other colors available on request.

Marking of cables by printing on the insulation, according to the standard, or customer upon agreement.
The packaging labels of these cables include the CE marking according to the Construction Product Regulation UE N. 305/2011 articles 8 and 9.
Minimum content for the external marking of the cable. There may be additional marks respecting what is indicated in the cable construction regulations.

GENERAL APPLICATIONS

Indoor applications, electric panel wiring and domestic use.

Single core, high security cable, insulated with thermoplastic halogen-free compound. Recommended for indoor use, fixed installations, in public areas such as hospitals, hotels, shopping malls, halls, computer and communication centers, and, in general, in all places with large number of people and electrical/electronic equipment. Extra sliding cable facilitating installation.

APPROVALS

Range **Certif HAR**: 1 x (1,5 - 25) mm^2

ALCOBRE reserves the right to alter or modify the specifications and materials according to future technical development that may result in modifications to the technical data provided. The data contained in the technical specifications depend on manufacturing tolerance, or standards. Other constructions on request. Please contact us for latest information.

H07Z1-K (AS) Type 2 450/750 V

HIGH SECURITY CABLES

CABLE SPECIFICATIONS & OTHER CHARACTERISTICS

ELECTRICAL PERFORMANCE

Rated Voltage: 450/750 V A.C. (U_0/U)
Voltage test: 2.500 V A.C.

Maximum admissible voltages (EN 50565-1)

Alternating current (A.C.):
Phase conductor and earth: 480 A
Two phase conductors: 825 A

Direct current (D.C.):
Phase conductor and earth: 620 A
Two phase conductors: 1.240 A

FIRE PERFORMANCE

LSHF Low Smoke Halogen Free
based on UNE-EN 60754-1 / IEC 60754-1
(HCl <0,5 %, Fluor <0,1 %)

Flame non-propagation
based on EN 60332-1 / IEC 60332-1 (H≤425 mm)

Fire non-propagation (cat C)
based on UNE-EN 60332-3 / IEC 60332-3
(Fs ≤2 m --> flame source: 20,5 kW)

Low smoke emission
based on UNE-EN 61034 / IEC 61034
(Light transmittance > 80%)

Reduced halogen emission. Chlorine <15%

REACTION TO FIRE (EN 50575:2014+A1:2016)

Class C_{ca}-s1a,d1,a1

C_{ca}: It satisfies the non-flame propagation test, with the requirement of non-fire propagation and emitted heat limits for this case.

Low heat generation EN 50399
Total heat released: THR ≤ 30 MJ, Maximum value of the heat released: Peak HRR ≤ 60 kW
Indication of heat increase: FIGRA ≤ 300 W/s

Low production and opacity of emitted smokes
s1: Total smoke production (TSP) ≤ 50 m2 & Peak SPR ≤ 0,25 m2/s; EN 50399 (flame source: 20,5 kW)

s1a: s1 + ≥ 80% transmittance
(UNE-EN 61034-2; IEC 61034-2)

Low production of flaming droplets
d1: No flaming droplets/particles persisting longer than 10' occurs.

Low acidity and conductivity of material gases
a1: pH ≥ 4,3 conductivity < 2,5 µS/mm
(EN 60754-2; IEC 60754-2)

DECLARATION of PERFORMANCE

DoP: 014/rev.**

System 1+ Notified body N. 0099

PACKAGING

Available in rolls and drums

Maximum storage temperature: 40 ºC

CHEMICAL PERFORMANCE

Chemical & Oil resistance: acceptable

MINIMUM BENDING RADIUS

D= Overall diameter of the insulated conductor (in mm).

Handling and during Installation:
4xD (D ≤ 8); 5xD (8 < D ≤ 12); 6xD (12 < D ≤ 20); 6xD (D > 20)

Fixed: 3xD (≤ 8 D ≤ 12); 4xD (12 D ≤ 20); 4xD (D > 20)

Minimum bending radii at cable temperature of 20 ºC (± 10ºC)

HIGH FLEXIBILITY

Copper conductor class 5

MAXIMUM PULLING FORCE (N)

The maximum pulling force must not exceed:

F = 50 x S (N), where "S" is the cross-sectional area of the conductors (mm^2) and 50 N/mm^2 is the permissible tensile stress for cables with copper conductors If the traction force is applied on the conductors.

Recommended not to exceed 1000 N.

THERMAL PERFORMANCE

Maximum conductor temperatures:
Maximum operation: 70 ºC
Short circuit: 160 ºC (t≤5s)

MINIMUM SERVICE TEMPERATURE

-40 ºC (fixed and protected installations)

WATER PERFORMANCE

Water resistance: AD3 water sprays

APPROVALS

Certif HAR / CE / REACH / RoHS / CPR

APPLICATIONS (FIXED INSTALLATION)

Electrical panel use

Domestic use

Public places

SUITABLE FOR THE FOLLOWING INSTALLATIONS

Appropriate for installations where greater fire protection is required, even in housing and in premises with fire or explosion risk

In tube, cable ducting or similar closed systems

Individual by-pass

Indoor or receiver installations

Public premises

Maximum installation and handling temperature: +5 ºC

ALCOBRE reserves the right to alter or modify the specifications and materials according to future technical development that may result in modifications to the technical data provided. The data contained in the technical specifications depend on manufacturing tolerance, or standards. Other constructions on request. Please contact us for latest information.

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H07Z1-K (AS) Type 2 450/750 V

HIGH SECURITY CABLES

PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section nc x mm²	Thickness of insulation mm	Nominal insulation diameter mm	Nominal weight kg/km	Max. DC resistance conductor at 20ºC Ω/km	Max. current rating Air 30 ºC A	Voltage drop Cos φ= 0,8 V/A.km
31912100	1x1,5	0,7	2,9	19	13,3	16	25,581
31912200	1x2,5	0,8	3,6	38	7,98	21	15,392
31912300	1x4	0,8	4,1	46	4,95	28	9,586
31912400	1x6	0,8	4,7	63	3,30	36	6,421
31912500	1x10	1,0	6,1	109	1,91	50	3,759
31912600	1x16	1,0	7,0	160	1,21	68	2,413
31912700	1x25	1,2	8,8	250	0,78	89	1,377
31912800	1x35	1,2	9,8	342	0,554	110	0,999
31912900	1x50	1,4	11,6	492	0,386	134	0,720

- On the Air the current rating is in according to IEC 60364-5-52 table B.52.4, installation method B1, three loaded conductors.

➢ Nominal values subject to variation depending on manufacturing or standard tolerance.

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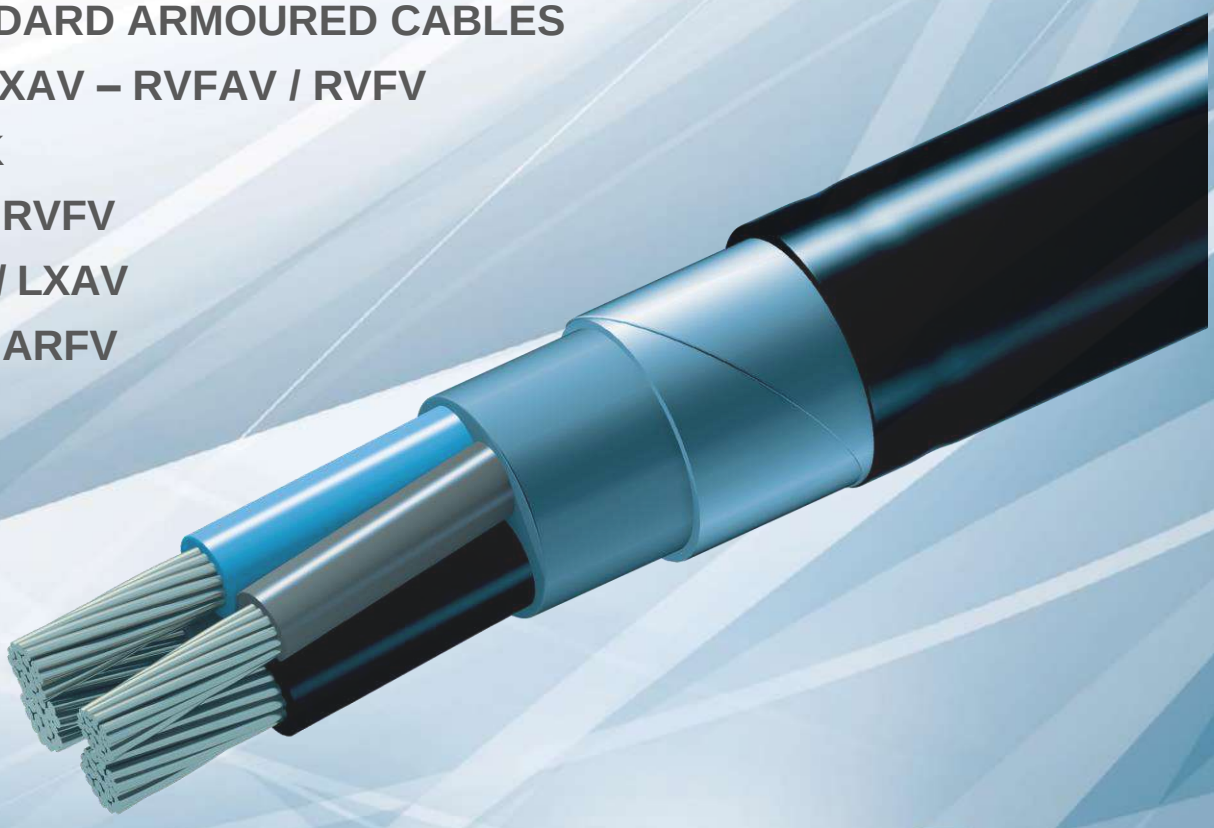
INDUSTRIAL POWER CABLES

PVC STANDARD CABLES

- RV-K / FXV
- XV / RV
- U-1000 R2V
- RV AL / LXV
- U-1000 AR2V
- 4 x U-1000 AR2V

PVC STANDARD ARMOURED CABLES

- X1AV / XAV – RVFAV / RVFV
- RVFV-K
- U-1000 RVFV
- LX1AV / LXAV
- U-1000 ARFV
- LVAV
- LSVAV



ALCOBRE
A MEMBER OF HENGTONG GROUP

INDUSTRIAL POWER CABLES

PVC STANDARD UNARMOURED

ALCOBRE
A MEMBER OF HENGTONG GROUP

RV-K / FXV

Product group 122/123(E):2024-01 **Rated Voltage U_0/U - 0,6/1 kV**

CABLE STANDARDS

Construction	Fire performance
UNE 21123-2	UNE-EN 60332-1 / IEC 60332-1 Flame non-propagation
IEC 60502-1	EN 50575:2014+A1:2016 (CPR)
HD 603 S1	

CABLE DESIGN

1. Conductor Flexible electrolytic annealed copper, class 5 (-K) according to IEC 60228 and EN 60228

2. Insulation Cross-linked polyethylene type DIX-3 according to HD 603-1 and type (XLPE) according to IEC 60502-1

≤ 5 Core: Identification based to HD 308 S2 & UNE 21089-1
≥ 7 Core Identification based to UNE-EN 50334 & EN 50334

The order of the colours without Green/Yellow is as follows:

1 Core x	● Black (≤ 6mm²) / ○ Natural (≥ 10mm²)
2 Core x	● Blue + ● Brown
3 Core x	● Brown + ● Black + ● Grey
4 Core x	● Blue + ● Brown + ● Black + ● Grey
5 Core x	● Blue + ● Brown + ● Black + ● Grey + ● Black
≥ 7 Core x	❶ Black numbered

The order of the colours with Green/Yellow is as follows:

3 Core G	● Blue + ● Brown + ◑ Green/Yellow
4 Core G	● Brown + ● Black + ● Grey + ◑ Green/Yellow
5 Core G	● Blue + ● Brown + ● Black + ● Grey + ◑ Green/Yellow
≥ 7 Core G	❶ Black numbered + ◑ Green/Yellow

3. Sheath PVC Flexible polyvinyl chloride, type DMV-18 according to HD 603 S1, and type ST2 according to IEC 60502-1. Normal color Black.

Marking of cables by printing on the outer sheath, according to the standard, or customer upon agreement.

The packaging labels of these cables include the CE marking according to the Construction Product Regulation UE N. 305/2011 articles 8 and 9.

Minimum content for the external marking of the cable. There may be additional marks respecting what is indicated in the cable construction regulations

GENERAL APPLICATIONS

Industrial flexible cable for power transmission.

Flexible cables are for use in low voltage power distribution in permanent indoor and outdoor fixed installations, protected or not, in industrial areas, buildings, and similar applications.

They are distinguished by their flexibility and handling, which facilitate and save time in installation.

APPROVALS

Range **RV-K AENOR:** 1 - 5 x (1,5 - 95) mm² ; 1 x (120 – 300) mm²

AENOR 042/000863 · CE · CE · REACH COMPLIANT · RoHS Compliant · CPR Construction Products Regulation E_{ca} EN 50575

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CABLE SPECIFICATIONS & OTHER CHARACTERISTICS

ELECTRICAL PERFORMANCE

Rated Voltage: 0,6/1 kV A.C. (U_0/U) / 1,2 kV (*Um*)
1,8 kV D.C. (*Umax.*)

Voltage test: Alternating Current 3,5 kV
Direct Current: 8,5 kV

FIRE PERFORMANCE

Flame non-propagation
based on UNE-EN 60332-1 / IEC 60332-1 (H≤425 mm)

Reduced halogen emission. Chlorine <15%

REACTION TO FIRE (EN 50575:2014+A1:2016)

Class E_{ca}

E_{ca}: It satisfies the non-flame propagation test, without additional classifications

DECLARATION of PERFORMANCE

DoP: 001/rev.**

System 3 Notified body N. 0028

APPLICATIONS (FIXED INSTALLATION)

Industrial use / Urban grids

APPROVALS

AENOR / CE / REACH / RoHS / CPR

PACKAGING

Available in rolls and drums.

OTHERS

Meter by meter marking

INSTALLATION CONDITIONS

In conduct

Open Air

Buried in ground (directly or in conduit)

Suitable methods of installation
It must be respected the methods of installation established by the standards and regulations that will affect each individual case.

On tray

Minimum temperature during installation: 0ºC
(on cable surface)

CHEMICAL PERFORMANCE

Chemical & Oil resistance: good

UV resistant based on UNE 211605

MECHANICAL PERFORMANCE

Impact resistance

AG2 Medium severity

MINIMUM BENDING RADIUS

D= Overall diameter of the outer cable (in mm)

Handling, during Installation, and fixed:
4xD (D ≤ 25); 5xD (25 < D ≤ 50); 6xD (D > 50)

Minimum bending radii at cable temperature of 20 ºC (± 10ºC)

HIGH FLEXIBILITY

Copper conductor class 5

MAXIMUM PULLING FORCE (N)

The maximum pulling force must not exceed:

F = 50 x S (N), where "S" is the cross-sectional area of the conductors (mm^2) and 50 N/mm^2 is the permissible tensile stress for cables with copper conductors If the traction force is applied on the conductors

F = 5 x (N), where D = overall diameter of the cable (mm) If the traction D^2 force is applied on the oversheath

THERMAL PERFORMANCE

Maximum conductor temperatures:

Normal operation: 90ºC
Short circuit: 250ºC (t≤5s)

MINIMUM SERVICE TEMPERATURE

-40 ºC (fixed and protected installations)

WATER PERFORMANCE

Water resistance: AD8 Submersion

AMBIENT TEMPERATURE OF USE:

Minimum: −30ºC (static, not exposed to possible mechanical damage, shocks or vibrations)
Maximum: 60ºC

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PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section	Thickness of insulation	Nominal insulation diameter	Thickness of sheath	Nominal over sheath	Nominal weight	Max. DC resistance conductor at 20ºC	Max. current rating		Voltage drop
								Air 30 ºC	Buried 20 ºC	Cos φ= 0,8
	nc x mm²	mm	mm	mm	mm	kg/km	Ω/km	A	A	V/A.km
12200501	1x1,5	0,7	2,9	1,4	5,7	42	13,3	23	21	27,263
12200601	1x2,5	0,7	3,4	1,4	6,2	56	7,98	32	28	16,403
12208701	1x4	0,7	3,9	1,4	6,7	74	4,95	42	36	10,210
12212501	1x6	0,7	4,5	1,4	7,3	94	3,30	54	44	6,835
12311001	1x10	0,7	5,5	1,4	8,3	139	1,91	75	58	3,993
12316001	1x16	0,7	6,4	1,4	9,2	193	1,21	100	75	2,561
12324001	1x25	0,9	8,2	1,4	11,0	287	0,78	135	96	1,458
12331001	1x35	0,9	9,2	1,4	12,0	382	0,554	169	115	1,057
12338001	1x50	1,0	10,8	1,4	13,6	530	0,386	207	135	0,759
12344001	1x70	1,1	12,5	1,4	15,3	696	0,272	268	167	0,556
12350001	1x95	1,1	14,0	1,5	17,0	916	0,206	328	197	0,438
12356001	1x120	1,2	16,2	1,5	19,2	1.127	0,161	383	197	0,358
12362001	1x150	1,4	17,8	1,6	21,0	1.415	0,129	444	223	0,302
12368001	1x185	1,6	19,7	1,6	22,9	1.725	0,106	510	251	0,262
12374001	1x240	1,7	22,5	1,7	25,9	2.244	0,0801	607	324	0,215
12398001	1x300	1,8	25,2	1,8	28,8	2.806	0,0641	703	365	0,193
12380001	1x400	2,0	30,6	1,9	34,4	3.585	0,0486	823	464	0,164
12385001	1x500	2,2	33,4	2,0	37,4	4.836	0,0384	946	525	0,146
12386301	1x630	2,4	38,4	2,2	42,8	6.635	0,0287	1088	596	0,128

- On the Air the maximum current rating is in according to IEC 60364-5-52 table B.52.12, installation method F.
- Buried the maximum current rating is in accordance to IEC 60364-5-52, table B.52.5, installation method D1.

➢ Nominal values subject to variation depending on manufacturing or standard tolerance.

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PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section	Thickness of insulation	Nominal insulation diameter	Thickness of sheath	Nominal over sheath	Nominal weight	Max. DC resistance conductor at 20ºC	Max. current rating		Voltage drop
								Air 30 ºC	Buried 20 ºC	Cos φ= 0,8
	nc x mm²	mm	mm	mm	mm	kg/km	Ω/km	A	A	V/A.km
12201001	2x1,5	0,7	2,9	1,8	9,4	116	13,3	26	25	27,263
12205001	2x2,5	0,7	3,4	1,8	10,4	150	7,98	36	33	16,403
12209001	2x4	0,7	3,9	1,8	11,4	197	4,95	49	43	10,210
12213001	2x6	0,7	4,5	1,8	12,6	254	3,30	63	53	6,835
12312001	2x10	0,7	5,5	1,8	14,6	379	1,91	86	71	3,993
12317001	2x16	0,7	6,4	1,8	16,4	521	1,21	115	91	2,561
12317501	2x25	0,9	8,2	1,8	19,9	788	0,78	149	116	1,458
12326001	2x35	0,9	9,2	1,8	22,0	1.035	0,554	185	139	1,057
12333101	2x50	1,0	10,8	1,8	25,2	1.429	0,386	225	164	0,759
12339001	2x70	1,1	12,5	1,8	28,6	1.882	0,272	289	203	0,556
12346001	2x95	1,1	14,0	2,0	32,0	2.461	0,206	352	239	0,438
12351001	2x120	1,2	16,2	2,1	36,6	3.099	0,161	410	271	0,358
12357001	2x150	1,4	17,8	2,2	40,0	3.844	0,129	473	306	0,302
12357601	2x185	1,6	19,7	2,3	43,9	4.697	0,106	542	343	0,262
12368701	2x240	1,7	22,5	2,5	50,0	6.128	0,0801	641	395	0,215
12202501	3x1,5	0,7	2,9	1,8	9,9	130	13,3	23	21	27,263
12206001	3x2,5	0,7	3,4	1,8	11,0	175	7,98	32	28	16,403
12210501	3x4	0,7	3,9	1,8	12,1	236	4,95	42	36	10,210
12214501	3x6	0,7	4,5	1,8	13,4	308	3,30	54	44	6,835
12313001	3x10	0,7	5,5	1,8	15,5	468	1,91	75	58	3,993
12319001	3x16	0,7	6,4	1,8	17,5	656	1,21	100	75	2,561
12326009	3x25	0,9	8,2	1,8	21,3	998	0,78	127	96	1,458
12333001	3x35	0,9	9,2	1,8	23,5	1.327	0,554	158	115	1,057
12340501	3x50	1,0	10,8	1,8	27,0	1.849	0,386	192	135	0,759
12340601	3x70	1,1	12,5	1,9	30,8	2.491	0,272	246	167	0,556
12346601	3x95	1,1	14,0	2,0	34,3	3.215	0,206	298	197	0,438
12358501	3x120	1,2	16,2	2,1	39,2	4.024	0,161	346	223	0,358
12362901	3x150	1,4	17,8	2,3	43,1	5.043	0,129	399	251	0,302
12363001	3x185	1,6	19,7	2,4	47,3	6.174	0,106	456	281	0,262
12376001	3x240	1,7	22,5	2,6	53,8	8.055	0,0801	538	324	0,215

- On the Air the current rating is in according to IEC 60364-5-52 table B.52.12, installation method E.
- Buried the current rating is in accordance to IEC 60364-5-52, table B.52.3 for two cores cables and table B.52.5 for three core cables, method of installation D1.

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RV-K / FXV 0,6/1 kV

PVC STANDARD UNARMOURED

ALCOBRE
A MEMBER OF HENGTONG GROUP

PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section	Thickness of insulation	Nominal insulation diameter	Thickness of sheath	Nominal over sheath	Nominal weight	Max. DC resistance conductor at 20ºC	Max. current rating		Voltage drop
								Air 30 ºC	Buried 20 ºC	Cos φ= 0,8
	nc x mm²	mm	mm	mm	mm	kg/km	Ω/km	A	A	V/A.km
12203001	4x1,5	0,7	2,9	1,8	10,7	153	13,3	23	21	23,605
12207001	4x2,5	0,7	3,4	1,8	11,9	208	7,98	32	28	14,197
12211501	4x4	0,7	3,9	1,8	13,1	284	4,95	42	36	8,838
12215501	4x6	0,7	4,5	1,8	14,5	374	3,30	54	44	5,918
12314001	4x10	0,7	5,5	1,8	17,0	576	1,91	75	58	3,457
12322001	4x16	0,7	6,4	1,8	19,1	815	1,21	100	75	2,217
12329001	4x25	0,9	8,2	1,8	23,4	1.245	0,78	127	96	1,458
12336001	4x35	0,9	9,2	1,8	25,9	1.667	0,554	158	115	1,055
12343001	4x50	1,0	10,8	1,9	30,0	2.349	0,386	195	135	0,758
12349001	4x70	1,1	12,5	2,0	34,3	3.126	0,272	246	167	0,556
12359001	4x95	1,1	14,0	2,1	38,1	4.095	0,206	298	197	0,438
12361001	4x120	1,2	16,2	2,3	43,9	5.138	0,161	346	223	0,358
12361501	4x150	1,4	17,8	2,4	47,9	6.417	0,129	399	251	0,302
12366501	4x185	1,6	19,7	2,6	52,8	7.888	0,106	456	281	0,262
12372201	4x240	1,7	22,5	2,8	60,1	10.288	0,0801	538	324	0,215
12204001	5x1,5	0,7	2,9	1,8	11,5	179	13,3	23	21	23,605
12208001	5x2,5	0,7	3,4	1,8	12,8	244	7,98	32	28	14,197
12212001	5x4	0,7	3,9	1,8	14,2	335	4,95	42	36	8,838
12216001	5x6	0,7	4,5	1,8	15,8	443	3,30	54	44	5,918
12315501	5x10	0,7	5,5	1,8	18,5	688	1,91	75	58	3,456
12323501	5x16	0,7	6,4	1,8	20,9	980	1,21	100	75	2,216
12330501	5x25	0,9	8,2	1,8	25,7	1.500	0,78	127	96	1,457
12337501	5x35	0,9	9,2	1,8	28,5	2.017	0,554	158	115	1,055
12343601	5x50	1,0	10,8	2,0	33,2	2.864	0,386	195	135	0,758
12343901	5x70	1,1	12,5	2,1	38,0	3.813	0,272	246	167	0,556
12349501	5x95	1,1	14,0	2,3	42,4	5.027	0,206	298	197	0,438
12355901	5x120	1,2	16,2	2,4	48,6	6.269	0,161	346	223	0,358
12356201	5x150	1,4	17,8	2,6	53,3	7.864	0,129	399	251	0,302
12356301	5x185	1,6	19,7	2,6	58,3	9.601	0,106	456	261	0,251

- On the Air the current rating is in according to IEC 60364-5-52 table B.52.12, installation method E.
- Buried the current rating is in accordance to IEC 60364-5-52, table B.52.5, method of installation D1.

➢ Nominal values subject to variation depending on manufacturing or standard tolerance.

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PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section nc x mm²	Thickness of insulation mm	Nominal insulation diameter mm	Thickness of sheath mm	Nominal over sheath mm	Nominal weight kg/km	Max. DC resistance conductor at 20ºC Ω/km
12271001	7x1,5	0,7	2,9	1,8	13,1	238	13,3
12211401	7x2,5	0,7	3,4	1,8	14,7	294	7,98
12291701	10x1,5	0,7	2,9	1,8	15,7	284	13,3
12292001	10x2,5	0,7	3,4	1,8	17,7	386	7,98
12291801	12x1,5	0,7	2,9	1,8	16,2	323	13,3
12291901	12x2,5	0,7	3,4	1,8	18,3	444	7,98
12291951	12x1,5	0,7	2,9	1,8	17,0	364	13,3
12291971	12x2,5	0,7	3,4	1,8	19,2	505	7,98
12292101	19x1,5	0,7	2,9	1,8	17,8	406	13,3
12292201	19x2,5	0,7	3,4	1,8	20,1	566	7,98
12292601	19x1,5	0,7	2,9	1,8	18,9	468	13,3
12292701	19x2,5	0,7	3,4	1,8	21,5	658	7,98
12293501	24x1,5	0,7	2,9	1,8	21,5	578	13,3
12294501	24x2,5	0,7	3,4	1,8	24,5	817	7,98
12273801	30x1,5	0,7	2,9	1,8	22,8	693	13,3
12273901	30x2,5	0,7	3,4	1,8	26,0	989	7,98
12274001	37x1,5	0,7	2,9	1,8	24,7	830	13,3
12274101	37x2,5	0,7	3,4	1,8	28,3	1.194	7,98

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INDUSTRIAL POWER CABLES

PVC STANDARD UNARMOURED

XV / RV

Product group 120/121(E):2024-01

Rated Voltage U_0/U - 0,6/1 kV

CABLE STANDARDS

Construction	Fire performance
XV: IEC 60502-1	UNE-EN 60332-1 / IEC 60332-1 Flame non-propagation
RV: UNE 21123-2	EN 50575:2014+A1:2016 (CPR)
HD 603 S1	

CABLE DESIGN

1. Conductor

Electrolytic annealed copper, class 1 ≤ 6mm² (multicores)
class 2 ≥ 1,5mm²

according to IEC 60228 and EN 60228

2. Insulation

Cross-linked polyethylene type DIX-3 according to HD 603-1
and type (XLPE) according to IEC 60502-1
≤ 5 Core: Identification based to HD 308 S2 & UNE 21089-1
≥ 7 Core Identification based to UNE-EN 50334 & EN 50334
The order of the colours without Green/Yellow is as follows:

1 Core x	● Black (≤ 6mm²) / ○ Natural (≥ 10mm²)
2 Core x	● Blue + ● Brown
3 Core x	● Brown + ● Black + ● Grey
4 Core x	● Blue + ● Brown + ● Black + ● Grey
5 Core x	● Blue + ● Brown + ● Black + ● Grey + ● Black
≥ 7 Core x	❶ Black numbered.

The order of the colours with Green/Yellow is as follows:

3 Core G	● Blue + ● Brown + ◑ Green/Yellow
4 Core G	● Brown + ● Black + ● Grey + ◑ Green/Yellow
5 Core G	● Blue + ● Brown + ● Black + ● Grey + ◑ Green/Yellow
≥ 7 Core G	❶ Black numbered + ◑ Green/Yellow

3. Sheath

PVC polyvinyl chloride, type DMV-18 according to HD 603 S1,
and type ST2 according to IEC 60502-1. Normal color Black.

Marking of cables by printing on the outer sheath, according to the standard, or customer upon agreement.

The packaging labels of these cables include the CE marking according to the Construction Product Regulation UE N. 305/2011 articles 8 and 9.

Minimum content for the external marking of the cable. There may be additional marks respecting what is indicated in the cable construction regulations

GENERAL APPLICATIONS

Industrial cable for power transmission

Cables are for use in low voltage power distribution in permanent indoor and outdoor fixed installations, protected or not, in industrial areas, buildings, and similar applications.

Can be supplied upon agreement: Oil resistant or Hydrocarbon resistance.

APPROVALS

Range **RV AENOR**: 1 - 5 x (1,5 - 95) mm² ; 1 x (120 – 240) mm²

AENOR 042/000862

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XV / RV 0,6/1 kV
PVC STANDARD UNARMOURED

CABLE SPECIFICATIONS & OTHER CHARACTERISTICS

ELECTRICAL PERFORMANCE

Rated Voltage: 0,6/1 kV A.C. (U_0/U) / 1,2 kV (Um)
1,8 kV D.C. ($Umax.$)

Voltage test: Alternating Current 3,5 kV
Direct Current: 8,5 kV

FIRE PERFORMANCE

Flame non-propagation
based on UNE-EN 60332-1 / IEC 60332-1 (H≤425 mm)

Reduced halogen emission. Chlorine <15%

REACTION TO FIRE (EN 50575:2014+A1:2016)

Class E_{ca}

E_{ca}: It satisfies the non-flame propagation test, without additional classifications

DECLARATION of PERFORMANCE

DoP: 006/rev.**

System 3 Notified body N. 0028

APPLICATIONS (FIXED INSTALLATION)

Industrial use / Urban grids

APPROVALS

RV AENOR / CE / REACH / RoHS / CPR

PACKAGING

Available in rolls and drums.

OTHERS

Meter by meter marking

INSTALLATION CONDITIONS

In conduct

Open Air

Buried in ground (directly or in conduit)

Suitable methods of installation
It must be respected the methods of installation established by the standards and regulations that will affect each individual case.

On tray

Minimum temperature during installation: 0ºC
(on cable surface)

CHEMICAL PERFORMANCE

Chemical & Oil resistance: good

UV resistant based on EN 50618 & UNE 211605

MECHANICAL PERFORMANCE

Impact resistance

AG2 Medium severity

MINIMUM BENDING RADIUS

D= Overall diameter of the outer cable (in mm)

Handling and during Installation:
5xD (D ≤ 25); 6xD (25 < D ≤ 50); 8xD (D > 50)

Fixed: 5xD (D ≤ 25); 6xD (D > 25)

Minimum bending radii at cable temperature of 20 ºC (± 10ºC)

MAXIMUM PULLING FORCE (N)

The maximum pulling force must not exceed:

F = 50 x S (N), where "S" is the cross-sectional area of the conductors (mm^2) and 50 N/mm^2 is the permissible tensile stress for cables with copper conductors If the traction force is applied on the conductors

F = 5 x (N), where D = overall diameter of the cable (mm) If the traction D^2 force is applied on the oversheath

THERMAL PERFORMANCE

Maximum conductor temperatures:

Normal operation: 90ºC
Short circuit: 250ºC (t≤5s)

MINIMUM SERVICE TEMPERATURE

-40 ºC (fixed and protected installations)

WATER PERFORMANCE

Water resistance: AD7 immersion (limited to 2 months)

AMBIENT TEMPERATURE OF USE:

Minimum: −25ºC (static, not exposed to possible mechanical damage, shocks or vibrations)
Maximum: 60ºC

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PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section	Thickness of insulation	Nominal Insulation diameter	Thickness of sheath	Nominal over sheath	Nominal weight	Max. DC resistance conductor at 20ºC	Max. current rating		Voltage drop
								Air 30 ºC	Buried 20 ºC	Cos φ= 0,8
	nc x mm²	mm	mm	mm	mm	kg/km	Ω/km	a	A	V/A.km
12100400	1x1,5	0,7	2,7	1,2	5,1	39	12,10	23	21	21,542
12100500	1x2,5	0,7	3,4	1,2	5,3	50	7,41	32	28	16,403
12100700	1x4	0,7	4,0	1,2	5,8	68	4,61	42	36	10,210
12101000	1x6	0,7	4,2	1,4	6,5	95	3,08	54	44	6,835
12106000	1x10	0,7	5,0	1,4	7,3	137	1,83	75	58	3,993
12111000	1x16	0,7	6,0	1,4	8,2	196	1,15	100	75	2,561
12118000	1x25	0,9	7,7	1,4	9,9	296	0,727	135	96	1,458
12125400	1x35	0,9	8,7	1,4	10,9	388	0,524	169	115	1,057
12132000	1x50	1,0	10,0	1,4	12,2	512	0,387	207	135	0,759
12138000	1x70	1,1	11,7	1,4	13,9	728	0,268	268	167	0,556
12144000	1x95	1,1	13,4	1,5	15,8	982	0,193	328	197	0,438
12150000	1x120	1,2	15,0	1,5	17,4	1.219	0,153	383	197	0,358
12156000	1x150	1,4	17,2	1,6	19,8	1.504	0,124	444	223	0,302
12162000	1x185	1,6	19,0	1,6	21,6	1.888	0,0991	510	251	0,262
12168000	1x240	1,7	21,3	1,7	24,2	2.391	0,0754	607	324	0,215
12173000	1x300	1,8	24,2	1,8	27,2	3.111	0,0601	703	365	0,193
12180000	1x400	2,0	27,0	1,9	30,2	4.228	0,0470	823	464	0,164
12189000	1x500	2,2	30,8	2,0	34,8	5.093	0,0366	946	525	0,146
12189500	1x630	2,4	35,5	2,2	39,9	6.532	0,0283	1088	596	0,128

- On the Air the current rating is in according to IEC 60364-5-52 table B.52.12, installation method F.
- Buried the current rating is in accordance to IEC 60364-5-52, table B.52.5, method of installation D1.

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XV / RV 0,6/1 kV

PVC STANDARD UNARMOURED

ALCOBRE
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PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section	Thickness of insulation	Nominal insulation diameter	Thickness of sheath	Nominal over sheath	Nominal weight	Max. DC resistance conductor at 20ºC	Max. current rating		Voltage drop
								Air 30 ºC	Buried 20 ºC	Cos φ= 0,8
	nc x mm²	mm	mm	mm	mm	kg/km	Ω/km	A	A	V/A.km
12000000	2x1,5	0,7	2,7	1,8	8,3	107	12,10	26	25	21,498
12005000	2x2,5	0,7	3,1	1,8	9,1	139	7,41	36	33	13,204
12009000	2x4	0,7	3,6	1,8	10,0	182	4,61	49	43	8,250
12003000	2x6	0,7	4,1	1,8	11,0	235	3,08	63	53	5,533
12107000	2x10	0,7	5,0	1,8	12,9	353	1,83	86	71	3,320
12112000	2x16	0,7	6,0	1,8	14,8	505	1,15	115	91	2,115
12119000	2x25	0,9	7,7	1,8	18,1	770	0,727	149	116	1,368
12126000	2x35	0,9	8,7	1,8	20,2	1.004	0,524	185	139	1,007
12133000	2x50	1,0	10,0	1,8	22,8	1.322	0,387	225	164	0,764
12139000	2x70	1,1	11,7	1,9	26,4	1.874	0,268	289	203	0,552
12140500	2x95	1,1	13,4	2,0	30,0	2.504	0,193	352	239	0,416
12100000	3x1,5	0,7	3,0	1,8	9,5	143	12,10	23	21	23,605
12100600	3x2,5	0,7	3,4	1,8	10,5	185	7,41	32	28	14,197
12102800	3x4	0,7	4,0	1,8	11,6	249	4,61	42	36	8,838
12103000	3x6	0,7	4,2	1,8	12,2	312	3,08	54	44	5,918
12108500	3x10	0,7	5,0	1,8	13,7	445	1,83	75	58	3,456
12113000	3x16	0,7	6,0	1,8	15,8	648	1,15	100	75	2,216
12122500	3x25	0,9	7,7	1,8	19,4	994	0,727	127	96	1,457
12127500	3x35	0,9	8,7	1,8	21,6	1.306	0,524	158	115	1,055
12134000	3x50	1,0	10,0	1,8	24,4	1.729	0,387	192	135	0,758
12140000	3x70	1,1	11,7	1,9	28,3	2.473	0,268	246	167	0,556
12145500	3x95	1,1	13,4	2,0	32,2	3.320	0,193	298	197	0,438
12146100	3x120	1,2	15,0	2,1	35,7	4.130	0,153	346	223	0,358
12146400	3x150	1,4	17,2	2,3	40,9	5.150	0,124	399	251	0,302
12163000	3x185	1,6	19,0	2,4	45,1	6.487	0,0991	456	281	0,262
12169000	3x240	1,7	21,3	2,6	50,5	8.222	0,0754	538	324	0,215
12114000	3x16+10	0,7	6,0	1,8	17,4	759	1,15	75	58	2,216
12121000	3x25+16	0,9	7,7	1,8	21,4	1.161	0,727	100	75	1,457
12128000	3x35+16	0,9	8,7	1,8	23,9	1.474	0,524	127	96	1,055
12135000	3x50+25	1,0	10,0	1,8	27,0	1.989	0,387	158	115	0,758
12141000	3x70+35	1,1	11,7	1,9	31,4	2.823	0,268	192	135	0,556
12147000	3x95+50	1,1	13,4	2,0	35,7	3.790	0,193	246	167	0,438
12153000	3x120+70	1,2	15,0	2,1	39,6	4.822	0,153	298	197	0,345
12159000	3x150+70	1,4	17,2	2,3	45,4	5.853	0,124	346	223	0,294
12165000	3x185+95	1,6	19,0	2,4	50,0	7.415	0,0991	399	251	0,250
12170000	3x240+120	1,7	21,3	2,6	56,1	9.386	0,0754	456	281	0,207

- On the Air the current rating is in according to IEC 60364-5-52 table B.52.12, installation method E.
- Buried the current rating is in according to IEC 60364-5-52, table B.52.3 for two cores cables and table B.52.5 for three core cables, method of installation D1.

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PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section	Thickness of insulation	Nominal insulation diameter	Thickness of sheath	Nominal over sheath	Nominal weight	Max. DC resistance conductor at 20ºC	Max. current rating		Voltage drop
								Air 30 ºC	Buried 20 ºC	Cos φ= 0,8
	nc x mm²	mm	mm	mm	mm	kg/km	Ω/km	A	A	V/A.km
12003500	4x1,5	0,7	2,7	1,8	9,5	148	12,10	23	21	23,605
12007500	4x2,5	0,7	3,1	1,8	10,4	198	7,41	32	28	14,197
12001500	4x4	0,7	3,6	1,8	11,5	270	4,61	42	36	8,838
12005500	4x6	0,7	4,1	1,8	12,7	358	3,08	54	44	5,918
12109500	4x10	0,7	5,0	1,8	15,0	554	1,83	75	58	3,456
12116000	4x16	0,7	6,0	1,8	17,4	813	1,15	100	75	2,216
12123500	4x25	0,9	7,7	1,8	21,4	1.252	0,727	127	96	1,457
12130500	4x35	0,9	8,7	1,8	23,9	1.652	0,524	158	115	1,055
12137500	4x50	1,0	10,0	1,9	27,2	2.207	0,387	192	135	0,758
12143500	4x70	1,1	11,7	2,0	31,6	3.164	0,268	246	167	0,556
12146500	4x95	1,1	13,4	2,1	35,9	4.254	0,193	298	197	0,438
12155500	4x120	1,2	15,0	2,3	40,0	5.329	0,153	346	223	0,358
12161000	4x150	1,4	17,2	2,4	45,6	6.604	0,124	399	251	0,302
12166500	4x185	1,6	19,0	2,6	50,4	8.331	0,0991	456	281	0,262
12172000	4x240	1,7	21,3	2,8	56,5	10.559	0,0754	538	324	0,215
12104100	5x1,5	0,7	3,0	1,8	11,1	195	12,10	23	21	23,605
12108100	5x2,5	0,7	3,4	1,8	12,3	258	7,41	32	28	14,197
12104900	5x4	0,7	4,0	1,8	13,8	357	4,61	42	36	8,838
12105000	5x6	0,7	4,2	1,8	14,4	456	3,08	54	44	5,918
12110000	5x10	0,7	5,0	1,8	16,4	665	1,83	75	58	3,456
12116900	5x16	0,7	6,0	1,8	19,0	982	1,15	100	75	2,216
12123900	5x25	0,9	7,7	1,8	23,5	1.516	0,727	127	96	1,457
12130900	5x35	0,9	8,7	1,8	26,3	2.006	0,524	158	115	1,055
12137800	5x50	1,0	10,0	2,0	30,2	2.700	0,387	192	135	0,758
12143900	5x70	1,1	11,7	2,1	35,0	3.875	0,268	246	167	0,556
12149500	5x95	1,1	13,4	2,3	40,0	5.232	0,193	298	197	0,438
12155800	5x120	1,2	15,0	2,3	44,2	6.504	0,153	346	223	0,358
12155900	5x150	1,4	17,2	2,4	50,4	8.055	0,124	399	251	0,302
12156100	5x185	1,6	19,0	2,6	55,7	10.169	0,0991	456	281	0,262

- On the Air the current rating is in according to IEC 60364-5-52 table B.52.12, installation method E.
- Buried the current rating is in accordance to IEC 60364-5-52, table B.52.5, method of installation D1.

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PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section nc x mm²	Thickness of insulation mm	Nominal insulation diameter mm	Thickness of sheath mm	Nominal over sheath mm	Nominal weight kg/km	Max. DC resistance conductor at 20ºC Ω/km
12071000	7x1,5	0,7	2,7	1,8	11,8	210	12,10
12071500	7x2,5	0,7	3,1	1,8	13,1	279	7,41
12072000	10x1,5	0,7	2,7	1,8	14,3	289	12,10
12072100	10x2,5	0,7	3,1	1,8	15,9	390	7,41
12072300	12x1,5	0,7	2,7	1,8	14,7	328	12,10
12072400	12x2,5	0,7	3,1	1,8	16,4	450	7,41
12073000	14x1,5	0,7	2,7	1,8	15,5	372	12,10
12073100	14x2,5	0,7	3,1	1,8	17,2	513	7,41
12073300	19x1,5	0,7	2,7	1,8	17,3	479	12,10
12073400	19x2,5	0,7	3,1	1,8	19,3	670	7,41
12073600	24x1,5	0,7	2,7	1,8	19,8	594	12,10
12073700	24x2,5	0,7	3,1	1,8	22,1	834	7,41
12073200	27x1,5	0,7	2,7	1,8	20,2	665	12,10
12077330	27x2,5	0,7	3,1	1,8	22,6	943	7,41
12073800	30x1,5	0,7	2,7	1,8	20,9	707	12,10
12073900	30x2,5	0,7	3,1	1,8	23,4	1.005	7,41
12074000	37x1,5	0,7	2,7	1,8	22,8	852	12,10
12074100	37x2,5	0,7	3,1	1,8	25,6	1.220	7,41

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INDUSTRIAL POWER CABLES

PVC STANDARD UNARMOURED

ALCOBRE
A MEMBER OF HENGTONG GROUP

U-1000 R2V

Product group 120/171(E):2024-01

Rated Voltage U_0/U - 0,6/1 kV A.C. ● 0,9/1,5 kV D.C.

CABLE STANDARDS

Construction	Fire performance
XP C 32-321	NF C 32-070 Cat 2
IEC 60502-1	EN 60332-1 / IEC 60332-1 Flame non-propagation
HD 603 S1	EN 50575:2014+A1:2016 (CPR)

CABLE DESIGN

1. Conductor — Electrolytic annealed copper, class 1 ≤ 6mm² (multicores)
class 2 ≥ 1,5mm²
according to IEC 60228 and EN 60228

2. Insulation — Cross-linked polyethylene type XLPE according to IEC 60502-1
≤ 5 Core: Identification based to NF C 32-081 & HD 308 S2
≥ 7 Core Identification based to EN 50334
The order of the colours without Green/Yellow is as follows:

2 Core x	● Blue + ● Brown
3 Core (1) x	● Blue + ● Brown + ● Black (1) only for sections 1,5 mm² and 2,5 mm²
3 Core (2) x	● Brown + ● Black + ● Grey (2) for sections greater than or equal to 4 mm²
4 Core x	● Blue + ● Brown + ● Black + ● Grey
≥ 7 Core x	❶ Black numbered.

The order of the colours with Green/Yellow is as follows:

3 Core G	◑ Green/Yellow + ● Blue + ● Brown
4 Core G	◑ Green/Yellow + ● Brown + ● Black + ● Grey
5 Core G	◑ Green/Yellow + ● Brown + ● Black + ● Grey + ● Blue
≥ 7 Core G	◑ Green/Yellow + ❶ Black numbered

3. Sheath — PVC polyvinyl chloride, type ST2 according to IEC 60502-1 and type DMV-18 according to HD 603 S1. Normal colour Black.

4. Colour Code — Identification by colour printed EtU (Easy to Use)
Colour coding 2 to 5 condutores

Cross Section	1,5 mm²	2,5 mm²	4 mm²	6 mm²	10 mm²	16 mm²
List Colour	Pink	Yellow	Violet	Turquoise	Brown	Grey

Marking of cables by printing on the outer sheath, according to the standard, or customer upon agreement.
The packaging labels of these cables include the CE marking according to the Construction Product Regulation UE N. 305/2011 articles 8 and 9.
Minimum content for the external marking of the cable. There may be additional marks respecting what is indicated in the cable construction regulations

GENERAL APPLICATIONS

Industrial cable for power transmission

Cables for use in low voltage power distribution in fixed indoor and outdoor installations.

It is suitable for explosive atmospheres (Class BE 3) according to NF C 15-100, with additional appropriate mechanical protection and 15% current reduction. Suitable for photovoltaic installations.

APPROVALS

Range **NF USE**: 1 x (6 - 240) mm² ; 2 x (1,5 – 35) mm² ; 3 - 4 x (1,5 – 240) mm²; 5 x (1,5 – 25) mm²

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TEL. +351 256 579 440 · www.alcobre.pt / sales@alcobre.pt / PE Filipe Silva

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U-1000 R2V 0,6/1 kV
PVC STANDARD UNARMOURED

CABLE SPECIFICATIONS & OTHER CHARACTERISTICS

ELECTRICAL PERFORMANCE

Rated Voltage: 0,6/1 kV A.C. (U_0/U) / 1,2 kV (Um)
0,9/1,5 kV D.C. (U_0/U) / 1,8 kV (Um)

Voltage test: Alternating Current 3,5 kV
Direct Current: 8,5 kV

FIRE PERFORMANCE

Flame non-propagation
based on UNE-EN 60332-1 / IEC 60332-1 (H≤425 mm)

Reduced halogen emission. Chlorine <15%

REACTION TO FIRE (EN 50575:2014+A1:2016)

Class E_{ca}

E_{ca}: It satisfies the non-flame propagation test, without additional classifications

DECLARATION of PERFORMANCE

DoP: 006/rev.**

System 3 Notified body N. 0028

APPLICATIONS (FIXED INSTALLATION)

Industrial use

Distribution network

APPROVALS

NF USE / CE / REACH / RoHS / CPR

PACKAGING

Available in rolls and drums.

OTHERS

Meter by meter marking

INSTALLATION CONDITIONS

In conduct

Open Air

Buried in ground (directly or in conduit)

Suitable methods of installation
It must be respected the methods of installation established by the standards and regulations that will affect each individual case.

Minimum temperature during installation: 0ºC
(on cable surface)

CHEMICAL PERFORMANCE

Chemical & Oil resistance: good

UV resistant based on EN 50618

MECHANICAL PERFORMANCE

Impact resistance

AG2 Medium severity

MINIMUM BENDING RADIUS

D= Overall diameter of the outer cable (in mm)

Handling and during Installation:
5xD (D ≤ 25); 6xD (25 < D ≤ 50); 8xD (D > 50)

Fixed: 5xD (D ≤ 25); 6xD (D > 25)

Minimum bending radii at cable temperature of 20 ºC (± 10ºC)

MAXIMUM PULLING FORCE (N)

The maximum pulling force must not exceed:

F = 50 x S (N), where "S" is the cross-sectional area of the conductors (mm^2) and 50 N/mm^2 is the permissible tensile stress for cables with copper conductors If the traction force is applied on the conductors

F = 5 x (N), where D = overall diameter of the cable (mm) If the traction D^2 force is applied on the oversheath

THERMAL PERFORMANCE

Maximum conductor temperatures:

Normal operation: 90ºC
Short circuit: 250ºC (t≤5s)

MINIMUM SERVICE TEMPERATURE

-40 ºC (fixed and protected installations)

WATER PERFORMANCE

Water resistance: AD7 immersion (limited to 2 months)

AMBIENT TEMPERATURE OF USE:

Minimum: −25ºC (static, not exposed to possible mechanical damage, shocks or vibrations)
Maximum: 60ºC

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U-1000 R2V 0,6/1 kV

PVC STANDARD UNARMOURED

ALCOBRE
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PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section	Thickness of insulation	Nominal insulation diameter	Thickness of sheath	Nominal over sheath	Nominal weight	Max. DC resistance conductor at 20ºC	Max. current rating		Voltage drop
								Air 30 ºC	Buried 20 ºC	Cos φ= 0,8
	nc x mm²	mm	mm	mm	mm	kg/km	Ω/km	A	A	V/A.km
12101001	1x6	0,7	4,2	1,4	6,5	95	3,08	54	44	5,533
12106001	1x10	0,7	5,0	1,4	7,3	137	1,83	75	58	3,349
12111001	1x16	0,7	6,0	1,4	8,2	196	1,15	100	75	2,140
12118001	1x25	0,9	7,7	1,4	9,9	296	0,727	135	96	1,389
12125401	1x35	0,9	8,7	1,4	10,9	388	0,524	169	115	1,026
12132001	1x50	1,0	10,0	1,4	12,2	512	0,387	207	135	0,780
12138001	1x70	1,1	11,7	1,4	13,9	728	0,268	268	167	0,566
12144001	1x95	1,1	13,4	1,5	15,8	982	0,193	328	197	0,429
12150001	1x120	1,2	15,0	1,5	17,4	1.219	0,153	383	223	0,357
12156001	1x150	1,4	17,2	1,6	19,8	1.504	0,124	444	251	0,305
12162001	1x185	1,6	19,0	1,6	21,6	1.888	0,0991	510	281	0,260
12168001	1x240	1,7	21,3	1,7	24,2	2.391	0,0754	607	324	0,217
17103301	2x1,5	0,7	2,7	1,8	8,3	87	12,10	26	25	21,498
17103701	2x2,5	0,7	3,1	1,8	9,1	112	7,41	36	33	13,204
17100110	2x4	0,7	4,0	1,8	11,0	208	4,61	49	43	8,250
17102001	2x6	0,7	4,2	1,8	11,3	201	3,08	63	53	5,533
17107001	2x10	0,7	5,0	1,8	12,9	286	1,83	86	71	3,320
17112001	2x16	0,7	6,0	1,8	14,8	410	1,15	115	91	2,115
12119001	2x25	0,9	7,7	1,8	18,1	770	0,727	149	116	1,368
12126001	2x35	0,9	8,7	1,8	20,2	1.004	0,524	185	139	1,007

- On the Air the current rating is in according to IEC 60364-5-52 table B.52.12, installation method E.
- Buried the current rating is in according to IEC 60364-5-52, table B.52.3 for two cores cables and table B.52.5 for three core cables, method of installation D1.

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Alcobre Code	Cross Section	Thickness of insulation	Nominal insulation diameter	Thickness of sheath	Nominal over sheath	Nominal weight	Max. DC resistance conductor at 20ºC	Max. current rating		Voltage drop
								Air 30 ºC	Buried 20 ºC	Cos φ= 0,8
	nc x mm²	mm	mm	mm	mm	kg/km	Ω/km	A	A	V/A.km
12100000	3x1,5	0,7	3,0	1,8	9,5	143	12,10	23	21	23,605
12100600	3x2,5	0,7	3,4	1,8	10,5	185	7,41	32	28	14,197
12102800	3x4	0,7	4,0	1,8	11,6	249	4,61	42	36	8,838
12103000	3x6	0,7	4,2	1,8	12,2	312	3,08	54	44	5,918
12108500	3x10	0,7	5,0	1,8	13,7	445	1,83	75	58	3,456
12113000	3x16	0,7	6,0	1,8	15,8	648	1,15	100	75	2,216
12122500	3x25	0,9	7,7	1,8	19,4	994	0,727	127	96	1,457
12127500	3x35	0,9	8,7	1,8	21,6	1.306	0,524	158	115	1,055
12134000	3x50	1,0	10,0	1,8	24,4	1.729	0,387	192	135	0,758
12140000	3x70	1,1	11,7	1,9	28,3	2.473	0,268	246	167	0,556
12145500	3x95	1,1	13,4	2,0	32,2	3.320	0,193	298	197	0,438
12146100	3x120	1,2	15,0	2,1	35,7	4.130	0,153	346	223	0,358
12146400	3x150	1,4	17,2	2,3	40,9	5.150	0,124	399	251	0,302
12163000	3x185	1,6	19,0	2,4	45,1	6.487	0,0991	456	281	0,262
12169000	3x240	1,7	21,3	2,6	50,5	8.222	0,0754	538	324	0,215
12135601	3x50+35	1,0	10,0	1,8	27,0	2.076	0,387	192	135	0,758
12143001	3x70+50	1,1	11,7	1,9	31,4	2.940	0,268	246	167	0,556
12147001	3x95+50	1,1	13,4	2,0	35,7	3.790	0,193	298	197	0,438
12153001	3x120+70	1,2	15,0	2,1	39,6	4.822	0,153	346	223	0,345
12159001	3x150+70	1,4	17,2	2,3	45,4	5.853	0,124	399	251	0,294
12165001	3x185+70	1,6	19,0	2,4	50,0	7.415	0,0991	456	281	0,250
12169501	3x240+95	1,7	21,3	2,6	56,1	9.159	0,0754	538	324	0,207

- On the Air the current rating is in according to IEC 60364-5-52 table B.52.12, installation method E.
- Buried the current rating is in accordance to IEC 60364-5-52, table B.52.5 method of installation D1.

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Alcobre Code	Cross Section	Thickness of insulation	Nominal insulation diameter	Thickness of sheath	Nominal over sheath	Nominal weight	Max. DC resistance conductor at 20ºC	Max. current rating		Voltage drop
								Air 30 ºC	Buried 20 ºC	Cos φ= 0,8
	nc x mm²	mm	mm	mm	mm	kg/km	Ω/km	A	A	V/A.km
12003500	4x1,5	0,7	2,7	1,8	9,5	132	12,10	23	21	23,605
12007500	4x2,5	0,7	3,1	1,8	10,4	178	7,41	32	28	14,197
12001500	4x4	0,7	3,6	1,8	11,5	244	4,61	42	36	8,838
12005500	4x6	0,7	4,2	1,8	13,1	340	3,08	54	44	5,918
12109500	4x10	0,7	5,0	1,8	15,0	502	1,83	75	58	3,456
12116000	4x16	0,7	6,0	1,8	17,4	740	1,15	100	75	2,216
12123500	4x25	0,9	7,7	1,8	21,4	1.252	0,727	127	96	1,457
12130500	4x35	0,9	8,7	1,8	23,9	1.652	0,524	158	115	1,055
12137500	4x50	1,0	10,0	1,9	27,2	2.207	0,387	192	135	0,758
12143500	4x70	1,1	11,7	2,0	31,6	3.164	0,268	246	167	0,556
12146500	4x95	1,1	13,4	2,1	35,9	4.254	0,193	298	197	0,438
12155500	4x120	1,2	15,0	2,3	40,0	5.329	0,153	346	223	0,358
12161000	4x150	1,4	17,2	2,4	45,6	6.604	0,124	399	251	0,302
12166500	4x185	1,6	19,0	2,6	50,4	8.331	0,0991	456	281	0,262
12172000	4x240	1,7	21,3	2,8	56,5	10.559	0,0754	538	324	0,215
12104100	5x1,5	0,7	2,7	1,8	10,2	155	12,10	23	21	23,605
12108100	5x2,5	0,7	3,1	1,8	11,3	211	7,41	32	28	14,197
12104900	5x4	0,7	3,6	1,8	12,5	293	4,61	42	36	8,838
12105000	5x6	0,7	4,2	1,8	14,2	411	3,08	54	44	5,918
12110000	5x10	0,7	5,0	1,8	16,7	682	1,83	75	58	3,456
12116900	5x16	0,7	6,0	1,8	19,2	997	1,15	100	75	2,216
12123900	5x25	0,9	7,7	1,8	23,5	1.516	0,727	127	96	1,457

- On the Air the current rating is in according to IEC 60364-5-52 table B.52.12, installation method E.
- Buried the current rating is in accordance to IEC 60364-5-52, table B.52.5, method of installation D1.

➢ Nominal values subject to variation depending on manufacturing or standard tolerance.

ALCOBRE reserves the right to alter or modify the specifications and materials according to future technical development that may result in modifications to the technical data provided. The data contained in the technical specifications depend on manufacturing tolerance, or standards. Other constructions on request. Please contact us for latest information.

INDUSTRIAL POWER CABLES

PVC STANDARD UNARMOURED

ALCOBRE
A MEMBER OF HENGTONG GROUP

RV (AL) / LXV

Product group 151(E):2024-01

Rated Voltage U_0/U 0,6/1 kV

CABLE STANDARDS

Construction	Fire performance
UNE 21123-2	EN 60332-1-2 / IEC 60332-1-2 Flame non-propagation
UNE HD 603-5N	EN 50575:2014+A1:2016 (CPR)
IEC 60502-1	

CABLE DESIGN

1. Conductor Aluminium stranded class 2
according to IEC 60228 and EN 60228

2. Insulation Cross-linked polyethylene type DIX-3 according to HD 603-1
and type (XLPE) according to IEC 60502-1
Core: Identification based to HD 308 S2
The order of the colours without Green/Yellow is as follows:

1 Core x	○ Natural
2 Core x	● Blue + ● Brown
3 Core x	● Brown + ● Black + ● Grey
4 Core x	● Blue + ● Brown + ● Black + ● Grey
5 Core x	● Blue + ● Brown + ● Black + ● Grey + ● Black

The order of the colours with Green/Yellow is as follows:

3 Core G	● Blue + ● Brown + ◐ Green/Yellow
4 Core G	● Brown + ● Black + ● Grey + ◐ Green/Yellow
5 Core G	● Blue + ● Brown + ● Black + ● Grey + ◐ Green/Yellow

3. Outer sheath PVC polyvinyl chloride, type DMV-18 according to HD 603 S1,
and type ST2 according to IEC 60502-1. Normal colour Black.

Marking of cables by printing on the outer sheath, according to the standard, or customer upon agreement.

The packaging labels of these cables include the CE marking according to the Construction Product Regulation UE N. 305/2011 articles 8 and 9.

Minimum content for the external marking of the cable. There may be additional marks respecting what is indicated in the cable construction regulations

GENERAL APPLICATIONS

Aluminium cable for power transmission

Low voltage power distribution cable for use in low voltage power distribution in permanent indoor and outdoor fixed installations, protected or not, in industrial areas, buildings, and similar applications.

Suitable for photovoltaic installations.

APPROVALS

Range **RV AL AENOR**: 1 x (25 – 50 – 95 – 150 - 240) mm^2

Range: 1 x (16 - 400) mm^2 ; 2 x (16 - 35) mm^2 ; 3 - 4 x (16 - 240) mm^2 ; 5 x (16 - 185) mm^2

AENOR 075/000017 · CE · REACH Compliant · RoHS Compliant · CPR Construction Products Regulation E_{ca} EN 50575

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RV (AL) / LXV 0,6/1 kV
PVC STANDARD UNARMOURED

CABLE SPECIFICATIONS & OTHER CHARACTERISTICS

ELECTRICAL PERFORMANCE

Rated Voltage: 0,6/1 kV A.C. (U_0/U) / 1,2 kV (Um)
1,8 kV D.C. ($Umax.$)

Voltage test: Alternating Current 3,5 kV
Direct Current: 8,5 kV

FIRE PERFORMANCE

Flame non-propagation
based on UNE-EN 60332-1 / IEC 60332-1 (H≤425 mm)

Reduced halogen emission. Chlorine <15%

REACTION TO FIRE (EN 50575:2014+A1:2016)

Class E_{ca}

E_{ca}: It satisfies the non-flame propagation test, without additional classifications

DECLARATION of PERFORMANCE

DoP: 007/rev.**

System 3 Notified body N. 0028

APPLICATIONS (FIXED INSTALLATION)

Industrial use

Distribution network.

APPROVALS

AENOR CE / REACH / RoHS / CPR

PACKAGING

Available in drums.

INSTALLATION CONDITIONS

In conduct

Open Air

Buried in ground (directly or in conduit)

Suitable methods of installation
It must be respected the methods of installation established by the standards and regulations that will affect each individual case.

Minimum temperature during installation: 0ºC
(on cable surface)

CHEMICAL PERFORMANCE

Chemical & Oil resistance: good

UV resistant based on UNE 211605

MECHANICAL PERFORMANCE

Impact resistance

AG2 Medium severity

MINIMUM BENDING RADIUS

D= Overall diameter of the outer cable (in mm)

Handling, during Installation and fixed:
15xD (D mm)

Minimum bending radii at cable temperature: 20 ºC (± 10ºC)

MAXIMUM PULLING FORCE (N)

The maximum pulling force must not exceed:

F = 30 x S (N), where "S" is the cross-sectional area of the conductors (mm^2) and 30 N/mm^2 is the permissible tensile stress for cables with copper conductors If the traction force is applied on the conductors

F = 3 x (N), where D = overall diameter of the cable (mm) If the traction D^2 force is applied on the oversheath

THERMAL PERFORMANCE

Maximum conductor temperatures:

Normal operation: 90ºC
Short circuit: 250ºC (t≤5s)

MINIMUM SERVICE TEMPERATURE

-40 ºC (fixed and protected installations)

WATER PERFORMANCE

Water resistance:
AD7 (immersion, limited to 2 months)

OTHERS

Meter by meter marking

ALCOBRE reserves the right to alter or modify the specifications and materials according to future technical development that may result in modifications to the technical data provided. The data contained in the technical specifications depend on manufacturing tolerance, or standards. Other constructions on request. Please contact us for latest information.

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RV (AL) / LXV 0,6/1 kV

PVC STANDARD UNARMOURED

PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section	Thickness of insulation	Nominal insulation diameter	Thickness of sheath	Nominal over sheath	Nominal weight	Max. DC resistance conductor at 20ºC	Max. current rating		Voltage drop
								Air 30 ºC	Buried 20 ºC	Cos φ= 0,8
	nc x mm²	mm	mm	mm	mm	kg/km	Ω/km	A	A	V/A.km
15102001	1x16	0,7	6,1	1,4	8,9	104	1,91	88	64	3,918
15103001	1x25	0,9	7,7	1,4	10,5	146	1,20	138	82	2,462
15104001	1x35	0,9	8,8	1,4	11,6	183	0,868	172	98	1,781
15105001	1x50	1,0	10,0	1,4	12,8	226	0,641	210	117	1,315
15106001	1x70	1,1	12,1	1,4	14,9	307	0,443	271	144	0,909
15107001	1x95	1,1	13,7	1,5	16,7	402	0,320	332	172	0,656
15108001	1x120	1,2	14,8	1,5	17,8	495	0,253	387	197	0,519
15109001	1x150	1,4	17,1	1,6	20,3	600	0,206	448	220	0,423
15110001	1x185	1,6	19,2	1,6	22,4	742	0,164	515	250	0,336
15111001	1x240	1,7	21,8	1,7	25,2	955	0,125	611	290	0,256
15112001	1x300	1,8	24,3	1,8	27,9	1.161	0,100	708	326	0,205
15129001	1x400	2,0	27,3	1,9	31,1	1.482	0,0778	856	379	0,160

- On the Air the current rating is in according to IEC 60364-5-52 table B.52.13, installation method F, for single cores.
- Buried the current rating is in accordance to IEC 60364-5-52, table B.52.5 method of installation D1 for single cores.

➢ Nominal values subject to variation depending on manufacturing or standard tolerance.

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LXV 0,6/1 kV
PVC STANDARD UNARMOURED

ALCOBRE
A MEMBER OF HENGTONG GROUP

PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section	Thickness of insulation	Nominal insulation diameter	Thickness of sheath	Nominal over sheath	Nominal weight	Max. DC resistance conductor at 20ºC	Max. current rating		Voltage drop
								Air 30 ºC	Buried 20 ºC	Cos φ= 0,8
	nc x mm²	mm	mm	mm	mm	kg/km	Ω/km	A	A	V/A.km
15113001	2x16	0,7	6,1	1,8	15,8	317	1,91	91	71	3,985
15119001	2x25	0,9	7,7	1,8	18,9	462	1,20	108	90	2,548
15120001	2x35	0,9	8,8	1,8	21,2	590	0,868	174	108	1,850
15122701	3x16	0,7	6,1	1,8	16,8	361	1,91	77	59	3,482
15123001	3G25	0,9	7,7	1,8	20,2	528	1,20	97	75	2,211
15123401	3G35	0,9	8,8	1,8	22,7	678	0,868	120	90	1,632
15134001	3x50	1,0	10,0	1,8	25,2	852	0,641	146	106	1,221
15140001	3G70	1,1	12,1	1,9	29,9	1.199	0,443	187	130	0,867
15151301	3G95	1,1	13,7	2,0	33,5	1.556	0,320	227	154	0,645
15152001	3G120	1,2	14,8	2,1	36,2	1.956	0,253	263	174	0,526
15158001	3G150	1,4	17,1	2,3	41,6	2.396	0,206	304	197	0,443
15158401	3G185	1,6	19,2	2,4	46,3	3.005	0,164	347	220	0,368
15169001	3G240	1,7	21,8	2,6	52,3	3.882	0,125	409	253	0,298
15121001	3x25+16	0,9	7,7	1,8	21,2	589	1,20	110	150	1,368
15125001	3x35+16	0,9	8,8	1,8	23,3	734	0,868	135	180	1,007
15126001	3x50+25	1,0	10,0	1,8	26,4	944	0,641	149	160	1,228
15141001	3x70+35	1,1	14,3	2,0	30,5	1.117	0,443	192	197	0.874
15133001	3x95+50	1,1	16,9	2,1	34,0	1.433	0,320	235	234	0.653
15153001	3x120+70	1,2	18,8	2,2	37,7	1.848	0,253	273	266	0.533
15159001	3x150+70	1,4	21,2	2,4	42,3	2.197	0,206	316	300	0.450
15165001	3x185+95	1,6	24,0	2,5	47,3	2.808	0,164	363	337	0.375
15170001	3x240+120	1,7	27,7	2,7	53,9	3.574	0,125	430	388	0.305
15116001	4x16	0,7	6,1	1,8	18,3	426	1,91	77	59	3,482
15123501	4x25	0,9	7,7	1,8	22,2	628	1,20	97	75	2,211
15130501	4x35	0,9	8,8	1,8	24,9	810	0,868	120	90	1,632
15137501	4x50	1,0	10,0	1,9	28,0	1.035	0,641	146	106	1,221
15143501	4x70	1,1	14,3	2,0	30,6	1.230	0,443	187	130	0,867
15146501	4x95	1,1	16,9	2,1	34,1	1.583	0,320	227	154	0,645
15155501	4x120	1,2	18,8	2,3	38,0	2.043	0,253	263	174	0,526
15161001	4x150	1,4	21,2	2,4	42,4	2.455	0,206	304	197	0,443
15166501	4x185	1,6	24,0	2,6	47,5	3.159	0,164	347	220	0,368
15172001	4x240	1,7	27,7	2,8	54,1	4.016	0,125	409	253	0,298

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PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section	Thickness of insulation	Nominal insulation diameter	Thickness of sheath	Nominal over sheath	Nominal weight	Max. DC resistance conductor at 20ºC	Max. current rating		Voltage drop
								Air 30 ºC	Buried 20 ºC	Cos φ= 0,8
	nc x mm²	mm	mm	mm	mm	kg/km	Ω/km	A	A	V/A.km
15117501	5G16	0,7	6,1	1,8	20,0	496	1,91	77	59	3,482
15124101	5G25	0,9	7,7	1,8	24,3	735	1,20	97	75	2,211
15131001	5G35	0,9	8,8	1,8	27,4	951	0,868	120	90	1,632
15137801	5G50	1,0	10,0	2,0	31,0	1.232	0,641	146	106	1,221
15143901	5G70	1,1	12,1	2,1	36,8	1.732	0,443	187	130	0,867
15149501	5G95	1,1	13,7	2,3	41,5	2.277	0,320	227	154	0,645
15155801	5G120	1,2	14,8	2,3	44,6	2.803	0,253	263	174	0,526
15155901	5G150	1,4	17,1	2,4	51,0	3.439	0,206	304	197	0,443
15167201	5G185	1,6	19,2	2,9	57,7	4.441	0,164	347	220	0,368

- On the Air the current rating is in according to IEC 60364-5-52 table B.52.13, installation method E.
- Buried the current rating is in according to IEC 60364-5-52, table B.52.5 method of installation D1.

➢ Nominal values subject to variation depending on manufacturing or standard tolerance.

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INDUSTRIAL POWER CABLES

PVC STANDARD UNARMOURED

ALCOBRE
A MEMBER OF HENGTONG GROUP

U-1000 AR2V

Product group 173(E):2024-01 | **Rated Voltage U_0/U 0,6/1 kV**

CABLE STANDARDS

Construction	Fire performance
NF C 32-321	NF C 32-070 Cat 2
IEC 60502-1	EN 60332-1 / IEC 60332-1 Flame non-propagation
HD 603 S1	EN 50575:2014+A1:2016 (CPR)

CABLE DESIGN

1. Conductor

Aluminium stranded class 2
according to IEC 60228 and EN 60228

2. Insulation

Cross-linked polyethylene type DIX-3 according to HD 603-1
and type (XLPE) according to IEC 60502-1
Core: Identification based to HD 308 S2
The order of the colours without Green/Yellow is as follows:

1 Core x	○ Natural
2 Core x	● Blue + ● Brown
3 Core x	● Brown + ● Black + ● Grey
4 Core x	● Blue + ● Brown + ● Black + ● Grey
5 Core x	● Blue + ● Brown + ● Black + ● Grey + ● Black

The order of the colours with Green/Yellow is as follows:

3 Core G	● Blue + ● Brown + ◑ Green/Yellow
4 Core G	● Brown + ● Black + ● Grey + ◑ Green/Yellow
5 Core G	● Blue + ● Brown + ● Black + ● Grey + ◑ Green/Yellow

3. Outer sheath

PVC polyvinyl chloride, type DMV-18 according to HD 603 S1,
and type ST2 according to IEC 60502-1. Normal colour Black.

Marking of cables by printing on the outer sheath, according to the standard, or customer upon agreement.

The packaging labels of these cables include the CE marking according to the Construction Product Regulation UE N. 305/2011 articles 8 and 9.

Minimum content for the external marking of the cable. There may be additional marks respecting what is indicated in the cable construction regulations

GENERAL APPLICATIONS

Aluminium cable for power transmission

Low voltage power distribution cable for use in low voltage power distribution in permanent indoor and outdoor fixed installations, protected or not, in industrial areas, buildings, and similar applications.

Suitable for photovoltaic installations.

APPROVALS

Range **NF USE**: 1 x (16-400) mm² ; 2 x (16-35) mm² ; 3-4 x (16-240) mm² ; 5 x (16-25) mm²

ALCOBRE reserves the right to alter or modify the specifications and materials according to future technical development that may result in modifications to the technical data provided.
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U-1000 AR2V 0,6/1 kV
PVC STANDARD UNARMOURED

CABLE SPECIFICATIONS & OTHER CHARACTERISTICS

ELECTRICAL PERFORMANCE

Rated Voltage: 0,6/1 kV A.C. (U_0/U) / 1,2 kV (Um)
1,8 kV D.C. ($Umax.$)

Voltage test: Alternating Current 3,5 kV
Direct Current: 8,5 kV

FIRE PERFORMANCE

Flame non-propagation
based on UNE-EN 60332-1 / IEC 60332-1 (H≤425 mm)

Reduced halogen emission. Chlorine <15%

REACTION TO FIRE (EN 50575:2014+A1:2016)

Class E_{ca}

E_{ca}: It satisfies the non-flame propagation test, without additional classifications

DECLARATION of PERFORMANCE

DoP: 007/rev.**

System 3 Notified body N. 0028

APPLICATIONS (FIXED INSTALLATION)

Industrial use

Distribution network.

APPROVALS

NF USE / CE / REACH / RoHS / CPR

PACKAGING

Available in drums.

INSTALLATION CONDITIONS

In conduct

Open Air

Buried in ground (directly or in conduit)

Suitable methods of installation
It must be respected the methods of installation established by the standards and regulations that will affect each individual case.

Minimum temperature during installation: 0ºC
(on cable surface)

CHEMICAL PERFORMANCE

Chemical & Oil resistance: good

UV resistant based on EN 50618

MECHANICAL PERFORMANCE

Impact resistance

AG2 Medium severity

MINIMUM BENDING RADIUS

D= Overall diameter of the outer cable (in mm)

Handling, during Installation and fixed:
15xD (D mm)

Minimum bending radii at cable temperature: 20 ºC (± 10ºC)

MAXIMUM PULLING FORCE (N)

The maximum pulling force must not exceed:

F = 30 x S (N), where "S" is the cross-sectional area of the conductors (mm^2) and 30 N/mm^2 is the permissible tensile stress for cables with copper conductors If the traction force is applied on the conductors

F = 3 x (N), where D = overall diameter of the cable (mm) If the traction D^2 force is applied on the oversheath

THERMAL PERFORMANCE

Maximum conductor temperatures:

Normal operation: 90ºC
Short circuit: 250ºC (t≤5s)

MINIMUM SERVICE TEMPERATURE

-40 ºC (fixed and protected installations)

WATER PERFORMANCE

Water resistance:
AD7 (immersion, limited to 2 months)

OTHERS

Meter by meter marking

ALCOBRE reserves the right to alter or modify the specifications and materials according to future technical development that may result in modifications to the technical data provided. The data contained in the technical specifications depend on manufacturing tolerance, or standards. Other constructions on request. Please contact us for latest information.

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U-1000 AR2V 0,6/1 kV

PVC STANDARD UNARMOURED

PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section	Thickness of insulation	Nominal insulation diameter	Thickness of sheath	Nominal over sheath	Nominal weight	Max. DC resistance conductor at 20ºC	Max. current rating		Voltage drop
								Air 30 ºC	Buried 20 ºC	Cos φ= 0,8
	nc x mm²	mm	mm	mm	mm	kg/km	Ω/km	A	A	V/A.km
15102001	1x16	0,7	6,1	1,4	8,9	104	1,91	88	64	3,918
15103001	1x25	0,9	7,7	1,4	10,5	146	1,20	138	82	2,462
15104001	1x35	0,9	8,8	1,4	11,6	183	0,868	172	98	1,781
15105001	1x50	1,0	10,0	1,4	12,8	226	0,641	210	117	1,315
15106001	1x70	1,1	12,1	1,4	14,9	307	0,443	271	144	0,909
15107001	1x95	1,1	13,7	1,5	16,7	402	0,320	332	172	0,656
15108001	1x120	1,2	14,8	1,5	17,8	495	0,253	387	197	0,519
15109001	1x150	1,4	17,1	1,6	20,3	600	0,206	448	220	0,423
15110001	1x185	1,6	19,2	1,6	22,4	742	0,164	515	250	0,336
15111001	1x240	1,7	21,8	1,7	25,2	955	0,125	611	290	0,256
15112001	1x300	1,8	24,3	1,8	27,9	1.161	0,100	708	326	0,205
15129001	1x400	2,0	27,3	1,9	31,1	1.482	0,0778	856	379	0,160

- On the Air the current rating is in according to IEC 60364-5-52 table B.52.13, installation method F, for single cores.
- Buried the current rating is in accordance to IEC 60364-5-52, table B.52.5 method of installation D1 for single cores.

➢ Nominal values subject to variation depending on manufacturing or standard tolerance.

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U-1000 AR2V 0,6/1 kV

PVC STANDARD UNARMOURED

ALCOBRE
A MEMBER OF HENGTONG GROUP

PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section	Thickness of insulation	Nominal insulation diameter	Thickness of sheath	Nominal over sheath	Nominal weight	Max. DC resistance conductor at 20ºC	Max. current rating		Voltage drop
								Air 30 ºC	Buried 20 ºC	Cos φ= 0,8
	nc x mm²	mm	mm	mm	mm	kg/km	Ω/km	A	A	V/A.km
15113001	2x16	0,7	6,1	1,8	15,8	317	1,91	91	71	3,985
15119001	2x25	0,9	7,7	1,8	18,9	462	1,20	108	90	2,548
15120001	2x35	0,9	8,8	1,8	21,2	590	0,868	174	108	1,850
15122701	3x16	0,7	6,1	1,8	16,8	361	1,91	77	59	3,482
15123001	3x25	0,9	7,7	1,8	20,2	528	1,20	97	75	2,211
15123401	3x35	0,9	8,8	1,8	22,7	678	0,868	120	90	1,632
15134001	3x50	1,0	10,0	1,8	25,2	852	0,641	146	106	1,221
15140001	3x70	1,1	12,1	1,9	29,9	1.199	0,443	187	130	0,867
15151301	3x95	1,1	13,7	2,0	33,5	1.556	0,320	227	154	0,645
15152001	3x120	1,2	14,8	2,1	36,2	1.956	0,253	263	174	0,526
15158001	3x150	1,4	17,1	2,3	41,6	2.396	0,206	304	197	0,443
15158401	3x185	1,6	19,2	2,4	46,3	3.005	0,164	347	220	0,368
15169001	3x240	1,7	21,8	2,6	52,3	3.882	0,125	409	253	0,298
15121001	3x25+16	0,9	7,7	1,8	21,2	589	1,20	110	150	1,368
15125001	3x35+16	0,9	8,8	1,8	23,3	734	0,868	135	180	1,007
15126001	3x50+25	1,0	10,0	1,8	26,4	944	0,641	149	160	1,228
15141001	3x70+35	1,1	14,3	2,0	30,5	1.117	0,443	192	197	0.874
15133001	3x95+50	1,1	16,9	2,1	34,0	1.433	0,320	235	234	0.653
15153001	3x120+70	1,2	18,8	2,2	37,7	1.848	0,253	273	266	0.533
15159001	3x150+70	1,4	21,2	2,4	42,3	2.197	0,206	316	300	0.450
15165001	3x185+95	1,6	24,0	2,5	47,3	2.808	0,164	363	337	0.375
15170001	3x240+120	1,7	27,7	2,7	53,9	3.574	0,125	430	388	0.305
15116001	4x16	0,7	6,1	1,8	18,3	426	1,91	77	59	3,482
15123501	4x25	0,9	7,7	1,8	22,2	628	1,20	97	75	2,211
15130501	4x35	0,9	8,8	1,8	24,9	810	0,868	120	90	1,632
15137501	4x50	1,0	10,0	1,9	28,0	1.035	0,641	146	106	1,221
15143501	4x70	1,1	14,3	2,0	30,6	1.230	0,443	187	130	0,867
15146501	4x95	1,1	16,9	2,1	34,1	1.583	0,320	227	154	0,645
15155501	4x120	1,2	18,8	2,3	38,0	2.043	0,253	263	174	0,526
15161001	4x150	1,4	21,2	2,4	42,4	2.455	0,206	304	197	0,443
15166501	4x185	1,6	24,0	2,6	47,5	3.159	0,164	347	220	0,368
15172001	4x240	1,7	27,7	2,8	54,1	4.016	0,125	409	253	0,298

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U-1000 AR2V 0,6/1 kV

PVC STANDARD UNARMOURED

PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section	Thickness of insulation	Nominal insulation diameter	Thickness of sheath	Nominal over sheath	Nominal weight	Max. DC resistance conductor at 20ºC	Max. current rating		Voltage drop
								Air 30 ºC	Buried 20 ºC	Cos φ= 0,8
	nc x mm²	mm	mm	mm	mm	kg/km	Ω/km	A	A	V/A.km
15117501	5x16	0,7	6,1	1,8	20,0	496	1,91	77	59	3,482
15124101	5x25	0,9	7,7	1,8	24,3	735	1,20	97	75	2,211
15131001	5x35	0,9	8,8	1,8	27,4	951	0,868	120	90	1,632
15137801	5x50	1,0	10,0	2,0	31,0	1.232	0,641	146	106	1,221
15143901	5x70	1,1	12,1	2,1	36,8	1.732	0,443	187	130	0,867
15149501	5x95	1,1	13,7	2,3	41,5	2.277	0,320	227	154	0,645
15155801	5x120	1,2	14,8	2,3	44,6	2.803	0,253	263	174	0,526
15155901	5x150	1,4	17,1	2,4	51,0	3.439	0,206	304	197	0,443
15167201	5x185	1,6	19,2	2,9	57,7	4.441	0,164	347	220	0,368

- On the Air the current rating is in according to IEC 60364-5-52 table B.52.13, installation method E.
- Buried the current rating is in according to IEC 60364-5-52, table B.52.5 method of installation D1.

➢ Nominal values subject to variation depending on manufacturing or standard tolerance.

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4x1x U-1000 AR2V
(Bundle Single Core)

Product group 174(E):2024-01 **Rated Voltage U_0/U 0,6/1 kV**

CABLE STANDARDS

Construction	Fire performance
XP C 32-321	NF C 32-070 Cat 2
IEC 60502-1	EN 60332-1 / IEC 60332-1 Flame non-propagation
HD 603 S1	EN 50575:2014+A1:2016 (CPR)

4 x single core (equal sections)

4 x single core (unequal sections)

CABLE DESIGN

1. Conductor Aluminium stranded class 2
according to IEC 60228 and EN 60228

2. Insulation Cross-linked polyethylene type DIX-3 according to HD 603-1
and type (XLPE) according to IEC 60502-1

Core x ○ Natural

3. Outer sheath PVC polyvinyl chloride, type DMV-18 according to HD 603 S1,
and type ST2 according to IEC 60502-1.
Black and Identification by list colour

4 Core x ● Blue + ● Brown + ● Black + ● Grey

Marking of cables by printing on the outer sheath, according to the standard, or customer upon agreement.
The packaging labels of these cables include the CE marking according to the Construction Product Regulation UE N. 305/2011 articles 8 and 9.
Minimum content for the external marking of the cable. There may be additional marks respecting what is indicated in the cable construction regulations

GENERAL APPLICATIONS

Aluminium cable for power transmission

Low voltage power distribution cable for use in low voltage power distribution in permanent indoor and outdoor fixed installations, protected or not, in industrial areas, buildings, and similar applications.

Suitable for photovoltaic installations.

APPROVALS

Range **NF USE:** 1 x (16 - 400) mm^2

Range Bundle SC: 4 x 1 x (16 - 400) mm^2 ; 3+1 x 1 x (50 - 300) + (35 – 150) mm^2

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4x1x U-1000 AR2V 0,6/1 kV

PVC STANDARD UNARMOURED

CABLE SPECIFICATIONS & OTHER CHARACTERISTICS

ELECTRICAL PERFORMANCE

Rated Voltage: 0,6/1 kV A.C. (U_0/U) / 1,2 kV (Um)
1,8 kV D.C. ($Umax.$)

Voltage test: Alternating Current 3,5 kV
Direct Current: 8,5 kV

FIRE PERFORMANCE

Flame non-propagation
based on UNE-EN 60332-1 / IEC 60332-1 (H≤425 mm)

Reduced halogen emission. Chlorine <15%

REACTION TO FIRE (EN 50575:2014+A1:2016)

Class E_{ca}

E_{ca}: It satisfies the non-flame propagation test, without additional classifications

DECLARATION of PERFORMANCE

DoP: 007/rev.**

System 3 Notified body N. 0028

APPLICATIONS (FIXED INSTALLATION)

Industrial use

Distribution network.

APPROVALS

NF USE / CE / REACH / RoHS / CPR

PACKAGING

Available in drums.

INSTALLATION CONDITIONS

In conduct

Open Air

Buried in ground (directly or in conduit)

Suitable methods of installation
It must be respected the methods of installation established by the standards and regulations that will affect each individual case.

Minimum temperature during installation: 0ºC
(on cable surface)

CHEMICAL PERFORMANCE

Chemical & Oil resistance: good

UV resistant based on EN 50618

MECHANICAL PERFORMANCE

Impact resistance

AG2 Medium severity

MINIMUM BENDING RADIUS

D= Overall diameter of the outer cable (in mm)

Handling, during Installation and fixed:
15xD (D mm)

Minimum bending radii at cable temperature: 20 ºC (± 10ºC)

MAXIMUM PULLING FORCE (N)

The maximum pulling force must not exceed:

F = 30 x S (N), where "S" is the cross-sectional area of the conductors (mm^2) and 50 N/mm^2 is the permissible tensile stress for cables with copper conductors If the traction force is applied on the conductors

F = 3 x (N), where D = overall diameter of the cable (mm) If the traction D^2 force is applied on the oversheath

THERMAL PERFORMANCE

Maximum conductor temperatures:

Normal operation: 90ºC
Short circuit: 250ºC (t≤5s)

MINIMUM SERVICE TEMPERATURE

-40 ºC (fixed and protected installations)

WATER PERFORMANCE

Water resistance:
AD7 immersion, limited to 2 months

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4x1x U-1000 AR2V 0,6/1 kV

PVC STANDARD UNARMOURED

PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre code	Cross Section	Nominal overall diameter	Nominal weight	Minimum bending radius	Max. current rating		Voltage drop
					Air 30 ºC	Buried 20 ºC	Cos φ= 0,8
	nc x mm²	mm	kg/km	mm	A	A	V/A.km
17428500	4x1x25	25,4	595	102	103	75	2,205
17430500	4x1x35	28,0	743	112	129	90	1,630
17437500	4x1x50	30,9	918	124	159	106	1,220
17443500	4x1x70	35,8	1 242	143	206	130	0,870
17446500	4x1x95	40,4	1 632	162	253	154	0,651
17455500	4x1x120	44,3	1 964	177	296	174	0,530
17461000	4x1x150	49,3	2 441	197	343	197	0,447
17466500	4x1x185	54,4	3 027	218	395	220	0,372
17472000	4x1x240	61,4	3 870	246	471	253	0,303
17473200	4x1x300	67,5	4 987	270	547	286	0,207
17341000	3x1x70+1x50	33,0	1.172	124	206	130	0,870
17333000	3x1x95+1x50	38,4	1.476	141	253	154	0,651
17353000	3x1x120+1x70	42,5	1.798	148	296	174	0,530
17359000	3x1x150+1x70	46,3	2.171	176	343	197	0,447
17365000	3x1x185+1x95	51,1	2.692	196	395	220	0,372
17370000	3x1x240+1x95	56,4	3.344	222	471	253	0,303

- On the Air the current rating is in according to IEC 60364-5-52 table B.52.13, installation method F.
- Buried the current rating is in according to IEC 60364-5-52, table B.52.5 method of installation D1.

➢ Nominal values subject to variation depending on manufacturing or standard tolerance.

➢ Other construction upon request.

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INDUSTRIAL POWER CABLES

PVC STANDARD ARMOURED

X1AV - XAV / RVFAV - RVFV

Product group 124/125(E):2024-01 **Rated Voltage U_0/U 0,6/1 kV**

CABLE STANDARDS

Construction	Fire performance
IEC 60502-1	EN 60332-1-2 / IEC 60332-1-2 Flame non-propagation
UNE 21123-2	EN 50575:2014+A1:2016 (CPR)

CABLE DESIGN

1. Conductor

Electrolytic annealed copper, class 1 ≤ 6mm² (multicores)
class 2 ≥ 1,5mm²
according to IEC 60228 and EN 60228

2. Insulation

Cross-linked polyethylene (XLPE) according to IEC 60502-1 and type DIX-3 according to HD 603 S1

≤ 5 Core: Identification based to HD 308 S2

≥ 7 Core Identification based to EN 50334

The order of the colours without Green/Yellow is as follows:

1 Core x	○ Natural
2 Core x	● Blue + ● Brown
3 Core x	● Brown + ● Black + ● Grey
4 Core x	● Blue + ● Brown + ● Black + ● Grey
5 Core x	● Blue + ● Brown + ● Black + ● Grey + ● Black
≥ 7 Core x	❶ Black numbered.

The order of the colours with Green/Yellow is as follows:

3 Core G	● Blue + ● Brown + ◑ Green/Yellow
4 Core G	● Brown + ● Black + ● Grey + ◑ Green/Yellow
5 Core G	● Blue + ● Brown + ● Black + ● Grey + ◑ Green/Yellow
≥ 7 Core G	◑ Green/Yellow + ❶ Black numbered

3. Inner Sheath

PVC polyvinyl chloride

4. Armour

X1AV / RVFAV - ATA Aluminium tapes, for single-core cables, helical applied.

XAV / RVFV - STA Steel tapes, for single cores and multi-core cables, helical applied

5. Outer sheath

PVC polyvinyl chloride, type DMV-18 according to HD 603 S1, and type ST2 according to IEC 60502-1. Normal color Black.

Marking of cables by printing on the outer sheath, according to the standard, or customer upon agreement.
The packaging labels of these cables include the CE marking according to the Construction Product Regulation UE N. 305/2011 articles 8 and 9.
Minimum content for the external marking of the cable. There may be additional marks respecting what is indicated in the cable construction regulations

GENERAL APPLICATIONS

Industrial armour cable for power transmission

Suitable for outdoor fixed installations when it is necessary to protect the cable against mechanical aggression or against rodent's threat, impact or crushing. Can be installed in ducts, or directly buried.
Excellent mechanical protection during laying, installation, and service.

Single-core cables for alternating current installations are equipped with reinforcement constituted by non-magnetic material to avoid parasite currents that may overheat the cable.
Can be supplied upon agreement: Oil resistant or Hydrocarbon resistance.

APPROVALS

Range: 1 x (50 - 400) mm² ; 2 x (1,5 - 240) mm² ; 3 - 4 x (1,5 - 240) mm² ; 5 x (1,5 - 185) mm²

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X1AV-XAV / RVFAV-RVFV 0,6/1 kV

PVC STANDARD ARMOURED

CABLE SPECIFICATIONS & OTHER CHARACTERISTICS

ELECTRICAL PERFORMANCE

Rated Voltage: 0,6/1 kV A.C. (U_0/U) / 1,2 kV (*Um*)
1,8 kV D.C. (*Umax.*)

Voltage test: Alternating Current 3,5 kV
Direct Current: 8,5 kV

FIRE PERFORMANCE

Flame non-propagation
based on UNE-EN 60332-1 / IEC 60332-1 (H≤425 mm)

Reduced halogen emission. Chlorine <15%

REACTION TO FIRE (EN 50575:2014+A1:2016)

Class E_{ca}

E_{ca}: It satisfies the non-flame propagation test, without additional classifications

DECLARATION of PERFORMANCE

DoP: 017/rev.**

System 3 Notified body N. 0028

APPLICATIONS (FIXED INSTALLATION)

Industrial use

APPROVALS

AENOR / CE / REACH / RoHS / CPR

PACKAGING

Available in drums.

OTHERS

Meter by meter marking

INSTALLATION CONDITIONS

In conduct

Open Air

Buried in ground

Suitable methods of installation
It must be respected the methods of installation established by the standards and regulations that will affect each individual case.

Minimum temperature during installation: 0ºC
(on cable surface)

CHEMICAL PERFORMANCE

Chemical & Oil resistance: good

UV resistant based on EN 50618 & UNE 211605

MECHANICAL PERFORMANCE

Impact resistance

AG4 High severity

RODENT PROOF

Very good

MINIMUM BENDING RADIUS

D= Overall diameter of the outer cable (in mm)

Handling, during Installation and fixed:
10xD (D ≤ 25); 12xD (D > 25)

Minimum bending radii at cable temperature: 20 ºC (± 10ºC)

MAXIMUM PULLING FORCE (N)

The maximum pulling force must not exceed:

F = 50 x S (N), where "S" is the cross-sectional area of the conductors (mm^2) and 50 N/mm^2 is the permissible tensile stress for cables with copper conductors If the traction force is applied on the conductors

F = 5 x (N), where D = overall diameter of the cable (mm) If the traction D^2 force is applied on the oversheath

THERMAL PERFORMANCE

Maximum conductor temperatures:

Normal operation: 90ºC
Short circuit: 250ºC (t≤5s)

MINIMUM SERVICE TEMPERATURE

-25 ºC (fixed and protected installations)

WATER PERFORMANCE

Water resistance: AD7 immersion (limited to 2 months)

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X1AV-RVFAV / XAV-RVFV 0,6/1 kV

PVC STANDARD ARMOURED

PHYSICAL AND ELECTRICAL CHARACTERISTICS

Type	Alcobre Code	Cross Section nc x mm²	Nominal diameter under armour mm	Nominal over sheath mm	Nominal weight kg/km	Max. DC resistance conductor at 20ºC Ω/km	Max. current rating Air 30 ºC A	Max. current rating Buried 20 ºC A	Voltage drop Cos φ= 0,8 V/A.km
X1AV / RVFAV ATA - Aluminium Tapes	15396301	1x50	12,0	17,2	735	0,387	207	135	1,192
	15396511	1x70	13,7	19,5	1.010	0,268	268	167	0,864
	15396701	1x95	15,4	21,4	1.296	0,193	328	197	0,625
	15396911	1x120	17,0	23,4	1.585	0,153	383	223	0,531
	15397011	1x150	19,2	25,8	1.915	0,124	444	251	0,456
	15397301	1x185	21,2	28,2	2.376	0,0991	510	281	0,369
	15397501	1x240	23,6	30,6	2.915	0,0754	607	324	0,299
	15398501	1x300	26,6	33,8	3.712	0,0601	703	365	0,259
	15329001	1x400	29,4	37,0	4.908	0,0470	823	-	0,221
XAV / RVFV STA - Steel Tapes Armour	15307101	1x50	12,4	16,4	749	0,387	207	135	1,192
	15307201	1x70	14,1	18,1	995	0,268	268	167	0,864
	15396801	1x95	15,8	19,8	1.270	0,193	328	197	0,625
	15397101	1x120	17,4	21,4	1.533	0,153	383	223	0,531
	15315201	1x150	19,6	23,6	1.845	0,124	444	251	0,456
	15315301	1x185	21,4	25,4	2.257	0,0991	510	281	0,369
	15324001	1x240	23,8	28,0	2.802	0,0754	607	324	0,299
	15398601	1x300	26,6	31,0	3.569	0,0601	703	365	0,259
	15329101	1x400	29,4	34,0	4.734	0,0470	823	-	0,221

- On the Air the current rating is in according to IEC 60364-5-52 table B.52.12, installation method F.
- Buried the current rating is in according to IEC 60364-5-52, table B.52.5 method of installation D2.
- For single cores cables, current intensities are indicated without external thermal influences.

➢ Nominal values subject to variation depending on manufacturing or standard tolerance.

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XAV / RVFV 0,6/1 kV

PVC STANDARD ARMOURED

ALCOBRE
A MEMBER OF HENGTONG GROUP

PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section	Nominal diameter under armour	Nominal over sheath	Nominal weight	Max. DC resistance conductor at 20ºC	Max. current rating		Voltage drop
						Air 30 ºC	Buried 20 ºC	Cos φ= 0,8
	nc x mm²	mm	mm	kg/km	Ω/km	A	A	V/A.km
12401001	2x1,5	7,5	11,0	228	12,10	26	27	21,502
12405001	2x2,5	8,3	11,9	270	7,41	36	35	13,213
12409001	2x4	9,2	12,8	326	4,61	49	46	8,252
12413001	2x6	10,2	13,8	392	3,08	63	58	5,536
12501001	2x10	12,1	15,7	535	1,83	86	77	3,322
12506001	2x16	14,0	17,6	712	1,15	115	100	2,117
12512001	2x25	17,3	20,9	1.021	0,727	149	129	1,374
12518001	2x35	19,4	23,0	1.284	0,524	185	155	1,009
12524001	2x50	22,0	25,6	1.636	0,387	225	183	0,766
12530001	2x70	25,8	31,4	2.564	0,268	289	225	0,553
12533601	2x95	29,2	35,0	3.725	0,193	352	270	0,418
12533801	2x120	32,3	38,1	4.477	0,153	410	306	0,346
12557001	2x150	36,7	42,5	4.944	0,124	473	343	0,295
12562501	2x185	40,4	46,8	6.079	0,0991	542	387	0,251
12568701	2x240	45,1	51,9	7.501	0,0754	641	448	0,208
12402501	3x1,5	8,0	11,6	252	12,10	23	22	21,502
12406501	3x2,5	12,4	303	7,41	12,4	32	30	13,213
12410501	3x4	13,4	410	4,61	13,4	42	39	8,252
12414501	3x6	14,4	502	3,08	14,4	54	49	5,536
12502001	3x10	16,5	638	1,83	75	65	3,322	16,5
12507001	3x16	18,6	869	1,15	100	84	2,117	18,6
12513001	3x25	22,2	1.263	0,727	127	107	1,374	22,2
12519001	3x35	24,4	1.604	0,524	158	129	1,009	24,4
12525001	3x50	27,4	2.080	0,387	192	153	0,766	27,4
12531001	3x70	27,7	32,1	2.949	0,268	246	188	0,553
12532701	3x95	31,4	37,2	4.264	0,193	298	226	0,418
12538001	3x120	35,1	41,3	5.255	0,153	346	257	0,346
12544001	3x150	39,9	46,3	6.404	0,124	399	287	0,295
12550001	3x185	44,3	51,1	7.936	0,0991	456	324	0,251
12559001	3x240	49,3	56,1	9.773	0,0754	538	375	0,208
12403501	4x1,5	8,7	12,3	285	12,10	23	22	21,502
12407501	4x2,5	9,6	13,2	381	7,41	32	30	13,213
12411501	4x4	10,7	14,3	434	4,61	42	39	8,252

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XAV / RVFV 0,6/1 kV

PVC STANDARD ARMOURED

ALCOBRE
A MEMBER OF HENGTONG GROUP

PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section	Nominal diameter under armour	Nominal over sheath	Nominal weight	Max. DC resistance conductor at 20ºC	Max. current rating		Voltage drop
						Air 30 ºC	Buried 20 ºC	Cos φ= 0,8
	nc x mm²	mm	mm	kg/km	Ω/km	A	A	V/A.km
12415501	4x6	11,9	15,5	538	3,08	54	49	5,536
12503001	4x10	14,2	17,8	764	1,83	75	65	3,322
12509001	4x16	16,6	20,2	1.056	1,15	100	84	2,117
12515001	4x25	20,6	24,2	1.702	0,727	127	107	1,374
12521001	4x35	23,1	26,7	2.178	0,524	158	129	1,009
12527001	4x50	26,2	30,4	2.614	0,387	192	153	0,766
12532601	4x70	30,8	35,2	3.698	0,268	246	188	0,553
12535501	4x95	34,9	40,9	5.300	0,193	298	226	0,418
12540001	4x120	39,0	45,2	6.517	0,153	346	257	0,346
12546001	4x150	44,8	51,2	8.012	0,124	399	287	0,295
12566501	4x185	49,2	56,0	9.880	0,0991	456	324	0,251
12561501	4x240	54,9	61,9	12.252	0,0754	538	375	0,208
12508001	3x16+10	30,8	35,2	3.698	0,268	246	188	0,553
12514001	3x25+16	16,6	20,2	1.000	1,15	100	84	2,117
12520001	3x35+16	20,6	24,2	1.457	0,727	127	107	1,374
12526001	3x50+25	23,1	26,7	1.984	0,524	158	129	1,009
12532001	3x70+35	26,2	30,2	2.633	0,387	192	153	0,766
12533001	3x95+50	30,8	36,4	3.746	0,268	246	188	0,553
12539001	3x120+70	34,9	40,9	4.856	0,193	298	226	0,418
12545001	3x150+70	38,6	45,3	6.017	0,153	346	257	0,346
12551001	3x185+95	44,4	50,8	7.224	0,124	399	287	0,295
12561001	3x240+120	49,2	56,0	9.016	0,0991	456	324	0,251
12404001	5x1,5	9,4	13,0	318	12,10	23	22	21,502
12408501	5x2,5	10,5	14,1	393	7,41	32	30	13,213
12412501	5x4	11,7	15,3	497	4,61	42	39	8,252
12416501	5x6	13,0	16,6	622	3,08	54	49	5,536
12504501	5x10	15,6	19,2	983	1,83	75	65	3,322
12510501	5x16	18,2	21,8	1.371	1,15	100	84	2,117
12517501	5x25	22,7	26,5	2.040	0,727	127	107	1,374
12521201	5x35	25,5	29,5	2.400	0,524	158	129	1,009
12537801	5x50	29,2	33,4	3.150	0,387	192	153	0,766
12543901	5x70	34,0	39,2	4.809	0,268	246	188	0,553
12537001	5x95	38,6	44,8	6.367	0,193	298	226	0,418

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PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section	Nominal diameter under armour	Nominal over sheath	Nominal weight	Max. DC resistance conductor at 20ºC	Max. current rating		Voltage drop
						Air 30 ºC	Buried 20 ºC	Cos φ= 0,8
	nc x mm²	mm	mm	kg/km	Ω/km	A	A	V/A.km
12565001	5x120	42,8	49,4	7.810	0,153	346	257	0,346
12565101	5x150	48,8	55,4	9.507	0,124	399	287	0,295
12567001	5x185	53,7	60,9	11.802	0,0991	456	324	0,251
12508501	3x16+2G10	18,2	21,8	1.249	1,15	100	84	2,117
12514501	3x25+2G16	22,7	26,3	1.825	0,727	127	107	1,374
12520501	3x35+2G16	25,5	29,3	2.232	0,524	158	129	1,009
12526501	3x50+2G25	29,0	33,2	2.997	0,387	192	153	0,766
12532501	3x70+2G35	34,0	39,8	4.223	0,268	246	188	0,553
12533501	3x95+2G50	38,6	44,6	5.452	0,193	298	226	0,418
12539501	3x120+2G70	43,2	49,6	6.911	0,153	346	257	0,346
12545501	3x150+2G70	49,6	56,2	8.181	0,124	399	287	0,295
12551501	3x185+2G95	54,5	61,1	10.115	0,0991	456	324	0,251

- On the Air the current rating is in according to IEC 60364-5-52 table B.52.12, installation method E.
- Buried the current rating is in accordance to IEC 60364-5-52, table B.52.3 for two cores cables and table B.52.5 for three core cables, method of installation D2.

➢ Nominal values subject to variation depending on manufacturing or standard tolerance.

ALCOBRE reserves the right to alter or modify the specifications and materials according to future technical development that may result in modifications to the technical data provided. The data contained in the technical specifications depend on manufacturing tolerance, or standards. Other constructions on request. Please contact us for latest information.

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PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section nc x mm²	Nominal diameter under armour mm	Nominal over sheath mm	Nominal weight kg/km	Max. DC resistance conductor at 20ºC Ω/km
12411301	7x1,5	10,8	14,8	409	12,10
12471501	7x2,5	12,1	16,1	562	7,41
12491011	10x1,5	13,5	17,5	588	12,10
12491801	12x1,5	13,7	17,7	615	12,10
12491221	12x2,5	15,6	19,6	743	7,41
12491321	14x1,5	14,7	18,7	639	12,10
12491421	14x2,5	16,4	20,4	818	7,41
12491911	19x1,5	16,5	20,5	762	12,10
12491921	19x2,5	18,5	22,5	1.011	7,41
12492411	24x1,5	19,0	23,0	928	12,10
12492421	24x2,5	21,3	25,3	1.219	7,41
12492711	27x1,5	19,4	24,3	1.127	12,10
12492721	27x2,5	21,8	26,7	1.484	7,41
12493711	37x1,5	22,0	26,5	1.368	12,10
12493801	37x2,5	24,8	30,1	1.881	7,41

- Nominal values subject to variation depending on manufacturing or standard tolerance.

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INDUSTRIAL POWER CABLES

PVC STANDARD ARMOURED

ALCOBRE
A MEMBER OF HENGTONG GROUP

RVFAV-K / RVFV-K

Product group 172(E):2024-01 **Rated Voltage U_0/U 0,6/1 kV**

CABLE STANDARDS

Construction	Fire performance
UNE 21123-2	UNE-EN 60332-1-2 / IEC 60332-1-2 Flame non-propagation
IEC 60502-1	EN 50575:2014+A1:2016 (CPR)

CABLE DESIGN

1. Conductor

Flexible electrolytic annealed copper, class 5 (-K)
according to IEC 60228 and EN 60228

2. Insulation

Cross-linked polyethylene (XLPE) according to IEC 60502-1
and type DIX-3 according to HD 603 S1

Identification based to HD 308 S2 & UNE 21089-1

The order of the colours without Green/Yellow is as follows:

1 Core x	○ Natural
2 Core x	Blue + Brown
3 Core x	Brown + Black + Grey
4 Core x	Blue + Brown + Black + Grey
5 Core x	Blue + Brown + Black + Grey + Black

The order of the colours with Green/Yellow is as follows:

3 Core G	Blue + Brown + Green/Yellow
4 Core G	Brown + Black + Grey + Green/Yellow
5 Core G	Blue + Brown + Black + Grey + Green/Yellow

3. Inner Sheath

PVC polyvinyl chloride

4. Armour

RVFAV-K: ATA Aluminium tapes, for single-core cables, helical applied.

RVFV-K: STA Steel tapes, for single cores and multi-core cables, helical applied

5. Outer sheath

PVC polyvinyl chloride, type DMV-18 according to HD 603 S1,
and type ST2 according to IEC 60502-1.
Normal color Black.

Marking of cables by printing on the outer sheath, according to the standard, or customer upon agreement.
The packaging labels of these cables include the CE marking according to the Construction Product Regulation UE N. 305/2011 articles 8 and 9.
Minimum content for the external marking of the cable. There may be additional marks respecting what is indicated in the cable construction regulations

GENERAL APPLICATIONS

Industrial flexible armour cable for power transmission

Armored cables for power distribution. Suitable for outdoor fixed installations when it is necessary to protect the cable against mechanical aggression or against rodent's threat, impact or crushing. Can be installed in ducts, or directly buried.
Excellent mechanical protection during laying, installation, and service.

Single-core cables for alternating current installations are equipped with reinforcement constituted by non-magnetic material to avoid parasite currents that may overheat the cable. Can be supplied upon agreement: Oil resistant or Hydrocarbon resistance.

APPROVALS

Range: 1 x (50-400) mm² ; 2 x (1,5-240) mm² ; 3-4 x (1,5-240) mm² ; 5 x (1,5-185) mm²

ALCOBRE reserves the right to alter or modify the specifications and materials according to future technical development that may result in modifications to the technical data provided. The data contained in the technical specifications depend on manufacturing tolerance, or standards. Other constructions on request. Please contact us for latest information.

RVFAV-K / RVFV-K 0,6/1 kV

PVC STANDARD ARMOURED

CABLE SPECIFICATIONS & OTHER CHARACTERISTICS

ELECTRICAL PERFORMANCE

Rated Voltage: 0,6/1 kV A.C. (U_0/U) / 1,2 kV (*Um*)
1,8 kV D.C. (*Umax.*)

Voltage test: Alternating Current 3,5 kV
Direct Current: 8,5 kV

FIRE PERFORMANCE

Flame non-propagation
based on UNE-EN 60332-1 / IEC 60332-1 (H≤425 mm)

Reduced halogen emission. Chlorine <15%

REACTION TO FIRE (EN 50575:2014+A1:2016)

Class E_{ca}

E_{ca}: It satisfies the non-flame propagation test, without additional classifications

DECLARATION of PERFORMANCE

DoP: 017/rev.**

System 3 Notified body N. 0028

APPLICATIONS (FIXED INSTALLATION)

Industrial use

APPROVALS

CE / REACH / RoHS / CPR

PACKAGING

Available in drums.

OTHERS

Meter by meter marking

INSTALLATION CONDITIONS

In conduct

Open Air

Buried in ground

Suitable methods of installation
It must be respected the methods of installation established by the standards and regulations that will affect each individual case.

Minimum temperature during installation: 0ºC
(on cable surface)

CHEMICAL PERFORMANCE

Chemical & Oil resistance: good

UV resistant based on EN 50618 & UNE 211605

MECHANICAL PERFORMANCE

Impact resistance

AG4 High severity

RODENT PROOF

Very good

MINIMUM BENDING RADIUS

D= Overall diameter of the outer cable (in mm)

Handling, during Installation and fixed:
10xD (D ≤ 25); 12xD (D > 25)

Minimum bending radii at cable temperature: 20 ºC (± 10ºC)

MAXIMUM PULLING FORCE (N)

The maximum pulling force must not exceed:

F = 50 x S (N), where "S" is the cross-sectional area of the conductors (mm^2) and 50 N/mm^2 is the permissible tensile stress for cables with copper conductors If the traction force is applied on the conductors

F = 5 x (N), where D = overall diameter of the cable (mm) If the traction D^2 force is applied on the oversheath

THERMAL PERFORMANCE

Maximum conductor temperatures:

Normal operation: 90ºC
Short circuit: 250ºC (t≤5s)

MINIMUM SERVICE TEMPERATURE

-25 ºC (fixed and protected installations)

WATER PERFORMANCE

Water resistance: AD7 immersion (limited to 2 months)

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RVFAV-K 0,6/1 kV

PVC STANDARD ARMOURED

PHYSICAL AND ELECTRICAL CHARACTERISTICS

Type	Alcobre Code	Cross Section	Nominal diameter under armour	Nominal over sheath	Nominal weight	Max. DC resistance conductor at 20ºC	Max. current rating		Voltage drop
							Air 30 ºC	Buried 20 ºC	Cos φ= 0,8
		nc x mm²	mm	mm	kg/km	Ω/km	a	A	V/A.km
RVFAV-K ATA - Aluminium Tapes Armour	17296301	1x50	12,8	18,6	795	0,386	207	135	1,192
	17296401	1x70	14,5	20,9	1.026	0,272	268	167	0,864
	17296701	1x95	16,0	22,8	1.294	0,206	328	197	0,625
	17296801	1x120	18,4	25,4	1.579	0,161	383	223	0,531
	17296501	1x150	20,0	27,2	1.909	0,129	444	251	0,456
	17297001	1x185	22,1	29,3	2.281	0,106	510	281	0,369
	17297301	1x240	24,9	32,5	2.891	0,0801	607	324	0,299
	17297501	1x300	28,0	36,0	3.585	0,0641	703	365	0,259
	17298501	1x400	33,4	41,8	4.531	0,0486	823	-	0,221

- On the Air the current rating is in according to IEC 60364-5-52 table B.52.12, installation method F.
- Buried the current rating is in according to IEC 60364-5-52, table B.52.5 method of installation D2.
- For single cores cables, current intensities are indicated without external thermal influences.

➢ Nominal values subject to variation depending on manufacturing or standard tolerance.

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PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section	Nominal diameter under armour	Nominal over sheath	Nominal weight	Max. DC resistance conductor at 20ºC	Max. current rating		Voltage drop
						Air 30 ºC	Buried 20 ºC	Cos φ= 0,8
	nc x mm²	mm	mm	kg/km	Ω/km	A	A	V/A.km
17224001E	2x50	23,6	28,0	1.797	0,386	225	183	0,766
17230001E	2x70	27,4	33,8	2.659	0,272	289	225	0,553
17233601E	2x95	30,4	37,0	3.758	0,206	352	270	0,418
17233801E	2x120	34,8	41,4	4.582	0,161	410	306	0,346
17257001E	2x150	38,0	44,6	4.983	0,129	473	343	0,295
17262501E	2x185	41,7	48,9	5.997	0,106	542	387	0,251
17268701E	2x240	47,4	55,0	7.604	0,0801	641	448	0,208
17225001	3x50	25,4	30,0	2.257	0,386	192	153	0,766
17231001	3x70	29,4	34,6	2.997	0,272	246	188	0,553
17232301	3x95	32,7	39,3	4.235	0,206	298	226	0,418
17238001	3x120	37,8	44,8	5.262	0,161	346	257	0,346
17244001	3x150	41,3	48,5	6.371	0,129	399	287	0,295
17250001	3x185	45,7	53,3	7.717	0,106	456	324	0,251
17259001	3x240	51,8	59,4	9.739	0,0801	538	375	0,208
12515001	4x25	21,8	26,2	1.583	0,78	127	107	1,374
12521001	4x35	24,3	28,7	2.042	0,554	158	129	1,009
12527001	4x50	28,2	33,2	3.098	0,386	192	153	0,766
12532601	4x70	32,7	37,9	4.100	0,272	246	188	0,553
12535501	4x95	36,3	43,1	5.223	0,206	298	226	0,418
12540001	4x120	42,1	49,1	6.462	0,161	346	257	0,346
12546001	4x150	46,3	53,5	7.919	0,129	399	287	0,295
12566501	4x185	50,8	58,6	9.568	0,106	456	324	0,251
12561501	4x240	57,7	62,7	12.082	0,0801	538	375	0,208
17217501	5x25	24,1	28,5	2.059	0,78	127	107	1,374
17221201	5x35	26,9	31,5	2.446	0,554	158	129	1,009
17237801	5x50	31,4	37,4	3.376	0,386	192	153	0,766
17243901	5x70	36,2	42,0	4.825	0,272	246	188	0,553
17237001	5x95	40,2	47,0	6.220	0,206	298	226	0,418
17265001	5x120	46,2	53,4	7.661	0,161	346	257	0,346
17265101	5x120	50,5	57,7	9.326	0,129	399	287	0,295
17267001	5x185	55,5	63,3	11.302	0,106	456	324	0,251

- On the Air the current rating is in according to IEC 60364-5-52 table B.52.12, installation method E.
- Buried the current rating is in accordance to IEC 60364-5-52, table B.52.3 for two cores cables and table B.52.5 for three core cables, method of installation D2.

➢ Nominal values subject to variation depending on manufacturing or standard tolerance.

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PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section nc x mm²	Nominal diameter under armour mm	Nominal over sheath mm	Nominal weight kg/km	Max. DC resistance conductor at 20ºC Ω/km
17211301	7x1,5	11,1	15,5	385	13,3
17271501	7x2,5	12,9	17,3	545	7,98
17291801	12G1,5	14,4	18,8	579	13,3
17291221	12x1,5	16,7	21,1	771	7,98
17291321	14x1,5	15,4	19,8	589	13,3
17291421	14x2,5	17,6	22,0	765	7,98
17291911	19G1,5	17,3	21,7	692	13,3
17291921	19x1,5	19,9	24,7	951	7,98
17292411	24x1,5	19,9	24,3	825	13,3
17292421	24x2,5	22,9	27,3	1.102	7,98
17292711	27x1,5	19,4	24,3	1.024	12,10
17292701	27x2,5	23,5	28,4	1.500	7,98
17293711	37x1,5	23,1	27,6	1.364	13,3
17293801	37x2,5	26,7	32,0	1.895	7,98

- Nominal values subject to variation depending on manufacturing or standard tolerance.

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INDUSTRIAL POWER CABLES

PVC STANDARD ARMOURED

ALCOBRE
A MEMBER OF HENGTONG GROUP

U-1000 RVFV

Product group 126/127(E):2024-01

Rated Voltage U_0/U 0,6/1 kV

CABLE STANDARDS

Construction	Fire performance
NP C 32-322	NF C 32-070 (C2)
IEC 60502-1	EN 60332-1-2 / IEC 60332-1-2 Flame non-propagation
HD 603.S1	EN 50575:2014+A1:2016 (CPR)

CABLE DESIGN

1. Conductor

Electrolytic annealed copper, class 1 ≤ 6mm² (multicores)
class 2 ≥ 1,5mm²
according to IEC 60228 and EN 60228

2. Insulation

Cross-linked polyethylene (XLPE) according to IEC 60502-1 and type DIX-3 according to HD 603 S1

≤ 5 Core: Identification based to NF C 32-081 & HD 308 S2

≥ 7 Core Identification based to EN 50334

The order of the colours without Green/Yellow is as follows:

2 Core x	Blue + Brown
3 Core (1) x	Blue + Brown + Black
	(1) only for sections 1,5 mm² and 2,5 mm²
3 Core (2) x	Brown + Black + Grey
	(2) for sections greater than or equal to 4 mm²
4 Core x	Blue + Brown + Black + Grey
≥ 7 Core x	Black numbered.

The order of the colours with Green/Yellow is as follows:

3 Core G	Green/Yellow + Blue + Brown
4 Core G	Green/Yellow + Brown + Black + Grey
5 Core G	Green/Yellow + Brown + Black + Grey + Blue
≥ 7 Core G	Green/Yellow + Black numbered

3. Inner Sheath

PVC polyvinyl chloride

4. Armour

STA Steel tapes, for single cores and multi-core cables, helical applied

5. Outer sheath

PVC polyvinyl chloride, type DMV-18 according to HD 603 S1, and type ST2 according to IEC 60502-1. Normal colour Black.

Marking of cables by printing on the outer sheath, according to the standard, or customer upon agreement.
The packaging labels of these cables include the CE marking according to the Construction Product Regulation UE N. 305/2011 articles 8 and 9.
Minimum content for the external marking of the cable. There may be additional marks respecting what is indicated in the cable construction regulations

GENERAL APPLICATIONS

Industrial armour cable for power transmission

Armored cables for power distribution. Suitable for outdoor fixed installations when it is necessary to protect the cable against mechanical aggression or against rodent's threat, impact or crushing. Can be installed in ducts, or directly buried. Excellent mechanical protection during laying, installation, and service. Hydrocarbon Resistance.

APPROVALS

Range **NF USE**: 2 x (1,5-35) mm² ; 3-4 x (1,5-300) mm² ; 5 x (1,5-25) mm² ; 7-37 x (1,5-2,5) mm² ; 7-19 x 4 mm² ; 3x50+35 mm² to 3x240+95 mm²

ALCOBRE reserves the right to alter or modify the specifications and materials according to future technical development that may result in modifications to the technical data provided. The data contained in the technical specifications depend on manufacturing tolerance, or standards. Other constructions on request. Please contact us for latest information.

U-1000 RVFV 0,6/1 kV
PVC STANDARD ARMOURED

CABLE SPECIFICATIONS & OTHER CHARACTERISTICS

ELECTRICAL PERFORMANCE

Rated Voltage: 0,6/1 kV A.C. (U_0/U) / 1,2 kV (*Um*)
1,8 kV D.C. (*Umax.*)

Voltage test: Alternating Current 3,5 kV
Direct Current: 8,5 kV

FIRE PERFORMANCE

Flame non-propagation
based on UNE-EN 60332-1 / IEC 60332-1 (H≤425 mm)

Reduced halogen emission. Chlorine <15%

REACTION TO FIRE (EN 50575:2014+A1:2016)

Class E_{ca}

E_{ca}: It satisfies the non-flame propagation test, without additional classifications

DECLARATION of PERFORMANCE

DoP: 028/rev.**

System 3 Notified body N. 0028

APPLICATIONS (FIXED INSTALLATION)

Industrial use

APPROVALS

AENOR / CE / REACH / RoHS / CPR

PACKAGING

Available in drums.

OTHERS

Meter by meter marking

INSTALLATION CONDITIONS

In conduct

Open Air

Buried in ground

Suitable methods of installation
It must be respected the methods of installation established by the standards and regulations that will affect each individual case.

Minimum temperature during installation: 0ºC
(on cable surface)

CHEMICAL PERFORMANCE

Chemical & Oil resistance: good
Hydrocarbon resistance: Very good

UV resistant based on EN 50618

MECHANICAL PERFORMANCE

Impact resistance

AG4 High severity

RODENT PROOF

Very good

MINIMUM BENDING RADIUS

D= Overall diameter of the outer cable (in mm)

Handling, during Installation and fixed:
10xD (D ≤ 25); 12xD (D > 25)

Minimum bending radii at cable temperature: 20 ºC (± 10ºC)

MAXIMUM PULLING FORCE (N)

The maximum pulling force must not exceed:

F = 50 x S (N), where "S" is the cross-sectional area of the conductors (mm^2) and 50 N/mm^2 is the permissible tensile stress for cables with copper conductors If the traction force is applied on the conductors

F = 5 x (N), where D = overall diameter of the cable (mm) If the traction D^2 force is applied on the oversheath

THERMAL PERFORMANCE

Maximum conductor temperatures:

Normal operation: 90ºC
Short circuit: 250ºC (t≤5s)

MINIMUM SERVICE TEMPERATURE

-25 ºC (fixed and protected installations)

WATER PERFORMANCE

Water resistance: AD7 immersion (limited to 2 months)

ALCOBRE reserves the right to alter or modify the specifications and materials according to future technical development that may result in modifications to the technical data provided. The data contained in the technical specifications depend on manufacturing tolerance, or standards. Other constructions on request. Please contact us for latest information.

U-1000 RVFV 0,6/1 kV

PVC STANDARD ARMOURED

PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section	Nominal diameter under armour	Nominal over sheath	Nominal weight	Max. DC resistance conductor at 20ºC	Max. current rating		Voltage drop
						Air 30 ºC	Buried 20 ºC	Cos φ= 0,8
	nc x mm²	mm	mm	kg/km	Ω/km	A	A	V/A.km
12601001	2x1,5	7,5	11,0	224	12,10	26	27	21,502
12605001	2x2,5	8,3	11,9	266	7,41	36	35	13,213
12609001	2x4	9,2	12,8	320	4,61	49	46	8,252
12613001	2x6	10,2	13,8	388	3.08	63	58	5,536
12701001	2x10	12,5	16,5	555	1,83	86	77	3,322
12706001	2x16	14,4	18,4	734	1,15	115	100	2,117
12712001	2x25	17,7	21,7	1.046	0,727	149	129	1,374
12718001	2x35	19,8	23,8	1.309	0,524	185	155	1,009
12602501	3x1,5	8,0	11,6	248	12,10	23	22	21,502
12606501	3x2,5	8,8	12,4	298	7,41	32	30	13,213
12610501	3x4	9,8	13,4	369	4,61	42	39	8,252
12614501	3x6	10,8	14,4	451	3,08	54	49	5,536
12702001	3x10	13,3	17,3	659	1,83	65	3,322	16,5
12707001	3x16	15,4	19,4	892	1,15	84	2,117	18,6
12713001	3x25	19,0	23,0	1.288	0,727	107	1,374	22,2
12719001	3x35	21,2	25,2	1.632	0,524	129	1,009	24,4
12725001	3x50	24,0	28,2	2.109	0,387	153	0,766	27,4
12731001	3x70	27,7	32,5	2.943	0,268	246	188	0,553
12732701	3x95	31,8	38,0	4.302	0,193	298	226	0,418
12738001	3x120	35,1	41,7	5.245	0,153	346	257	0,346
12744001	3x150	40,3	47,1	6.446	0,124	399	287	0,295
12750001	3x185	44,3	51,5	7.918	0,0991	456	324	0,251
12759001	3x240	49,3	56,5	9.753	0,0754	538	375	0,208
12603501	4x1,5	8,7	12,3	281	12,10	23	22	21,502
12607501	4x2,5	9,6	13,2	341	7,41	32	30	13,213
12611501	4x4	10,7	14,3	429	4,61	42	39	8,252
12615501	4x6	11,9	15,5	533	3,08	54	49	5,536
12703001	4x10	14,6	18,6	786	1,83	75	65	3,322
12709001	4x16	17,0	21,0	1.080	1,15	100	84	2,117
12715001	4x25	21,0	25,0	1.575	0,727	127	107	1,374
12721001	4x35	23,5	27,5	2.010	0,524	158	129	1,009
12727001	4x50	26,6	31,2	2.643	0,387	192	153	0,766

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U-1000 RVFV 0,6/1 kV

PVC STANDARD ARMOURED

PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section	Nominal diameter under armour	Nominal over sheath	Nominal weight	Max. DC resistance conductor at 20ºC	Max. current rating		Voltage drop
						Air 30 ºC	Buried 20 ºC	Cos φ= 0,8
	nc x mm²	mm	mm	kg/km	Ω/km	A	A	V/A.km
12532601	4x70	31,6	37,6	3.770	0,268	246	188	0,553
12535501	4x95	35,3	41,7	5.340	0,193	298	226	0,418
12540001	4x120	39,4	46,0	6.539	0,153	346	257	0,346
12546001	4x150	44,8	51,6	7.996	0,124	399	287	0,295
12566501	4x185	49,2	56,6	9.889	0,0991	456	324	0,251
12561501	4x240	54,9	62,3	12.227	0,0754	538	375	0,208
12726301	3x50+35	26,6	31,0	2.510	0,387	192	153	0,766
12732001	3x70+35	31,2	36,0	3.773	0,268	246	188	0,553
12732401	3x70+50	31,2	36,0	3.889	0,268	246	188	0,553
12733001	3x95+50	35,3	41,7	4.896	0,193	298	226	0,418
12739001	3x120+70	39,1	46,2	6.071	0,153	346	257	0,346
12745001	3x150+70	44,9	51,7	7.297	0,124	399	287	0,295
12750501	3x185+70	49,3	56,5	8.790	0,0991	456	324	0,251
12760501	3x240+95	55,0	62,2	10.888	0,0754	538	375	0,208
12404001	5x1,5	9,4	13,0	313	12,10	23	22	21,502
12408501	5x2,5	10,5	14,1	388	7,41	32	30	13,213
12412501	5x4	11,7	15,3	492	4,61	42	39	8,252
12416501	5x6	13,0	16,6	616	3,08	54	49	5,536
12504501	5x10	16,0	20,0	917	1,83	75	65	3,322
12510501	5x16	18,6	22,6	1.271	1,15	100	84	2,117
12517501	5x25	23,1	27,1	1.868	0,727	127	107	1,374

- On the Air the current rating is in according to IEC 60364-5-52 table B.52.12, installation method E.
- Buried the current rating is in accordance to IEC 60364-5-52, table B.52.3 for two cores cables and table B.52.5 for three core cables, method of installation D2.

➢ Nominal values subject to variation depending on manufacturing or standard tolerance.

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U-1000 RVFV (control)

PVC STANDARD ARMOURED

PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section nc x mm²	Nominal diameter under armour mm	Nominal over sheath mm	Nominal weight kg/km	Max. DC resistance conductor at 20ºC Ω/km
12607101	7x1,5	10,8	14,6	385	12,10
12608101	8x1,5	11,5	15,3	418	12,10
12610101	10x1,5	13,3	17,1	495	12,10
12612101	12x1,5	13,7	17,7	551	12,10
12614101	14x1,5	14,5	18,5	605	12,10
12619101	19x1,5	16,3	20,3	738	12,10
12624101	24x1,5	18,8	23,0	897	12,10
12630101	19x1,5	19,9	24,8	1.051	12,10
12637101	37x1,5	21,8	26,7	1.223	12,10
12607201	7x2,5	12,1	15,9	483	7,41
12608201	8x2,5	12,8	16,6	526	7,41
12610201	10x2,5	14,9	18,9	639	7,41
12612201	12x2,5	15,4	19,4	706	7,41
12614201	14x2,5	16,2	20,2	782	7,41
12619201	19x2,5	18,3	22,5	980	7,41
12624201	24x2,5	21,1	25,5	1.198	7,41
12630201	30x2,5	22,4	27,5	1.415	7,41
12637205	19x1,5	24,4	29,5	1.659	7,41
12607401	7x4	13,4	17,2	619	4,61
12608401	8x4	14,3	18,3	691	4,61
12610401	10x4	16,7	20,9	843	4,61
12612401	12x4	17,2	21,4	940	4,61
12614401	14x4	18,2	22,4	1.050	4,61
12619401	19x4	20,6	25,0	1.331	4,61

- Nominal values subject to variation depending on manufacturing or standard tolerance.

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INDUSTRIAL POWER CABLES

PVC STANDARD ARMOURED

ALCOBRE
A MEMBER OF HENGTONG GROUP

LX1AV / LXAV

Product group 153(E):2024-01

Rated Voltage U_0/U 0,6/1 kV

CABLE STANDARDS

Construction	Fire performance
IEC 60502-1	EN 60332-1-2 / IEC 60332-1-2 Flame non-propagation
HD 603 S1	EN 50575:2014+A1:2016 (CPR)
DMA C33-200	

CABLE DESIGN

1. Conductor — Aluminium stranded class 2, circular or sector-shaped according to IEC 60228 and EN 60228

2. Insulation — Cross-linked polyethylene (XLPE) according to IEC 60502-1 and type DIX-3 according to HD 603 S1

Identification based to HD 308 S2

The order of the colours without Green/Yellow is as follows:

1 Core x	○ Natural
2 Core x	● Blue + ● Brown
3 Core x	● Brown + ● Black + ● Grey
4 Core x	● Blue + ● Brown + ● Black + ● Grey
5 Core x	● Blue + ● Brown + ● Black + ● Grey + ● Black

The order of the colours with Green/Yellow is as follows:

3 Core G	● Blue + ● Brown + ● Green/Yellow
4 Core G	● Brown + ● Black + ● Grey + ● Green/Yellow
5 Core G	● Blue + ● Brown + ● Black + ● Grey + ● Green/Yellow

3. Inner Sheath — PVC polyvinyl chloride

4. Armour — LX1AV - ATA Aluminium tapes, for single-core cables, helical applied.
LXAV - STA Steel tapes, for single cores and multi-core cables, helical applied

5. Outer sheath — PVC polyvinyl chloride, type DMV-18 according to HD 603 S1, and type ST2 according to IEC 60502-1. Normal colour Black.

Marking of cables by printing on the outer sheath, according to the standard, or customer upon agreement.
The packaging labels of these cables include the CE marking according to the Construction Product Regulation UE N. 305/2011 articles 8 and 9.
Minimum content for the external marking of the cable. There may be additional marks respecting what is indicated in the cable construction regulations

GENERAL APPLICATIONS

Industrial armour cable for power transmission

Armored cables for power distribution. Suitable for outdoor fixed installations when it is necessary to protect the cable against mechanical aggression or against rodent's threat, impact or crushing. Can be installed in ducts, or directly buried.
Excellent mechanical protection during laying, installation, and service.

Single-core cables for alternating current installations are equipped with reinforcement constituted by non-magnetic material to avoid parasite currents that may overheat the cable.
Can be supplied upon agreement: Oil resistant or Hydrocarbon resistance.

APPROVALS

Range: 1 x (50 - 400) mm^2 ; 2 x (16 - 35) mm^2 ; 3 – 4 x (16 - 240) mm^2 ; 5 x (16 - 95) mm^2

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LX1AV / LXAV 0,6/1 kV

PVC STANDARD ARMOURED

CABLE SPECIFICATIONS & OTHER CHARACTERISTICS

ELECTRICAL PERFORMANCE

Rated Voltage: 0,6/1 kV A.C. (U_0/U) / 1,2 kV (*Um*)
1,8 kV D.C. (*Umax.*)

Voltage test: Alternating Current 3,5 kV
Direct Current: 8,5 kV

FIRE PERFORMANCE

Flame non-propagation
based on UNE-EN 60332-1 / IEC 60332-1 (H≤425 mm)

Reduced halogen emission. Chlorine <15%

REACTION TO FIRE (EN 50575:2014+A1:2016)

Class E_{ca}

E_{ca}: It satisfies the non-flame propagation test, without additional classifications

DECLARATION of PERFORMANCE

DoP: 023/rev.**

System 3 Notified body N. 0028

APPLICATIONS (FIXED INSTALLATION)

Industrial use / Urban grids

APPROVALS

CE / REACH / RoHS / CPR

PACKAGING

Available in drums.

OTHERS

Meter by meter marking

INSTALLATION CONDITIONS

In conduct

Open Air

On tray

Buried in ground

Suitable methods of installation
It must be respected the methods of installation established by the standards and regulations that will affect each individual case.

Minimum temperature during installation: 0ºC
(on cable surface)

CHEMICAL PERFORMANCE

Chemical & Oil resistance: good

UV resistant based on UNE 211605

MECHANICAL PERFORMANCE

Impact resistance

AG4 High severity

RODENT PROOF

Very good

MINIMUM BENDING RADIUS

D= Overall diameter of the outer cable (in mm)

Handling, during Installation and fixed:
10xD (D ≤ 25); 12xD (D > 25)

Minimum bending radii at cable temperature: 20 ºC (± 10ºC)

MAXIMUM PULLING FORCE (N)

The maximum pulling force must not exceed:

F = 30 x S (N), where "S" is the cross-sectional area of the conductors (mm^2) and 30 N/mm^2 is the permissible tensile stress for cables with copper conductors If the traction force is applied on the conductors

F = 3 x (N), where D = overall diameter of the cable (mm) If the traction D^2 force is applied on the oversheath

THERMAL PERFORMANCE

Maximum conductor temperatures:

Normal operation: 90ºC
Short circuit: 250ºC (t≤5s)

MINIMUM SERVICE TEMPERATURE

-25 ºC (fixed and protected installations)

WATER PERFORMANCE

Water resistance: AD7 immersion (limited to 2 months)

ALCOBRE reserves the right to alter or modify the specifications and materials according to future technical development that may result in modifications to the technical data provided. The data contained in the technical specifications depend on manufacturing tolerance, or standards. Other constructions on request. Please contact us for latest information.

LX1AV / LXAV (SINGLE CORE) 0,6/1 kV

PVC STANDARD ARMOURED

ALCOBRE
A MEMBER OF HENGTONG GROUP

PHYSICAL AND ELECTRICAL CHARACTERISTICS

Type	Alcobre Code	Cross Section	Nominal diameter under armour	Nominal over sheath	Nominal weight	Max. DC resistance conductor at 20ºC	Max. current rating		Voltage drop
							Air 30 ºC	Buried 20 ºC	Cos φ= 0,8
		nc x mm²	mm	mm	kg/km	Ω/km	a	A	V/A.km
LX1AV ATA - Aluminium Tapes Armour	15396301	1x50	12,2	18,0	474	0,641	159	117	1,192
	15396511	1x70	14,3	20,1	590	0,443	206	144	0,864
	15396701	1x95	16,1	22,3	741	0,320	253	172	0,625
	15396911	1x120	17,2	23,6	868	0,253	296	197	0,531
	15397011	1x150	19,5	26,1	1.019	0,206	343	220	0,456
	15397301	1x185	21,6	28,2	1.203	0,164	395	250	0,369
	15397501	1x240	24,2	31,2	1.487	0,125	471	290	0,299
	15398501	1x300	27,1	34,5	1.803	0,100	547	326	0,259
	15329001	1x400	29,9	37,5	2.176	0,0778	663	----	0,221
LXAV STA - Steel Tapes Armour	15307101	1x50	12,2	16,8	468	0,641	159	117	1,192
	15307201	1x70	14,3	18,9	585	0,443	206	144	0,864
	15396801	1x95	16,1	21,1	735	0,320	253	172	0,625
	15397101	1x120	17,2	22,4	863	0,253	296	197	0,531
	15315201	1x150	19,5	24,9	1.015	0,206	343	220	0,456
	15315301	1x185	21,6	27,0	1.201	0,164	395	250	0,369
	15324001	1x240	24,2	30,6	1.534	0,125	471	290	0,299
	15398601	1x300	27,1	33,3	1.802	0,100	547	326	0,259
	15329101	1x400	29,9	36,3	2.177	0,0778	663	----	0,221

- On the Air the current rating is in according to IEC 60364-5-52 table B.52.12, installation method F.
- Buried the current rating is in according to IEC 60364-5-52, table B.52.5 method of installation D2.
- For single cores cables, current intensities are indicated without external thermal influences.
  In the case of association of monopolar cables (connective clover) multiply the values with by 0,8.

➢ Nominal values subject to variation depending on manufacturing or standard tolerance.

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LXAV 0,6/1 kV
PVC STANDARD ARMOURED

PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section	Nominal diameter under armour	Nominal over sheath	Nominal weight	Max. DC resistance conductor at 20ºC	Max. current rating		Voltage drop
						Air 30 ºC	Buried 20 ºC	Cos φ= 0,8
	nc x mm²	mm	mm	kg/km	Ω/km	A	A	V/A.km
15306001	2x16	14,2	18,0	524	1,91	91	76	3,892
15312901	2x25	17,5	21,3	724	1,20	108	98	2.489
15314001	2x35	19,8	23,6	886	0,868	135	117	1.798
15307001	3x16	15,2	19,0	581	1,91	77	64	3.482
15313001	3x25	18,6	22,4	796	1,20	97	82	2.211
15319001	3x35	21,1	24,9	982	0,868	120	98	1,632
15325001	3x50	23,6	27,6	1.207	0,641	146	117	1,221
15331001	3x70	28,5	33,1	1.696	0,443	187	144	0,867
15332701	3x95	31,9	37,9	2.528	0,320	227	172	0,645
15338001	3x120	34,8	41,2	3.044	0,253	263	197	0,526
15358001	3x150	39,8	46,2	3.999	0,206	304	220	0,443
15358501	3x185	44,3	51,3	4.888	0,164	347	250	0,368
15359001	3x240	49,9	56,9	6.000	0,125	409	290	0,298
15335001	3x50+25	26,7	30,9	1.750	0,641	149	160	1,220
15332001	3x70+35	27,3	31,5	1.847	0,443	187	144	0,867
15347001	3x95+50	29,5	35,3	2.297	0,320	227	172	0,645
15353001	3x120+70	32,9	38,9	2.837	0,253	263	197	0,526
15359401	3x150+70	35,9	42,1	3.251	0,206	304	220	0,443
15343101	3x185+95	40,1	46,5	3.993	0,164	347	250	0,368
15370001	3x240+120	45,3	52,1	4.929	0,125	409	290	0,298
15309001	4x16	16,9	20,7	747	1,91	77	64	3.482
15315001	4x25	20,8	24,6	1.033	1,20	97	82	2.211
15321001	4x35	23,5	27,5	1.293	0,868	120	98	1,632
15327001	4x50	26,4	30,6	1.592	0,641	146	117	1,221
15332601	4x70	27,3	31,5	1.624	0,443	187	144	0,867
15335501	4x95	29,3	33,7	2.368	0,320	227	172	0,645
15340001	4x120	32,9	38,9	2.992	0,253	263	197	0,526
15343001	4x150	35,9	42,1	3.482	0,206	304	220	0,443
15345001	4x185	39,9	46,3	4.277	0,164	347	250	0,368
15350001	4x240	44,9	51,7	5.270	0,125	409	290	0,298
15305501	5x16	18,8	22,6	1.020	1,91	77	64	3.482
15305601	5x25	23,1	26,9	1.375	1,20	97	82	2.223
15321201	5x35	26,2	30,4	1.707	0,868	120	98	1,632
15337801	5x50	29,4	33,8	2.067	0,641	146	106	1,221
15337901	5x70	35,0	41,0	2.775	0,443	187	130	0,867
15337001	5x95	39,3	45,7	3.455	0,320	227	154	0,645

- On the Air the current rating is in according to IEC 60364-5-52 table B.52.12, installation method E.
- Buried the current rating is in accordance to IEC 60364-5-52, table B.52.5. method of installation D2.

➢ The multicore cables, 3 cores + 1 core or 4 cores, section ≥ 70mm² are usually the construction sector shaped.

➢ Nominal values subject to variation depending on manufacturing or standard tolerance.

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INDUSTRIAL POWER CABLES

PVC STANDARD ARMOURED

U-1000 ARVFV

Product group 152(E):2024-01 **Rated Voltage U_0/U 0,6/1 kV**

CABLE STANDARDS

Construction	Fire performance
NP C 32-322	NF C 32-070 (C2)
IEC 60502-1	EN 60332-1-2 / IEC 60332-1-2 Flame non-propagation
HD 603.S1	EN 50575:2014+A1:2016 (CPR)

CABLE DESIGN

1. Conductor Aluminium stranded class 2
according to IEC 60228 and EN 60228

2. Insulation Cross-linked polyethylene (XLPE) according to IEC 60502-1
and type DIX-3 according to HD 603 S1

Identification based to NF C 32-081 & HD 308 S2

The order of the colours without Green/Yellow is as follows:

2 Core x	Blue + Brown
3 Core x	Brown + Black + Grey
4 Core x	Blue + Brown + Black + Grey
5 Core x	Blue + Brown + Black + Grey + Black

The order of the colours with Green/Yellow is as follows:

3 Core G	Blue + Brown + Green/Yellow
4 Core G	Brown + Black + Grey + Green/Yellow
5 Core G	Blue + Brown + Black + Grey + Green/Yellow

3. Inner Sheath PVC polyvinyl chloride

4. Armour STA Steel tapes, for single cores and multi-core cables, helical applied

5. Outer sheath PVC polyvinyl chloride, type DMV-18 according to HD 603 S1,
and type ST2 according to IEC 60502-1. Normal color Black.

Marking of cables by printing on the outer sheath, according to the standard, or customer upon agreement.
The packaging labels of these cables include the CE marking according to the Construction Product Regulation UE N. 305/2011 articles 8 and 9.
Minimum content for the external marking of the cable. There may be additional marks respecting what is indicated in the cable construction regulations

GENERAL APPLICATIONS

Industrial armour cable for power transmission

Armored cables for power distribution. Suitable for outdoor fixed installations when it is necessary to protect the cable against mechanical aggression or against rodent's threat, impact or crushing. Can be installed in ducts, or directly buried.
Excellent mechanical protection during laying, installation, and service.

Single-core cables for alternating current installations are equipped with reinforcement constituted by non-magnetic material to avoid parasite currents that may overheat the cable. Can be supplied upon agreement: Oil resistant or Hydrocarbon resistance.

APPROVALS

Range **NF USE**: 2 x (16 - 35) mm^2 ; 3 – 4 x (16 - 300) mm^2 ; 5 x (16 - 25) mm^2 ; 3x50+35 mm^2 to 3x240+95 mm^2

ALCOBRE reserves the right to alter or modify the specifications and materials according to future technical development that may result in modifications to the technical data provided. The data contained in the technical specifications depend on manufacturing tolerance, or standards. Other constructions on request. Please contact us for latest information.

U-1000 ARVFV 0,6/1 kV
PVC STANDARD ARMOURED

CABLE SPECIFICATIONS & OTHER CHARACTERISTICS

ELECTRICAL PERFORMANCE

Rated Voltage: 0,6/1 kV A.C. (U_0/U) / 1,2 kV (Um)
1,8 kV D.C. ($Umax.$)

Voltage test: Alternating Current 3,5 kV
Direct Current: 8,5 kV

FIRE PERFORMANCE

Flame non-propagation
based on EN 60332-1 / IEC 60332-1 (H≤425 mm)

Reduced halogen emission. Chlorine <15%

REACTION TO FIRE (EN 50575:2014+A1:2016)

Class E_{ca}

E_{ca}: It satisfies the non-flame propagation test, without additional classifications

DECLARATION of PERFORMANCE

DoP: 023/rev.**

System 3 Notified body N. 0028

APPLICATIONS (FIXED INSTALLATION)

Industrial use / Urban grids

APPROVALS

NF USE / CE / REACH / RoHS / CPR

PACKAGING

Available in drums.

OTHERS

Meter by meter marking

INSTALLATION CONDITIONS

In conduct

Open Air

On tray

Buried in ground

Suitable methods of installation
It must be respected the methods of installation established by the standards and regulations that will affect each individual case.

Minimum temperature during installation: 0ºC
(on cable surface)

CHEMICAL PERFORMANCE

Chemical & Oil resistance: good
Hydrocarbon resistance: Very good

UV resistant based on EN 50618

MECHANICAL PERFORMANCE

Impact resistance

AG4 High severity

RODENT PROOF

Very good

MINIMUM BENDING RADIUS

D= Overall diameter of the outer cable (in mm)

Handling, during Installation and fixed:
10xD (D ≤ 25); 12xD (D > 25)

Minimum bending radii at cable temperature: 20 ºC (± 10ºC)

MAXIMUM PULLING FORCE (N)

The maximum pulling force must not exceed:

F = 30 x S (N), where "S" is the cross-sectional area of the conductors (mm^2) and 30 N/mm^2 is the permissible tensile stress for cables with copper conductors If the traction force is applied on the conductors

F = 3 x (N), where D = overall diameter of the cable (mm) If the traction D^2 force is applied on the oversheath

THERMAL PERFORMANCE

Maximum conductor temperatures:

Normal operation: 90ºC
Short circuit: 250ºC (t≤5s)

MINIMUM SERVICE TEMPERATURE

-25 ºC (fixed and protected installations)

WATER PERFORMANCE

Water resistance: AD7 immersion (limited to 2 months)

ALCOBRE reserves the right to alter or modify the specifications and materials according to future technical development that may result in modifications to the technical data provided. The data contained in the technical specifications depend on manufacturing tolerance, or standards. Other constructions on request. Please contact us for latest information.

U-1000 ARVFV 0,6/1 kV

PVC STANDARD ARMOURED

ALCOBRE
A MEMBER OF HENGTONG GROUP

PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section	Nominal diameter under armour	Nominal over sheath	Nominal weight	Max. DC resistance conductor at 20ºC	Max. current rating		Voltage drop
						Air 30 ºC	Buried 20 ºC	Cos φ= 0,8
	nc x mm²	mm	mm	kg/km	Ω/km	A	A	V/A.km
15206001	2x16	14,2	18,0	533	1,91	91	76	3,892
15212901	2x25	17,3	21,3	716	1,20	108	98	2,489
15214001	2x35	19,6	23,8	878	0,868	135	117	1,798
15207001	3x16	15,2	19,0	575	1,91	77	64	3.482
15213001	3x25	18,6	22,6	802	1,20	97	82	2,211
15219001	3x35	21,1	25,3	1.003	0,868	120	98	1,632
15225001	3x50	23,6	28,0	1.230	0,641	146	117	1,221
15231001	3x70	28,1	32,9	1.670	0,443	187	144	0,867
15232701	3x95	31,9	38,1	2.533	0,320	227	172	0,645
15238001	3x120	34,8	41,4	3.018	0,253	263	197	0,526
15258001	3x150	39,8	46,6	3.633	0,206	304	220	0,443
15258501	3x185	44,7	51,7	4.449	0,164	347	250	0,368
15259001	3x240	50,3	57,7	5.523	0,125	409	290	0,298
15235201	3x50+35	26,3	30,9	1.436	0,641	149	160	1,22
15232001	3x70+35	31,7	37,7	1.929	0,443	187	144	0,867
15232101	3x70+50	31,7	37,9	1.985	0,443	187	144	0,867
15247001	3x95+50	35,6	42,0	2.886	0,320	227	172	0,645
15253001	3x120+70	38,8	45,4	3.433	0,253	263	197	0,526
15259401	3x150+70	44,7	51,7	4.154	0,206	304	220	0,443
15259601	3x185+70	49,8	57,0	4.945	0,164	347	250	0,368
15270501	3x240+95	56,5	64,1	6.206	0,125	409	290	0,298
15209001	4x16	16,7	20,7	672	1,91	77	64	3,482
15215001	4x25	20,6	24,8	944	1,20	97	82	2,211
15221001	4x35	23,3	27,7	1.182	0,868	120	98	1,632
15227001	4x50	26,2	30,8	1.457	0,641	146	117	1,221
15232601	4x70	31,3	36,3	2.387	0,443	187	144	0,867
15235501	4x95	35,6	42,2	3.017	0,320	227	172	0,645
15240001	4x120	39,0	45,8	3.591	0,253	263	197	0,526
15243001	4x150	44,7	51,9	4.387	0,206	304	220	0,443
15245001	4x185	49,8	57,2	5.310	0,164	347	250	0,368
15250001	4x240	56,1	63,9	6.606	0,125	409	290	0,298
15205501	5x16	18,4	22,4	766	1,91	77	64	3,482
15205601	5x25	22,7	27,1	1.096	1,20	97	82	2,223

- On the Air the current rating is in according to IEC 60364-5-52 table B.52.12, installation method E.
- Buried the current rating is in accordance to IEC 60364-5-52, table B.52.5. method of installation D2.
- the multicore cables, 3 cores + 1 core, section ≥ 70mm² are usually the construction sector shaped.

➢ Nominal values subject to variation depending on manufacturing or standard tolerance.

ALCOBRE reserves the right to alter or modify the specifications and materials according to future technical development that may result in modifications to the technical data provided. The data contained in the technical specifications depend on manufacturing tolerance, or standards. Other constructions on request. Please contact us for latest information.

INDUSTRIAL POWER CABLES

PVC STANDARD ARMOURED

ALCOBRE
A MEMBER OF HENGTONG GROUP

LVAV

Product group 148(E):2024-01

Rated Voltage U_0/U 0,6/1 kV

CABLE STANDARDS

Construction	Fire performance
IEC 60502-1	EN 60332-1-2 / IEC 60332-1-2 Flame non-propagation
HD 603 S1	EN 50575:2014+A1:2016 (CPR)
DMA C33-200	

CABLE DESIGN

1. Conductor — Aluminium stranded class 2, circular or sector-shaped, according to IEC 60228 / EN 60228 and NP 1108

2. Insulation — PVC polyvinyl chloride, type DIV-10 according to HD 603 S1

Identification based to HD 308 S2

The order of the colours without Green/Yellow is as follows:

2 Core x	Blue + Brown
3 Core x	Brown + Black + Grey
4 Core x	Blue + Brown + Black + Grey
5 Core x	Blue + Brown + Black + Grey + Black

The order of the colours with Green/Yellow is as follows:

3 Core G	Blue + Brown + Green/Yellow
4 Core G	Brown + Black + Grey + Green/Yellow
5 Core G	Blue + Brown + Black + Grey + Green/Yellow

3. Inner Sheath — PVC polyvinyl chloride

4. Armour — STA Steel tapes, helical applied

5. Outer sheath — PVC polyvinyl chloride, type DMV-17 according to HD 603 S1, and type ST2 according to IEC 60502-1. Normal color Black.

Marking of cables by printing on the outer sheath, according to the standard, or customer upon agreement.
The packaging labels of these cables include the CE marking according to the Construction Product Regulation UE N. 305/2011 articles 8 and 9.
Minimum content for the external marking of the cable. There may be additional marks respecting what is indicated in the cable construction regulations

GENERAL APPLICATIONS

Industrial armour cable for power transmission

Armored cables for power distribution. Suitable for outdoor fixed installations when it is necessary to protect the cable against mechanical aggression or against rodent's threat, impact or crushing. Can be installed in ducts, or directly buried.
Excellent mechanical protection during laying, installation, and service.

APPROVALS

Range: 2 x (16 - 25) mm^2 ; 4 x (16 - 240) mm^2 ; 3x25+16 mm^2 to 3x185+95 mm^2

Range **E-Redes**: 3x185+95 mm^2

E-REDES Distribuição de Eletricidade · CE · REACH · RoHS Compliant · CPR Construction Products Regulation EN 50575

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CABLE SPECIFICATIONS & OTHER CHARACTERISTICS

ELECTRICAL PERFORMANCE

Rated Voltage: 0,6/1 kV A.C. (U_0/U) / 1,2 kV (*Um*)
1,8 kV D.C. (*Umax.*)

Voltage test: Alternating Current: 3,5 kV
Direct Current: 8,5 kV

FIRE PERFORMANCE

Flame non-propagation
based on EN 60332-1 / IEC 60332-1 (H≤425 mm)

Reduced halogen emission. Chlorine <15%

REACTION TO FIRE (EN 50575:2014+A1:2016)

Class E_{ca}

E_{ca}: It satisfies the non-flame propagation test, without additional classifications

DECLARATION of PERFORMANCE

DoP: 028/rev.**

System 3 Notified body N. 0028

APPLICATIONS (FIXED INSTALLATION)

Industrial use / Urban grids

APPROVALS

E-Redes / CE / REACH / RoHS / CPR

PACKAGING

Available in drums.

OTHERS

Meter by meter marking

INSTALLATION CONDITIONS

In conduct

Open Air

On tray

Buried in ground

Suitable methods of installation
It must be respected the methods of installation established by the standards and regulations that will affect each individual case.

Minimum temperature during installation: 0ºC
(on cable surface)

CHEMICAL PERFORMANCE

Chemical & Oil resistance: Acceptable

UV resistant based on EN 50618

MECHANICAL PERFORMANCE

Impact resistance

AG4 High severity

RODENT PROOF

Very good

MINIMUM BENDING RADIUS

D= Overall diameter of the outer cable (in mm)

Handling, during Installation and fixed:
18xD (D ≤ 25); 20xD (D > 25)

Minimum bending radii at cable temperature: 20 ºC (± 10ºC)

MAXIMUM PULLING FORCE (N)

The maximum pulling force must not exceed:

F = 30 x S (N), where "S" is the cross-sectional area of the conductors (mm^2) and 30 N/mm^2 is the permissible tensile stress for cables with copper conductors If the traction force is applied on the conductors

F = 3 x (N), where D = overall diameter of the cable (mm) If the traction D^2 force is applied on the oversheath

THERMAL PERFORMANCE

Maximum conductor temperatures:

Normal operation: 70ºC
Short circuit: 160ºC (t≤5s)

MINIMUM SERVICE TEMPERATURE

-25 ºC (fixed and protected installations)

WATER PERFORMANCE

Water resistance: AD7 immersion (limited to 2 months)

ALCOBRE reserves the right to alter or modify the specifications and materials according to future technical development that may result in modifications to the technical data provided. The data contained in the technical specifications depend on manufacturing tolerance, or standards. Other constructions on request. Please contact us for latest information.

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LVAV 0,6/1 kV
PVC STANDARD ARMOURED

PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section	Nominal diameter under armour	Nominal over sheath	Nominal weight	Max. DC resistance conductor at 20ºC	Max. current rating		Voltage drop
						Air 30 ºC	Buried 20 ºC	Cos φ= 0,8
	nc x mm²	mm	mm	kg/km	Ω/km	A	A	V/A.km
14801001	2x16	15,7	20,3	532	1,91	91	76	3,892
14811001	2x25	18,8	23,4	666	1,20	108	98	2.489
14809001	4x16	18,5	23,1	728	1,91	77	64	3.482
14812001	4x25	22,3	27,1	988	1,20	97	82	2.211
14821001	4x35	25,1	30,1	1.198	0,868	120	98	1,632
14827001	4x50	28,7	34,1	1.520	0,641	146	117	1,221
14832601	4x70	26,5	32,3	1.876	0,443	187	144	0,867
14835501	4x95	31,5	38,5	2.824	0,320	227	172	0,645
14840001	4x120	33,9	41,1	3.367	0,253	263	197	0,526
14861001	4x150	37,9	44,9	3.913	0,206	304	220	0,443
14866501	4x185	41,9	49,5	4.832	0,164	347	250	0,368
14850001	4x240	46,9	54,5	5.915	0,125	409	290	0,298
14819501	3x25+16	22,3	26,9	922	1,20	97	82	2.211
14828001	3x35+16	25,1	29,9	1.104	0,868	120	98	1,632
14835001	3x50+25	28,7	33,7	1.407	0,641	146	117	1,221
14829001	3x70+35	26,7	32,5	1.753	0,443	187	144	0,867
14833001	3x95+50	31,9	39,1	2.675	0,320	227	172	0,645
14838001	3x150+70	38,1	45,5	3.654	0,206	304	220	0,443
14843001	3x185+95	42,1	49,9	4.596	0,164	347	250	0,368

- On the Air the current rating is in according to IEC 60364-5-52 table B.52.12, installation method E.
- Buried the current rating is in accordance to IEC 60364-5-52, table B.52.5. method of installation D2.
- In the case of 2 conductors, the intensities and voltage drops are indicated for a single-phase pipeline.
- In the case of 4/5 conductors, the intensities and voltage drops are indicated for a three-phase pipeline.
- The cables; 2x16, 4x16, 4x35, 4x95, the current ratings is in according to DMA C33-200, table G-3.
- 4 conductors of ≥ 70mm2 section are of sector-shaped construction.

➢ Nominal values subject to variation depending on manufacturing or standard tolerance.

ALCOBRE reserves the right to alter or modify the specifications and materials according to future technical development that may result in modifications to the technical data provided. The data contained in the technical specifications depend on manufacturing tolerance, or standards. Other constructions on request. Please contact us for latest information.

INDUSTRIAL POWER CABLES

PVC STANDARD ARMOURED

LSVAV

Product group 149(E):2024-01

Rated Voltage U_0/U 0,6/1 kV

CABLE STANDARDS

Construction	Fire performance
IEC 60502-1	EN 60332-1-2 / IEC 60332-1-2 Flame non-propagation
HD 603 S1	EN 50575:2014+A1:2016 (CPR)
DMA C33-200	

CABLE DESIGN

1. Conductor — Aluminium solid, circular or sector-shaped, according to IEC 60228 / EN 60228 and NP 1108

2. Insulation — PVC polyvinyl chloride, type DIV-10 according to HD 603 S1

Identification based to HD 308 S2

The order of the colours without Green/Yellow is as follows:

2 Core x	Blue + Brown
3 Core x	Brown + Black + Grey
4 Core x	Blue + Brown + Black + Grey
5 Core x	Blue + Brown + Black + Grey + Black

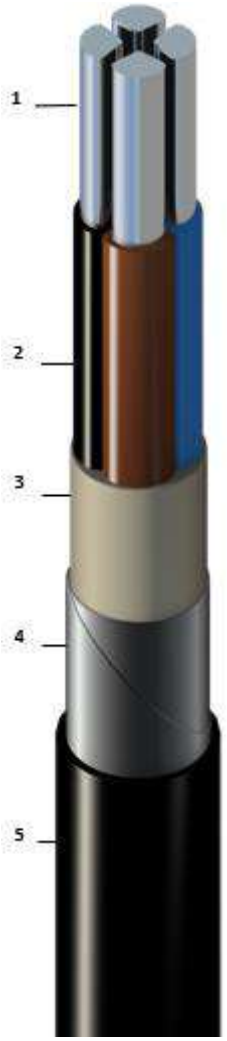
The order of the colours with Green/Yellow is as follows:

3 Core G	Blue + Brown + Green/Yellow
4 Core G	Brown + Black + Grey + Green/Yellow
5 Core G	Blue + Brown + Black + Grey + Green/Yellow

3. Inner Sheath — PVC polyvinyl chloride

4. Armour — STA Steel tapes, helical applied

5. Outer sheath — PVC polyvinyl chloride, type DMV-17 according to HD 603 S1, and type ST2 according to IEC 60502-1. Normal colour Black.



Marking of cables by printing on the outer sheath, according to the standard, or customer upon agreement.
The packaging labels of these cables include the CE marking according to the Construction Product Regulation UE N. 305/2011 articles 8 and 9.
Minimum content for the external marking of the cable. There may be additional marks respecting what is indicated in the cable construction regulations

GENERAL APPLICATIONS

Industrial armour cable for power transmission

Armored cables for power distribution. Suitable for outdoor fixed installations when it is necessary to protect the cable against mechanical aggression or against rodent's threat, impact or crushing. Can be installed in ducts, or directly buried.
Excellent mechanical protection during laying, installation, and service.

APPROVALS

Range: 2 x (16-25) mm^2 ; 4 x (16-240) mm^2 ; 5 x (16-25) mm^2

Range **E-Redes**: 2x16mm^2 ; 4x16mm^2 ; 4x35mm^2 ; 4x95mm^2

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CABLE SPECIFICATIONS & OTHER CHARACTERISTICS

ELECTRICAL PERFORMANCE

Rated Voltage: 0,6/1 kV A.C. (U_0/U) / 1,2 kV (*Um*)
1,8 kV D.C. (*Umax.*)

Voltage test: Alternating Current: 3,5 kV
Direct Current: 8,5 kV

FIRE PERFORMANCE

Flame non-propagation
based on EN 60332-1 / IEC 60332-1 (H≤425 mm)

Reduced halogen emission. Chlorine <15%

REACTION TO FIRE (EN 50575:2014+A1:2016)

Class E_{ca}

E_{ca}: It satisfies the non-flame propagation test, without additional classifications

DECLARATION of PERFORMANCE

DoP: 028/rev.**

System 3 Notified body N. 0028

APPLICATIONS (FIXED INSTALLATION)

Industrial use / Urban grids

APPROVALS

E-Redes / CE / REACH / RoHS / CPR

PACKAGING

Available in drums.

OTHERS

Meter by meter marking

INSTALLATION CONDITIONS

In conduct

Open Air

On tray

Buried in ground

Suitable methods of installation
It must be respected the methods of installation established by the standards and regulations that will affect each individual case.

Minimum temperature during installation: 0ºC
(on cable surface)

CHEMICAL PERFORMANCE

Chemical & Oil resistance: Acceptable

UV resistant based on EN 50618

MECHANICAL PERFORMANCE

Impact resistance

AG4 High severity

RODENT PROOF

Very good

MINIMUM BENDING RADIUS

D= Overall diameter of the outer cable (in mm)

Handling, during Installation and fixed:
18xD (D ≤ 25); 20xD (D > 25)

Minimum bending radii at cable temperature: 20 ºC (± 10ºC)

MAXIMUM PULLING FORCE (N)

The maximum pulling force must not exceed:

F = 30 x S (N), where "S" is the cross-sectional area of the conductors (mm^2) and 30 N/mm^2 is the permissible tensile stress for cables with copper conductors If the traction force is applied on the conductors

F = 3 x (N), where D = overall diameter of the cable (mm) If the traction D^2 force is applied on the oversheath

THERMAL PERFORMANCE

Maximum conductor temperatures:

Normal operation: 70ºC
Short circuit: 160ºC (t≤5s)

MINIMUM SERVICE TEMPERATURE

-25 ºC (fixed and protected installations)

WATER PERFORMANCE

Water resistance: AD7 immersion (limited to 2 months)

ALCOBRE reserves the right to alter or modify the specifications and materials according to future technical development that may result in modifications to the technical data provided. The data contained in the technical specifications depend on manufacturing tolerance, or standards. Other constructions on request. Please contact us for latest information.

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PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section	Nominal diameter under armour	Nominal over sheath	Nominal weight	Max. DC resistance conductor at 20ºC	Max. current rating		Voltage drop
						Air 30 ºC	Buried 20 ºC	Cos φ= 0,8
	nc x mm²	mm	mm	kg/km	Ω/km	A	A	V/A.km
14902101	2x16	14,9	19,5	655	1,91	66	79	3,760
14911001	2x25	17,8	22,4	1.197	1,20	89	125	2,390
14904101	4x16	17,7	22,3	820	1,91	60	72	3,280
14912001	4x25	21,2	25,8	1.074	1,20	80	110	2,090
14914101	4x35	23,6	28,4	1.173	0,868	93	107	1,539
14919101	4x50	23,5	28,5	1.502	0,641	107	150	1,153
14924001	4x70	26,5	32,3	2.193	0,443	138	195	0,821
14929101	4x95	30,9	37,9	2.888	0,320	173	193	0,614
14937001	4x120	32,9	39,9	3.223	0,253	191	270	0,502
14935001	4x150	36,9	44,3	3.889	0,206	222	310	0,424
14966501	4x185	40,9	48,3	4.719	0,164	254	355	0,354
14941001	4x240	46,3	53,9	5.839	0,125	294	410	0,288
14905501	5x16	19,4	24,0	882	1,91	60	72	3,280

- In the Air the current rating is in according to IEC 60364-5-52 table B.52.12, installation method E.
- Buried the current rating is in accordance to IEC 60364-5-52, table B.52.5. method of installation D2.
- In the case of 2 conductors, the intensities and voltage drops are indicated for a single-phase pipeline.
- In the case of 4/5 conductors, the intensities and voltage drops are indicated for a three-phase pipeline.
- The cables 2x16, 4x16, 4x35, 4x95, the current ratings is in according to DMA C33-200, table G-3.
- 4 conductors of ≥ 50mm2 section are of sector-shaped construction.

➢ Nominal values subject to variation depending on manufacturing or standard tolerance.

ALCOBRE reserves the right to alter or modify the specifications and materials according to future technical development that may result in modifications to the technical data provided. The data contained in the technical specifications depend on manufacturing tolerance, or standards. Other constructions on request. Please contact us for latest information.

3

HIGH SECURITY CABLES

HALOGEN-FREE

- RZ1-K (AS) / FXZ1 (frt,zh)
- XZ1 (frt,zh)
- FR-N1 X1G1 (-U / -R)
- FR-N1 X1G1 -AR
- LXZ1 (frt,zh)
- RZ1 (AS) AL
- XZ1 (S) AL

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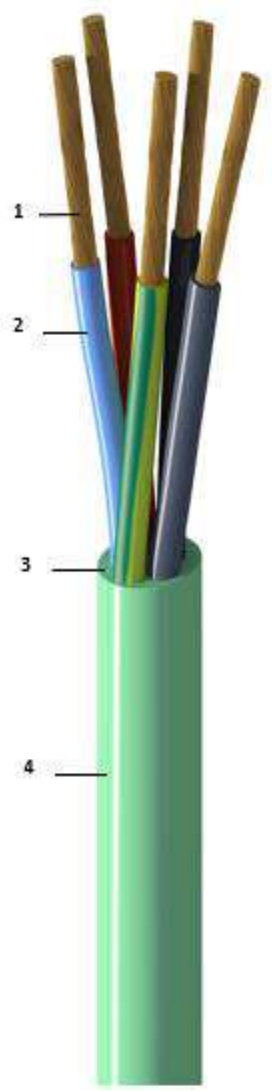
RZ1-K (AS) / FXZ1 (frt,zh)

Product group 130/131(C):2024-01 **Rated Voltage U_0/U - 0,6/1 kV**

CABLE STANDARDS

Construction	Fire performance
UNE 21123-4	UNE-EN 60332-3 / IEC 60332-3 Fire non-propagation
IEC 60502-1	UNE-EN 60332-1 / IEC 60332-1 Flame non-propagation
HD 603 S1	UNE-EN 60754-2 / IEC 60754-2 Low corrosive gases emission
	UNE-EN 60754-1 / IEC 60754-1 LSHF (Low Smoke Halogen Free)
	UNE-EN 61034 / IEC 61034 Low smoke emission (Light transmittance > 60%)
	EN 50575:2014+A1:2016 / EN 13501-6 (CPR)



CABLE DESIGN

1. Conductor

Flexible electrolytic annealed copper, class 5 (-K)
according to IEC 60228 and EN 60228

2. Insulation

Cross-linked polyethylene (XLPE) according to IEC 60502-1
and type DIX-3 according to HD 603 S1

Core identification based to HD 308 S2 & UNE 21089-1

The order of the colours without Green/Yellow is as follows:

1 Core x	● Black (≤ 6mm²) / ○ Natural (≥ 10mm²)
2 Core x	● Blue + ● Brown
3 Core x	● Brown + ● Black + ● Grey
4 Core x	● Blue + ● Brown + ● Black + ● Grey
5 Core x	● Blue + ● Brown + ● Black + ● Grey + ● Black

The order of the colours with Yellow/Green is as follows:

3 Core G	● Blue + ● Brown + ◐ Green/Yellow
4 Core G	● Brown + ● Black + ● Grey + ◐ Green/Yellow
5 Core G	● Blue + ● Brown + ● Black + ● Grey + ◐ Green/Yellow

3. Inner covering

Optional for multiconductor cables.

Material suitable for the maximum service temperatures of the cable and compatible with the insulation material and the outer sheath.

4. Outer sheath

LSZH Halogen-free thermoplastic polyolefin, type ST8 according to IEC 60502-1
and type DMZ-E according to UNE 21123-4, Green color.

Marking of cables by printing on the outer sheath, according to the standard, or customer upon agreement.
The packaging labels of these cables include the CE marking according to the Construction Product Regulation UE N. 305/2011 articles 8 and 9.
Minimum content for the external marking of the cable. There may be additional marks respecting what is indicated in the cable construction regulations

GENERAL APPLICATIONS

Halogen-free, low smoke and low corrosive gases emission in case of a fire.

Power supply in places requiring extra fire safety precautions. Fire retardant, high security cable. Suitable for fixed installations, in public areas such as hospitals, hotels, shopping malls, computer and communication centers and, in general, in all places where it is required a high degree of protection of persons and assets or/and with many people and electrical and electronic equipment.

Non-suitable for feeding submerged pumps.

APPROVALS

Range **AENOR:** 1 x (6 - 300) mm²; 2 x (1,5 - 25) mm²; 3 x (1,5 - 50) mm² ; 4 x (1,5 - 50) mm² ; 5 x (1,5 - 50) mm²

AENOR 042/000887 · CE · REACH COMPLIANT · RoHS Compliant · CPR Construction Products Regulation C_{ca}-s1b,d1,a1 EN 50575

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RZ1-K (AS) / FXZ1 (frt,zh) 0,6/1 kV

HIGH SECURITY CABLES

CABLE SPECIFICATIONS & OTHER CHARACTERISTICS

ELECTRICAL PERFORMANCE

Rated Voltage: 0,6/1 kV A.C. (U_0/U) / 1,2 kV (Um)
1,8 kV D.C. (Umax.)

Voltage test: Alternating Current 3,5 kV
Direct Current: 8,5 kV

FIRE PERFORMANCE

LSHF Low Smoke Halogen Free
based on UNE-EN 60754-1 / IEC 60754-1
(HCl <0,5 %, Fluor <0,1 %)

Flame non-propagation
based on UNE-EN 60332-1 / IEC 60332-1
(H≤425 mm)

Fire non-propagation (cat C)
based on UNE-EN 60332-3 / IEC 60332-3
(Fs ≤2 m --> flame source: 20,5 kW)

Low smoke emission
based on UNE-EN 61034 / IEC 61034
(Light transmittance > 80%)

REACTION TO FIRE (EN 50575:2014+A1:2016)

Class C_{ca}-s1b,d1,a1

C_{ca}: It satisfies the non-flame propagation test, with the requirement of non-fire propagation and emitted heat limits for this case.

Low heat generation EN 50399 Flame source: 20,5 kW)
Total heat released: THR ≤ 30 MJ, Maximum value
of the heat released: Peak HRR ≤ 60 kW
Indication of heat increase: FIGRA ≤ 300 W/s

Low production and opacity of emitted smokes
s1: Total smoke production (TSP) ≤ 50 m2 & Peak
SPR ≤ 0,25 m2/s; EN 50399 (flame source: 20,5 kW)

s1b: s1 + 60% < Transmittance < 80 %
(UNE-EN 61034-2; IEC 61034-2)

Low production of flaming droplets
d1: No flaming droplets/particles persisting longer
than 10' occurs within 1200'

Low acidity and conductivity of material gases
a1: pH≥ 4,3 conductivity < 2,5 µS/mm
(EN 60754-2; IEC 60754-2)

DECLARATION of PERFORMANCE

DoP: 020/rev.xx

System 1+ Notified body N. 0099

APPLICATIONS (FIXED INSTALLATION)

Industrial use / Public places

APPROVALS

AENOR / CE / REACH / RoHS / CPR

PACKAGING

Available in rolls and drums

OTHERS

Meter by meter marking

CHEMICAL PERFORMANCE

Chemical & Oil resistance: acceptable

UV resistant based on EN 50618 & UNE 211605

MECHANICAL PERFORMANCE

Impact resistance

AG2 Medium severity

MINIMUM BENDING RADIUS

D= Overall diameter of the outer cable (in mm)

Installation, Handling and Fixed:

6xD (D<25) ; 7xD (25≤D ≤50) ; 8xD (D>50)

Minimum bending radii at cable temperature of 20 ºC (± 10ºC)

HIGH FLEXIBILITY

Copper conductor class 5

MAXIMUM PULLING FORCE (N)

The maximum pulling force must not exceed:

F = 50 x S (N), where "S" is the cross-sectional area of the conductors (mm^2) and 50 N/mm^2 is the permissible tensile stress for cables with copper conductors If the traction force is applied on the conductors.

F = 5 x (N), where D = overall diameter of the cable (mm) If the traction D^2 force is applied on the oversheath.

THERMAL PERFORMANCE

Maximum conductor temperatures:

Normal operation: 90ºC
Short circuit: 250ºC (t≤5s)

MINIMUM SERVICE TEMPERATURE

-40ºC (fixed and protected installations)

AMBIENT TEMPERATURE OF USE:

Minimum: −30ºC (static, not exposed to possible mechanical damage, shocks or vibrations).
Maximum: 60ºC

WATER PERFORMANCE

Water resistance: AD7 immersion (limited to 2 months)

INSTALLATION CONDITIONS

In conducts

Open Air

Buried in ground (directly or in conduit)

Suitable methods of installation
It must be respected the methods of installation established by the standards and regulations that will affect each individual case.

Minimum temperature during installation: 0ºC
(on cable surface)

Outdoor use without direct and permanent exposure to UV radiation

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RZ1-K (AS) / FXZ1 (frt,zh) 0,6/1 kV

HIGH SECURITY CABLES

ALCOBRE
A MEMBER OF HENGTONG GROUP

PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section	Thickness of insulation	Nominal insulation diameter	Thickness of sheath	Nominal outer diameter	Nominal weight	Max. DC resistance conductor at 20ºC	Max. current rating		Voltage drop
								Air 30 ºC	Buried 20 ºC	Cos φ= 0,8
	nc x mm²	mm	mm	mm	mm	kg/km	Ω/km	A	A	V/A.km
13012503	1x6	0,7	4,5	1,4	7,3	102	3,30	48	47	5,964
13111003	1x10	0,7	5,5	1,4	8,3	149	1,91	67	64	3,493
13116003	1x16	0,7	6,4	1,4	9,2	205	1,21	91	83	2,254
13124003	1x25	0,9	8,2	1,4	11,0	304	0,78	119	94	1,477
13131003	1x35	0,9	9,2	1,4	12,0	402	0,554	153	128	1,079
13138003	1x50	1,0	10,8	1,4	13,6	555	0,386	188	152	0,776
13144003	1x70	1,1	12,5	1,4	15,3	728	0,272	243	187	0,570
13150003	1x95	1,1	14,0	1,5	17,0	956	0,206	298	222	0,451
13156003	1x120	1,2	16,2	1,5	19,2	1.175	0,161	348	253	0,368
13162003	1x150	1,4	17,8	1,6	21,0	1.473	0,129	404	286	0,313
13168003	1x185	1,6	19,7	1,6	22,9	1.794	0,106	464	321	0,271
13174003	1x240	1,7	22,5	1,7	25,9	2.331	0,0801	552	370	0,223
13198003	1x300	1,8	25,2	1,8	28,8	2.912	0,0641	639	418	0,193
13198803	1x400	2,0	30,6	1,9	34,4	3.720	0,0486	748	486	0,164
13185001	1x500	2,2	33,4	2,0	37,4	5.055	0,0384	946	525	0,146
13186301	1x630	2,4	38,4	2,2	42,8	6.691	0,0287	1088	596	0,128
13001003	2x1,5	0,7	2,9	1,8	9,4	129	13,3	23	27	27,260
13005053	2x2,5	0,7	3,4	1,8	10,4	165	7,98	32	35	16,401
13009003	2x4	0,7	3,9	1,8	11,4	214	4,95	44	46	10,211
13013003	2x6	0,7	4,5	1,8	12,6	272	3,30	57	59	6,835
13112003	2x10	0,7	5,5	1,8	14,6	397	1,91	78	77	3,993
13117003	2x16	0,7	6,4	1,8	16,4	542	1,21	104	100	2,561
13126003	2x25	0,9	8,2	1,8	19,9	811	0,78	135	127	1,684
13002053	3x1,5	0,7	2,9	1,8	9,9	130	13,3	20	23	23,621
13006053	3x2,5	0,7	3,4	1,8	11,0	168	7,98	29	30	14,201
13010053	3x4	0,7	3,9	1,8	12,1	223	4,95	38	39	8,844
13014053	3x6	0,7	4,5	1,8	13,4	287	3,30	49	48	5,923
13113003	3x10	0,7	5,5	1,8	15,5	426	1,91	68	64	3,993
13119503	3x16	0,7	6,4	1,8	17,5	596	1,21	91	83	2,561
13128003	3x25	0,9	8,2	1,8	21,3	1.022	0,78	115	105	1,458
13135003	3x35	0,9	9,2	1,8	23,5	1.355	0,554	143	128	1,057
13134003	3x50	1,0	10,8	1,8	27,0	1.881	0,386	174	152	0,759
13134503	3x70	1,1	12,5	1,9	30,8	2.509	0,272	223	187	0,556
13140003	3x95	1,1	14,0	2,0	34,3	3.273	0,206	271	222	0,438

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RZ1-K (AS) / FXZ1 (frt,zh) 0,6/1 kV

HIGH SECURITY CABLES

ALCOBRE
A MEMBER OF HENGTONG GROUP

PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section	Thickness of insulation	Nominal insulation diameter	Thickness of sheath	Nominal outer diameter	Nominal weight	Max. DC resistance conductor at 20ºC	Max. current rating		Voltage drop
								Air 30 ºC	Buried 20 ºC	Cos φ= 0,8
	nc x mm²	mm	mm	mm	mm	kg/km	Ω/km	A	A	V/A.km
13003053	4x1,5	0,7	2,9	1,8	10,7	171	13,3	20	23	23,621
13007053	4x2,5	0,7	3,4	1,8	11,9	225	7,98	29	30	14,201
13011063	4x4	0,7	3,9	1,8	13,1	303	4,95	38	39	8,844
13015063	4x6	0,7	4,5	1,8	14,5	395	3,30	49	48	5,923
13114003	4x10	0,7	5,5	1,8	17,0	598	1,91	68	64	3,471
13122003	4x16	0,7	6,4	1,8	19,1	839	1,21	91	83	2,233
13129003	4x25	0,9	8,2	1,8	23,4	1.272	0,78	115	105	1,472
13136003	4x35	0,9	9,2	1,8	25,9	1.697	0,554	143	128	1,057
13143003	4x50	1,0	10,8	1,9	30,0	2.384	0,386	174	152	0,767
13148003	4x70	1,1	12,5	2,0	34,3	3.184	0,272	223	187	0,564
13154003	4x95	1,1	14,0	2,1	38,1	4.161	0,206	271	222	0,446
13161001	4x120	1,2	16,2	2,3	43,9	5.219	0,161	346	223	0,358
13161501	4x150	1,4	17,8	2,4	47,9	6.509	0,129	399	251	0,302
13166501	4x185	1,6	19,7	2,6	52,8	7.993	0,106	456	281	0,262
13172201	4x240	1,7	22,5	2,8	60,1	10.414	0,0801	538	324	0,215
13004053	5x1,5	0,7	2,9	1,8	11,5	198	13,3	20	23	23,605
13008053	5x2,5	0,7	3,4	1,8	12,8	262	7,98	29	30	14,197
13012053	5x4	0,7	3,9	1,8	14,2	358	4,95	38	39	8,838
13016053	5x6	0,7	4,5	1,8	15,8	469	3,30	49	48	5,931
13115503	5x10	0,7	5,5	1,8	18,5	714	1,91	68	64	3,470
13123503	5x16	0,7	6,4	1,8	20,9	1.008	1,21	91	83	2,231
13130503	5x25	0,9	8,2	1,8	25,7	1.541	0,78	115	106	1,473
13137503	5x35	0,9	9,2	1,9	28,7	2.076	0,554	143	128	1,076
13143703	5x50	1,0	10,8	2,0	33,2	2.914	0,386	174	152	0,772
13143903	5x70	1,1	12,5	2,1	38,0	3.888	0,272	223	187	0,567
13149503	5x95	1,1	14,0	2,3	42,4	5.107	0,206	271	222	0,449

- On the Air the current rating is in according to IEC 60364-5-52 table B.52.12, installation method E for two loaded conductors, table B.52.5 f installation method E for three loaded conductors, and table B.52.12 installation method F, three loaded conductors for single-core cables.
- Directly buried the current rating is in according to IEC 60364-5-52, table B.52.3 installation method D2 for two loaded conductors, and table B.52.5 installation method D2 for three loaded conductors.

➢ Nominal values subject to variation depending on manufacturing or standard tolerance.

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PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section nc x mm²	Thickness of insulation mm	Nominal insulation diameter mm	Thickness of sheath mm	Nominal outer diameter mm	Nominal weight kg/km	Max. DC resistance conductor at 20ºC Ω/km
13007153	7x1,5	0,7	2,9	1,8	12,2	236	13,3
13007253	7x2,5	0,7	3,4	1,8	13,7	320	7,98
13010153	10x1,5	0,7	2,9	1,8	14,7	312	13,3
13010253	10x2,5	0,7	3,4	1,8	16,6	428	7,98
13012153	12x1,5	0,7	2,9	1,8	15,2	351	13,3
13012253	12x2,5	0,7	3,4	1,8	17,2	486	7,98
13014153	12x1,5	0,7	2,9	1,8	15,9	392	13,3
13014253	12x2,5	0,7	3,4	1,8	18,0	546	7,98
13016153	19x1,5	0,7	2,9	1,8	16,7	434	13,3
13016253	19x2,5	0,7	3,4	1,8	18,9	607	7,98
13019153	19x1,5	0,7	2,9	1,8	17,7	495	13,3
13019253	19x2,5	0,7	3,4	1,8	20,2	699	7,98
13024153	24x1,5	0,7	2,9	1,8	20,2	605	13,3
13024253	24x2,5	0,7	3,4	1,8	23,1	858	7,98
13027153	30x1,5	0,7	2,9	1,8	20,7	661	13,3
13027253	30x2,5	0,7	3,4	1,8	23,6	942	7,98
13037153	37x1,5	0,7	2,9	1,8	23,2	856	13,3
13037253	37x2,5	0,7	3,4	1,8	26,7	1.234	7,98

- Nominal values subject to variation depending on manufacturing or standard tolerance.

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HIGH SECURITY CABLES

HALOGEN FREE

ALCOBRE
A MEMBER OF HENGTONG GROUP

XZ1 (frt,zh)

Product group 117/118(C):2024-01

Rated Voltage U_0/U - 0,6/1 kV

CABLE STANDARDS

Construction	Fire performance
IEC 60502-1	EN 60332-3 / IEC 60332-3 Fire non-propagation
HD 603 S1	EN 60332-1 / IEC 60332-1 Flame non-propagation
	EN 60754-2 / IEC 60754-2 Low corrosive gases emission
	EN 60754-1 / IEC 60754-1 LSHF (Low Smoke Halogen Free)
	EN 61034 / IEC 61034 Low smoke emission (Light transmittance > 60%)
	EN 50575:2014+A1:2016 / EN 13501-6 (CPR)

CABLE DESIGN

1. Conductor

Electrolytic annealed copper, class 1 (≤ 6mm² (multicores)
class 2 ≥ 6mm²
according to IEC 60228 and EN 60228

2. Insulation

Cross-linked polyethylene (XLPE) according to IEC 60502-1
Core identification based to HD 308 S2
The order of the colours without Green/Yellow is as follows:

1 Core x	○ Natural
2 Core x	● Blue + ● Brown
3 Core x	● Brown + ● Black + ● Grey
4 Core x	● Blue + ● Brown + ● Black + ● Grey
≥ 6 Core x	❶ Black numbered

The order of the colours with Yellow/Green is as follows:

3 Core G	● Blue + ● Brown + ◑ Green/Yellow
4 Core G	● Brown + ● Black + ● Grey + ◑ Green/Yellow
5 Core G	● Blue + ● Brown + ● Black + ● Grey + ◑ Green/Yellow
≥ 6 Core G	❶ Black numbered + ◑ Green/Yellow

3. Inner covering

Optional for multiconductor cables.
Material suitable for the maximum service temperatures of the cable and compatible with the insulation material and the outer sheath.

4. Outer sheath

LSZH Halogen-free thermoplastic polyolefin, type ST8 according to IEC 60502-1, and type DMZ-E according to UNE 21123-4, Green or Black color.

Marking of cables by printing on the outer sheath, according to the standard, or customer upon agreement.
The packaging labels of these cables include the CE marking according to the Construction Product Regulation UE N. 305/2011 articles 8 and 9.
Minimum content for the external marking of the cable. There may be additional marks respecting what is indicated in the cable construction regulations.

GENERAL APPLICATIONS

Halogen-free, low smoke and low corrosive gases emission in case of a fire.

Cable for use in public and industrial environments when properties against fire propagation, smoke emission, toxic and corrosive gases are required in case of fire. Industrial use on dry building columns where strict safety standards must be met. Good resistance to low temperatures, chemical agents, and general mechanical stress. It can be installed outdoors, in pipes or in cable trucking. May be placed directly on the ground for short periods if the soil is not flooded and if adequate mechanical protection is provided. It can be used in explosive areas, with adequate mechanical protection, but in case of permanent use, the current intensity is reduced by 15%.

APPROVALS

Range: 1 x (1,5 - 630) mm² ; 2 x (1,5 - 35) mm² ; 3 -4 x (1,5 - 240) mm² ; 5 x (1,5 - 185) mm²

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XZ1 (frt,zh) 0,6/1 kV
HIGH SECURITY CABLES

CABLE SPECIFICATIONS & OTHER CHARACTERISTICS

ELECTRICAL PERFORMANCE

Rated Voltage: 0,6/1 kV A.C. (U_0/U) / 1,2 kV (*Um*)
1,8 kV D.C. (*Umax.*)

Voltage test: Alternating Current: 3,5 kV
Direct Current: 8,5 kV

FIRE PERFORMANCE

LSHF Low Smoke Halogen Free
based on UNE-EN 60754-1 / IEC 60754-1
(HCl <0,5 %, Fluor <0,1 %)

Flame non-propagation
based on UNE-EN 60332-1 / IEC 60332-1
(H≤425 mm)

Fire non-propagation (cat C)
based on UNE-EN 60332-3 / IEC 60332-3
(Fs ≤2 m --> flame source: 20,5 kW)

Low smoke emission
based on UNE-EN 61034 / IEC 61034
(Light transmittance > 80%)

REACTION TO FIRE (EN 50575:2014+A1:2016)

Class $B2_{ca}$-s1b,d1,a1

$B2_{ca}$: Minimum contribution to the fire
Flame non-propagation
Fire non-propagation (1.5 m)

Low heat generation EN 50399 Flame source: 20,5 kW)
Total heat released: THR ≤ 30 MJ, Maximum value
of the heat released: Peak HRR ≤ 60 kW
Indication of heat increase: FIGRA ≤ 300 W/s.

Low production and opacity of emitted smokes
s1: Total smoke production (TSP) ≤ 50 m2 & Peak
SPR ≤ 0,25 m2/s; EN 50399 (flame source: 20,5 kW).
s1b: s1 + 60% < Transmittance < 80 %
(UNE-EN 61034-2; IEC 61034-2).

Low production of flaming droplets
d1: No flaming droplets/particles persisting longer
than 10' occurs within 1200'.

Low acidity and conductivity of material gases
a1: pH≥ 4,3 conductivity < 2,5 µS/mm
(EN 60754-2; IEC 60754-2).

DECLARATION of PERFORMANCE

DoP: 015/rev.xx

System 1+ Notified body N. 0099

APPLICATIONS (FIXED INSTALLATION)

Industrial use / Public places

APPROVALS

CE / REACH / RoHS / CPR

PACKAGING

Available in rolls and drums

OTHERS

Meter by meter marking

CHEMICAL PERFORMANCE

Chemical & Oil resistance: acceptable

UV resistant based on EN 50618

MECHANICAL PERFORMANCE

Impact resistance

AG2 Medium severity

MINIMUM BENDING RADIUS

D: cable outer diameter (mm)

Installation & Handling: 6xD mm

Fixed: 6xD mm

Bending nearby the temperature limits should be carried out extra carefully.

MAXIMUM PULLING FORCE (N):

The maximum pulling force must not exceed:

F = 50 x S (N), where "S" is the cross-sectional area of the conductors (mm^2) and 50 N/mm^2 is the permissible tensile stress for cables with copper conductors If the traction force is applied on the conductors.

F = 5 x (N), where D = overall diameter of the cable (mm) If the traction D^2 force is applied on the oversheath.

THERMAL PERFORMANCE

Maximum conductor temperatures:

Normal operation: 90ºC

Short circuit: 250ºC (t≤5s)

MINIMUM SERVICE TEMPERATURE

-40ºC (fixed and protected installations)

AMBIENT TEMPERATURE OF USE

Minimum: −30ºC (static, not exposed to possible mechanical damage, shocks or vibrations).
Maximum: 60ºC

WATER PERFORMANCE

Water resistance: AD5 jets in all directions

INSTALLATION CONDITIONS

In conducts

Open Air

Buried in ground (directly or in conduit)

Suitable methods of installation
It must be respected the methods of installation established by the standards and regulations that will affect each individual case.

Minimum temperature during installation: 0ºC
(on cable surface)

Outdoor use without direct and permanent exposure to UV radiation

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XZ1 (frt,zh) 0,6/1 kV
HIGH SECURITY CABLES

ALCOBRE
A MEMBER OF HENGTONG GROUP

PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section	Thickness of insulation	Nominal insulation diameter	Thickness of sheath	Nominal outer diameter	Nominal weight	Max. DC resistance conductor at 20ºC	Max. current rating		Voltage drop
								Air 30 ºC	Buried 20 ºC	Cos φ= 0,8
	nc x mm²	mm	mm	mm	mm	kg/km	Ω/km	A	A	V/A.km
11800303	1x1,5	0,7	3,0	1,4	5,8	52	12,10	23	21	21,540
11800333	1x2,5	0,7	3,4	1,4	6,3	65	7,41	32	28	13,251
11800363	1x4	0,7	4,0	1,4	6,8	84	4,61	42	36	8,288
11801003	1x6	0,7	4,2	1,4	7,1	103	3,08	54	44	5,567
11806003	1x10	0,7	5,0	1,4	7,9	145	1,83	75	58	3,349
11811003	1x16	0,7	6,0	1,4	8,8	205	1,15	100	75	2,140
11818003	1x25	0,9	7,7	1,4	10,5	305	0,727	135	96	1,389
11825003	1x35	0,9	8,7	1,4	11,5	396	0,524	169	115	1,026
11832003	1x50	1,0	10,0	1,4	12,8	518	0,387	207	135	0,780
11838003	1x70	1,1	11,7	1,4	14,5	731	0,268	268	167	0,566
11844003	1x95	1,1	13,4	1,5	16,4	981	0,193	328	197	0,429
11850003	1x120	1,2	15,0	1,5	18,0	1.214	0,153	383	223	0,357
11856003	1x150	1,4	17,2	1,6	20,4	1.495	0,124	444	251	0,305
11862003	1x185	1,6	19,0	1,6	22,2	1.871	0,0991	510	281	0,260
11868003	1x240	1,7	21,3	1,7	24,8	2.363	0,0754	607	324	0,216
11873003	1x300	1,8	24,2	1,8	27,8	3.068	0,0601	703	365	0,188
11880003	1x400	2,0	27,0	1,9	30,2	4.110	0,0470	823	---	0,164
11889003	1x500	2,2	30,8	2,0	34,0	4.881	0,0366	946	---	0,145
11889503	1x630	2,4	35,5	2,2	39,1	6.268	0,0283	1088	---	0,129
11701003	2x1,5	0,7	2,7	1,8	9,1	103	12,10	26	25	21,500
11705003	2x2,5	0,7	3,1	1,8	9,9	131	7,41	36	33	13,206
11709003	2x4	0,7	3,6	1,8	10,8	169	4,61	49	43	8,252
11713003	2x6	0,7	4,1	1,8	11,8	217	3,08	63	53	5,536
11807003	2x10	0,7	5,0	1,8	13,7	333	1,83	86	71	3,322
11812003	2x16	0,7	6,0	1,8	15,6	472	1,15	115	91	2,117
11819003	2x25	0,9	7,7	1,8	18,9	783	0,727	149	116	1,370
11826003	2x35	0,9	8,7	1,8	21,0	1.015	0,524	185	136	1,009

- On the Air the current rating is in according to IEC 60364-5-52 table B.52.12, installation method F for single core cables, and installation method E for multicore cables.
- Buried the current rating is in according to IEC 60364-5-52, table B.52.5 for single core cables, and table B.52.3 for multicore cables, installation method D1.

➢ Nominal values subject to variation depending on manufacturing or standard tolerance.

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XZ1 (frt,zh) 0,6/1 kV
HIGH SECURITY CABLES

ALCOBRE
A MEMBER OF HENGTONG GROUP

PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section	Thickness of insulation	Nominal insulation diameter	Thickness of sheath	Nominal outer diameter	Nominal weight	Max. DC resistance conductor at 20ºC	Max. current rating		Voltage drop
								Air 30 ºC	Buried 20 ºC	Cos φ= 0,8
	nc x mm²	mm	mm	mm	mm	kg/km	Ω/km	A	A	V/A.km
11702003	3x1,5	0,7	2,7	1,8	9,6	122	12,10	23	21	21,500
11706003	3x2,5	0,7	3,1	1,8	10,4	158	7,41	32	28	13,206
11710003	3x4	0,7	3,6	1,8	11,4	211	4,61	42	36	8,252
11714003	3x6	0,7	4,1	1,8	12,4	275	3,08	54	44	5,536
11808503	3x10	0,7	5,0	1,8	14,5	427	1,83	75	58	3,322
11813003	3x16	0,7	6,0	1,8	16,6	619	1,15	100	75	2,117
11823003	3x25	0,9	7,7	1,8	20,2	1.004	0,727	127	96	1,370
11827003	3x35	0,9	8,7	1,8	22,4	1.311	0,524	158	115	1,009
11834503	3x50	1,0	10,0	1,8	25,2	1.727	0,387	192	135	0,766
11845003	3x70	1,1	11,7	1,9	29,1	2.456	0,268	246	167	0,553
11846003	3x95	1,1	13,4	2,0	33,0	3.285	0,193	298	197	0,418
11852003	3x120	1,2	15,0	2,1	36,5	4.089	0,153	346	223	0,346
11858003	3x150	1,4	17,2	2,3	41,7	5.093	0,124	399	251	0,295
11863003	3x185	1,6	19,0	2,4	45,9	6.383	0,0991	456	281	0,251
11869003	3x240	1,7	21,3	2,6	51,3	8.077	0,0754	538	324	0,208
11814003	3x16+10	0,7/0,7	6,0/5.0	1,8/1.8	17,2/14.5	726	1,15	100	75	2,117
11821003	3x25+16	0,9/0,7	7,7/6,0	1,8/1,8	21,2/16,6	1,114	0,727	158	115	1,009
11828003	3x35+16	0,9/0,7	8,7/6,0	1,8/1,8	23,7/16,6	1,417	0,524	192	135	0,766
11835003	3x50+25	1,0/0,9	10,0/7,7	1,8/1,8	26,8/20,2	1,915	0,387	246	167	0,553
11841003	3x70+35	1,1/0,9	11,7/8,7	1,9/1,8	31,8/22,4	2,769	0,268	298	197	0,418
11847003	3x95+50	1,1/1,0	13,4/10,0	2,0/1,8	35,5/25,2	3,657	0,193	346	223	0,346
11853003	3x120+70	1,2/1,1	15,0/11,7	2,1/1,9	39,4/29,1	4,656	0,153	399	251	0,295
11859003	3x150+70	1,4/1,1	17,2/11,7	2,3/1,9	45,2/29,1	5,652	0,124	456	281	0,251
11865003	3x185+95	1,6/1,1	19,0/13,4	2,4/2,0	49,8/33,0	7,166	0,0991	538	324	0,208
11870003	3x240+120	1,7/1,2	21,3/15,0	2,6/2,1	51,3/36,5	9,074	0,0754	538	324	0,208
11703003	4x1,5	0,7	2,7	1,8	10,3	145	12,10	23	21	21,500
11707003	4x2,5	0,7	3,1	1,8	11,2	191	7,41	32	28	13,206
11711003	4x4	0,7	3,6	1,8	12,3	258	4,61	42	36	8,252
11715003	4x6	0,7	4,1	1,8	13,5	342	3,08	54	44	5,536
11809503	4x10	0,7	5,0	1,8	15,8	534	1,83	75	58	3,322

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XZ1 (frt,zh) 0,6/1 kV

HIGH SECURITY CABLES

ALCOBRE
A MEMBER OF HENGTONG GROUP

PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section	Thickness of insulation	Nominal insulation diameter	Thickness of sheath	Nominal outer diameter	Nominal weight	Max. DC resistance conductor at 20ºC	Max. current rating		Voltage drop
								Air 30 ºC	Buried 20 ºC	Cos φ= 0,8
	nc x mm²	mm	mm	mm	mm	kg/km	Ω/km	A	A	V/A.km
11816703	4x16	0,7	6,0	1,8	18,2	781	1,15	100	75	2,117
11824203	4x25	0,9	7,7	1,8	22,2	1.259	0,727	127	96	1,370
11830703	4x35	0,9	8,7	1,8	24,7	1.651	0,524	158	115	1,009
11837503	4x50	1,0	10,0	1,8	27,8	2.182	0,387	192	135	0,766
11843803	4x70	1,1	11,7	2,0	32,4	3.134	0,268	246	167	0,553
11846603	4x95	1,1	13,4	2,1	36,7	4.199	0,193	298	197	0,418
11855503	4x120	1,2	15,0	2,3	40,8	5.251	0,153	346	223	0,346
11861003	4x150	1,4	17,2	2,4	46,4	6.499	0,124	399	251	0,295
11866503	4x185	1,6	19,0	2,6	51,2	8.186	0,0991	456	281	0,251
11872003	4x240	1,7	21,3	2,8	57,3	10.358	0,0754	538	324	0,208
11704003	5x1,5	0,7	2,7	1,8	11,0	167	12,10	23	21	21,500
11708003	5x2,5	0,7	3,1	1,8	12,1	224	7,41	32	28	13,206
11711703	5x4	0,7	3,6	1,8	13,3	307	4,61	42	36	8,252
11716003	5x6	0,7	4,1	1,8	14,6	409	3,08	54	44	5,536
11810003	5x10	0,7	5,0	1,8	17,2	644	1,83	75	58	3,322
11817503	5x16	0,7	6,0	1,8	19,8	946	1,15	100	75	2,117
11824103	5x25	0,9	7,7	1,8	24,3	1.519	0,727	127	96	1,370
11831003	5x35	0,9	8,7	1,8	26,4	1.948	0,524	158	115	1,009
11837803	5x50	1,0	10,0	2,0	30,2	2.618	0,387	192	135	0,766
11843903	5x70	1,1	11,7	2,1	35,0	3.755	0,268	246	167	0,553
11849503	5x95	1,1	13,4	2,3	40,4	5.116	0,193	298	197	0,418
11855803	5x120	1,2	15,0	2,3	44,6	6.354	0,153	346	223	0,346
11861503	5x150	1,4	17,2	2,4	50,8	7.864	0,124	399	251	0,295
11856103	5x185	1,6	19,0	2,4	55,7	9.864	0,0991	456	281	0,251

- On the Air the current rating is in according to IEC 60364-5-52 table B.52.12, installation method E.
- Buried the current rating is in according to IEC 60364-5-52, table B.52.5 installation method D1.
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PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section nc x mm²	Thickness of insulation mm	Nominal insulation diameter mm	Thickness of sheath mm	Nominal outer diameter Mm	Nominal weight kg/km	Max. DC resistance conductor at 20ºC Ω/km
11771000	7x1,5	0,7	2,7	1,8	12,1	277	12,10
11771500	7x2,5	0,7	3,1	1,8	13,4	348	7,41
11771600	7x4	0,7	3,6	1,8	14,7	452	4,61
11771700	8x1,5	0,7	2,7	1,8	12,8	297	12,10
11771800	8x2,5	0,7	3,1	1,8	14,1	375	7,41
11771900	8x4	0,7	3,6	1,8	15,6	495	4,61
11772000	12x1,5	0,7	2,7	1,8	15,0	336	12,10
11772100	12x2,5	0,7	3,1	1,8	16,7	462	7,41
11772200	12x4	0,7	3,6	1,8	18,5	649	4,61
11772300	19x1,5	0,7	2,7	1,8	17,6	482	12,10
11772400	19x2,5	0,7	3,1	1,8	19,6	676	7,41
11772500	19x2,5	0,7	3,6	1,8	21,9	966	4,61
11773000	24x1,5	0,7	2,7	1,8	20,1	594	12,10
11773100	24x2,5	0,7	3,1	1,8	22,4	836	7,41
11773200	27x1,5	0,7	2,7	1,8	20,5	651	12,10
11773300	27x2,5	0,7	3,1	1,8	22,9	921	7,41
11773400	37x1,5	0,7	2,7	1,8	23,1	851	12,10
11773500	37x2,5	0,7	3,1	1,8	25,9	1.217	7,41

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HIGH SECURITY CABLES

HALOGEN FREE

ALCOBRE
A MEMBER OF HENGTONG GROUP

FR-N1 X1G1

Product group 117/118(C):2024-01 | **Rated Voltage U_0/U - 0,6/1 kV**

CABLE STANDARDS

Construction

NF C32-323

IEC 60502-1

Fire performance

NF C32-070 Cat. C1

FR-EN 60332-3 / IEC 60332-3 Fire non-propagation

NF-EN 60332-1 / IEC 60332-1 Flame non-propagation

FR-EN 60754-2 / IEC 60754-2 Low corrosive gases emission

NF-EN 60754-1 / IEC 60754-1 LSHF (Low Smoke Halogen Free)

NF-EN 61034 / IEC 61034 Low smoke emission (Light transmittance > 80%)

EN 50575:2014+A1:2016 / EN 13501-6 (CPR)

CABLE DESIGN

1. Conductor

Electrolytic annealed copper, class 1 (FR-N1 X1G1 -U) ≤ 6mm² (multicores)
class 2 (FR-N1 X1G1 -R) ≥ 1,5mm²
according to IEC 60228 and EN 60228

2. Insulation

Cross-linked polyethylene (XLPE) according to IEC 60502-1

Core identification based to NF C32-323 Table 14

The order of the colours without Green/Yellow is as follows:

1 Core x	○ Natural
2 Core x	● Blue + ● Brown
3 Core x	● Blue + ● Brown + ● Black (only for sections 1,5 mm² & 2,5 mm²)
3 Core x	● Brown + ● Black + ● Grey (for sections ≥ 4 mm²)
4 Core x	● Blue + ● Brown + ● Black + ● Grey
≥ 6 Core x	❶ Black numbered.

The order of the colours with Yellow/Green is as follows:

3 Core G	● Blue + ● Brown + ◑ Green/Yellow
4 Core G	● Brown + ● Black + ● Grey + ◑ Green/Yellow
5 Core G	● Blue + ● Brown + ● Black + ● Grey + ◑ Green/Yellow
≥ 6 Core G	❶ Black numbered + ◑ Green/Yellow

3. Inner covering

Optional for multiconductor cables.

Material suitable for the maximum service temperatures of the cable and compatible with the insulation material and the outer sheath.

4. Outer sheath

LSZH Halogen-free thermoplastic polyolefin, type ST8 according to IEC 60502-1, and type DMZ-E according to UNE 21123-4, Green or Black color.

Marking of cables by printing on the outer sheath, according to the standard, or customer upon agreement.

The packaging labels of these cables include the CE marking according to the Construction Product Regulation UE N. 305/2011 articles 8 and 9.

Minimum content for the external marking of the cable. There may be additional marks respecting what is indicated in the cable construction regulations.

GENERAL APPLICATIONS

Halogen-free, low smoke and low corrosive gases emission in case of a fire.

Cable for use in public and industrial environments when properties against fire propagation, smoke emission, toxic and corrosive gases are required in case of fire. Industrial use on dry building columns where strict safety standards must be met. Good resistance to low temperatures, chemical agents, and general mechanical stress. It can be installed outdoors, in pipes or in cable trucking. May be placed directly on the ground for short periods if the soil is not flooded and if adequate mechanical protection is provided. It can be used in explosive areas, with adequate mechanical protection, but in case of permanent use, the current intensity is reduced by 15%.

APPROVALS

Range **NF USE**: 1 x (1,5 - 240) mm² ; 2 x (1,5 - 35) mm² ; 3 x (1,5 - 240) mm² ; 4 x (1,5 - 250) mm² ; 5 x (1,5 - 25) mm²

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FR-N1 X1G1 0,6/1 kV

HIGH SECURITY CABLES

CABLE SPECIFICATIONS & OTHER CHARACTERISTICS

ELECTRICAL PERFORMANCE

Rated Voltage: 0,6/1 kV A.C. (U_0/U) / 1,2 kV (*Um*)
1,8 kV D.C. (*Umax.*)

Voltage test: Alternating Current 3,5 kV
Direct Current: 8,5 kV

FIRE PERFORMANCE

LSHF Low Smoke Halogen Free
based on UNE-EN 60754-1 / IEC 60754-1
(HCl <0,5 %, Fluor <0,1 %)

Flame non-propagation
based on UNE-EN 60332-1 / IEC 60332-1
(H≤425 mm)

Fire non-propagation (cat C)
based on UNE-EN 60332-3 / IEC 60332-3
(Fs ≤2 m --> flame source: 20,5 kW)

Low smoke emission
based on UNE-EN 61034 / IEC 61034
(Light transmittance > 80%)

REACTION TO FIRE (EN 50575:2014+A1:2016)

Class $B2_{ca}$-s1b,d1,a1

$B2_{ca}$: Minimum contribution to the fire
Flame non-propagation
Fire non-propagation (1.5 m)

Low heat generation EN 50399 Flame source: 20,5 kW)
Total heat released: THR ≤ 30 MJ, Maximum value
of the heat released: Peak HRR ≤ 60 kW
Indication of heat increase: FIGRA ≤ 300 W/s.

Low production and opacity of emitted smokes
s1: Total smoke production (TSP) ≤ 50 m2 & Peak
SPR ≤ 0,25 m2/s; EN 50399 (flame source: 20,5 kW).
s1b: s1 + 60% < Transmittance < 80 %
(UNE-EN 61034-2; IEC 61034-2).

Low production of flaming droplets
d1: No flaming droplets/particles persisting longer
than 10' occurs within 1200'.

Low acidity and conductivity of material gases
a1: pH≥ 4,3 conductivity < 2,5 µS/mm
(EN 60754-2; IEC 60754-2).

DECLARATION of PERFORMANCE

DoP: 015/rev.xx

System 1+ Notified body N. 0099

APPLICATIONS (FIXED INSTALLATION)

Industrial use / Public places

APPROVALS

NF USE / CE / REACH / RoHS / CPR

PACKAGING

Available in rolls and drums

OTHERS

Meter by meter marking

CHEMICAL PERFORMANCE

Chemical & Oil resistance: acceptable

UV resistant based on EN 50618

MECHANICAL PERFORMANCE

Impact resistance

AG2 Medium severity

MINIMUM BENDING RADIUS

D: cable outer diameter (mm)

Installation & Handling: 10xD mm

Fixed: 8xD mm

Bending nearby the temperature limits should be carried out extra carefully.

MAXIMUM PULLING FORCE (N):

The maximum pulling force must not exceed:

F = 50 x S (N), where "S" is the cross-sectional area of the conductors (mm^2) and 50 N/mm^2 is the permissible tensile stress for cables with copper conductors If the traction force is applied on the conductors.

F = 5 x (N), where D = overall diameter of the cable (mm) If the traction D^2 force is applied on the oversheath.

THERMAL PERFORMANCE

Maximum conductor temperatures:

Normal operation: 90ºC

Short circuit: 250ºC (t≤5s)

MINIMUM SERVICE TEMPERATURE

-40ºC (fixed and protected installations)

AMBIENT TEMPERATURE OF USE

Minimum: −30ºC (static, not exposed to possible mechanical damage, shocks or vibrations).
Maximum: 60ºC

WATER PERFORMANCE

Water resistance: AD5 jets in all directions

INSTALLATION CONDITIONS

In conducts

Open Air

Buried in ground (directly or in conduit)

Suitable methods of installation
It must be respected the methods of installation established by the standards and regulations that will affect each individual case.

Minimum temperature during installation: 0ºC
(on cable surface)

Outdoor use without direct and permanent exposure to UV radiation

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FR-N1 X1G1 0,6/1 kV

HIGH SECURITY CABLES

ALCOBRE
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PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section	Thickness of insulation	Nominal insulation diameter	Thickness of sheath	Nominal outer diameter	Nominal weight	Max. DC resistance conductor at 20ºC	Max. current rating		Voltage drop
								Air 30 ºC	Buried 20 ºC	Cos φ= 0,8
	nc x mm²	mm	mm	mm	Mm	kg/km	Ω/km	A	A	V/A.km
11800303	1x1,5	0,7	3,0	1,4	5,8	52	12,10	23	21	21,540
11800333	1x2,5	0,7	3,4	1,4	6,3	65	7,41	32	28	13,251
11800363	1x4	0,7	4,0	1,4	6,8	84	4,61	42	36	8,288
11801003	1x6	0,7	4,2	1,4	7,1	103	3,08	54	44	5,567
11806003	1x10	0,7	5,0	1,4	7,9	145	1,83	75	58	3,349
11811003	1x16	0,7	6,0	1,4	8,8	205	1,15	100	75	2,140
11818003	1x25	0,9	7,7	1,4	10,5	305	0,727	135	96	1,389
11825003	1x35	0,9	8,7	1,4	11,5	396	0,524	169	115	1,026
11832003	1x50	1,0	10,0	1,4	12,8	518	0,387	207	135	0,780
11838003	1x70	1,1	11,7	1,4	14,5	731	0,268	268	167	0,566
11844003	1x95	1,1	13,4	1,5	16,4	981	0,193	328	197	0,429
11850003	1x120	1,2	15,0	1,5	18,0	1.214	0,153	383	223	0,357
11856003	1x150	1,4	17,2	1,6	20,4	1.495	0,124	444	251	0,305
11862003	1x185	1,6	19,0	1,6	22,2	1.871	0,0991	510	281	0,260
11868003	1x240	1,7	21,3	1,7	24,8	2.363	0,0754	607	324	0,216
11873003	1x300	1,8	24,2	1,8	27,8	3.068	0,0601	703	365	0,188
11880003	1x400	2,0	27,0	1,9	30,2	4.110	0,0470	823	---	0,164
11889003	1x500	2,2	30,8	2,0	34,0	4.881	0,0366	946	---	0,145
11889503	1x630	2,4	35,5	2,2	39,1	6.268	0,0283	1088	---	0,129
11701003	2x1,5	0,7	2,7	1,8	9,1	103	12,10	26	25	21,500
11705003	2x2,5	0,7	3,1	1,8	9,9	131	7,41	36	33	13,206
11709003	2x4	0,7	3,6	1,8	10,8	169	4,61	49	43	8,252
11713003	2x6	0,7	4,1	1,8	11,8	217	3,08	63	53	5,536
11807003	2x10	0,7	5,0	1,8	13,7	333	1,83	86	71	3,322
11812003	2x16	0,7	6,0	1,8	15,6	472	1,15	115	91	2,117
11819003	2x25	0,9	7,7	1,8	18,9	783	0,727	149	116	1,370
11826003	2x35	0,9	8,7	1,8	21,0	1.015	0,524	185	136	1,009

- On the Air the current rating is in according to IEC 60364-5-52 table B.52.12, installation method F for single core cables, and installation method E for multicore cables.
- Buried the current rating is in according to IEC 60364-5-52, table B.52.5 for single core cables, and table B.52.3 for multicore cables, installation method D1.

➢ Nominal values subject to variation depending on manufacturing or standard tolerance.

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FR-N1 X1G1 0,6/1 kV

HIGH SECURITY CABLES

ALCOBRE
A MEMBER OF HENGTONG GROUP

PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section	Thickness of insulation	Nominal insulation diameter	Thickness of sheath	Nominal outer diameter	Nominal weight	Max. DC resistance conductor at 20ºC	Max. current rating		Voltage drop
								Air 30 ºC	Buried 20 ºC	Cos φ= 0,8
	nc x mm²	mm	mm	mm	Mm	kg/km	Ω/km	A	A	V/A.km
11702003	3x1,5	0,7	2,7	1,8	9,6	122	12,10	23	21	21,500
11706003	3x2,5	0,7	3,1	1,8	10,4	158	7,41	32	28	13,206
11710003	3x4	0,7	3,6	1,8	11,4	211	4,61	42	36	8,252
11714003	3x6	0,7	4,1	1,8	12,4	275	3,08	54	44	5,536
11808503	3x10	0,7	5,0	1,8	14,5	427	1,83	75	58	3,322
11813003	3x16	0,7	6,0	1,8	16,6	619	1,15	100	75	2,117
11827003	3x35	0,9	8,7	1,8	22,4	1.311	0,524	158	115	1,009
11834503	3x50	1,0	10,0	1,8	25,2	1.727	0,387	192	135	0,766
11845003	3x70	1,1	11,7	1,9	29,1	2.456	0,268	246	167	0,553
11846003	3x95	1,1	13,4	2,0	33,0	3.285	0,193	298	197	0,418
11852003	3x120	1,2	15,0	2,1	36,5	4.089	0,153	346	223	0,346
11858003	3x150	1,4	17,2	2,3	41,7	5.093	0,124	399	251	0,295
11863003	3x185	1,6	19,0	2,4	45,9	6.384	0,0991	456	281	0,251
11869003	3x240	1,7	21,3	2,6	51,3	8.078	0,0754	538	324	0,208
11703003	4x1,5	0,7	2,7	1,8	10,3	145	12,10	23	21	21,500
11707003	4x2,5	0,7	3,1	1,8	11,2	191	7,41	32	28	13,206
11711003	4x4	0,7	3,6	1,8	12,3	258	4,61	42	36	8,252
11715003	4x6	0,7	4,1	1,8	13,5	342	3,08	54	44	5,536
11809503	4x10	0,7	5,0	1,8	15,8	534	1,83	75	58	3,322
11816703	4x16	0,7	6,0	1,8	18,2	781	1,15	100	75	2,117
11824203	4x25	0,9	7,7	1,8	22,2	1.259	0,727	127	96	1,370
11830703	4x35	0,9	8,7	1,8	24,7	1.651	0,524	158	115	1,009
11837503	4x50	1,0	10,0	1,8	27,8	2.182	0,387	192	135	0,766
11843803	4x70	1,1	11,7	2,0	32,4	3.134	0,268	246	167	0,553
11846603	4x95	1,1	13,4	2,1	36,7	4.199	0,193	298	197	0,418
11855503	4x120	1,2	15,0	2,3	40,8	5.251	0,153	346	223	0,346
11861003	4x150	1,4	17,2	2,4	46,4	6.499	0,124	399	251	0,295
11866503	4x185	1,6	19,0	2,6	51,2	8.186	0,0991	456	281	0,251
11872003	4x240	1,7	21,3	2,8	57,3	10.358	0,0754	538	324	0,208
11704003	5x1,5	0,7	2,7	1,8	11,0	167	12,10	23	21	21,500
11708003	5x2,5	0,7	3,1	1,8	12,1	224	7,41	32	28	13,206
11711703	5x4	0,7	3,6	1,8	13,3	307	4,61	42	36	8,252
11716003	5x6	0,7	4,1	1,8	14,6	409	3,08	54	44	5,536
11810003	5x10	0,7	5,0	1,8	17,2	644	1,83	75	58	3,322
11817503	5x16	0,7	6,0	1,8	19,8	946	1,15	100	75	2,117
11824103	5x25	0,9	7,7	1,8	24,3	1.519	0,727	127	96	1,370

- On the Air the current rating is in according to IEC 60364-5-52 table B.52.12, installation method E.
- Buried the current rating is in according to IEC 60364-5-52, table B.52.5 installation method D1.
- ➢ Nominal values subject to variation depending on manufacturing or standard tolerance.

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HIGH SECURITY CABLES

HALOGEN FREE

ALCOBRE
A MEMBER OF HENGTONG GROUP

FR-N1 X1G1 -AR

Product group 139(C):2024-01 **Rated Voltage U_0/U - 0,6/1 kV**

CABLE STANDARDS

Construction

NF C32-323

IEC 60502-1

Fire performance

NF C32-070 Cat. C1

FR-EN 60332-3 / IEC 60332-3 Fire non-propagation

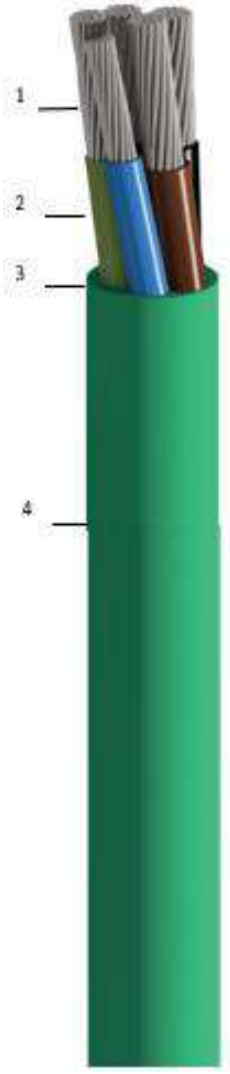
NF-EN 60332-1 / IEC 60332-1 Flame non-propagation

FR-EN 60754-2 / IEC 60754-2 Low corrosive gases emission

NF-EN 60754-1 / IEC 60754-1 LSHF (Low Smoke Halogen Free)

NF-EN 61034 / IEC 61034 Low smoke emission (Light transmittance > 80%)

EN 50575:2014+A1:2016 (CPR)



CABLE DESIGN

1. Conductor

Aluminium stranded class 2

according to IEC 60228 and EN 60228

2. Insulation

Cross-linked polyethylene (XLPE) according to IEC 60502-1

Core identification based to NF C32-323 Table 14

The order of the colours without Green/Yellow is as follows:

1 Core x	○ Natural
2 Core x	● Blue + ● Brown
3 Core x	● Brown + ● Black + ● Grey
4 Core x	● Blue + ● Brown + ● Black + ● Grey

The order of the colours with Yellow/Green is as follows:

3 Core G	● Blue + ● Brown + ◑ Green/Yellow
4 Core G	● Brown + ● Black + ● Grey + ◑ Green/Yellow
5 Core G	● Blue + ● Brown + ● Black + ● Grey + ◑ Green/Yellow

3. Inner covering

Optional for multiconductor cables.

Material suitable for the maximum service temperatures of the cable and compatible with the insulation material and the outer sheath.

4. Outer sheath

LSZH Halogen-free thermoplastic polyolefin, type ST8 according to IEC 60502-1,

and type DMZ-E according to UNE 21123-4, Green or Black color.

Marking of cables by printing on the outer sheath, according to the standard, or customer upon agreement.
The packaging labels of these cables include the CE marking according to the Construction Product Regulation UE N. 305/2011 articles 8 and 9.
Minimum content for the external marking of the cable. There may be additional marks respecting what is indicated in the cable construction regulations.

GENERAL APPLICATIONS

Halogen-free, low smoke and low corrosive gases emission in case of a fire.

Cable for use in public and industrial environments when properties against fire propagation, smoke emission, toxic and corrosive gases are required in case of fire. Industrial use on dry building columns where strict safety standards must be met. Good resistance to low temperatures, chemical agents, and general mechanical stress. It can be installed outdoors, in pipes or in cable trucking. May be placed directly on the ground for short periods if the soil is not flooded and if adequate mechanical protection is provided. It can be used in explosive areas, with adequate mechanical protection, but in case of permanent use, the current intensity is reduced by 15%.

APPROVALS

Range: 1 x (16 - 400) mm^2 ; 2 x (1,5 - 35) mm^2 ; 3 – 4 x (16 - 240) mm^2 ; 5 x (16 - 25) mm^2

CE · REACH Compliant · RoHS Compliant · CPR Construction Products Regulation C_{ca}-s1b,d1,a1 EN 50575

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FR-N1 X1G1 -AR 0,6/1 kV

HIGH SECURITY CABLES

CABLE SPECIFICATIONS & OTHER CHARACTERISTICS

ELECTRICAL PERFORMANCE

Rated Voltage: 0,6/1 kV A.C. (U_0/U) / 1,2 kV (*Um*)
1,8 kV D.C. (*Umax.*)

Voltage test: Alternating Current: 3,5 kV
Direct Current: 8,5 kV

FIRE PERFORMANCE

LSHF Low Smoke Halogen Free
based on UNE-EN 60754-1 / IEC 60754-1
(HCl <0,5 %, Fluor <0,1 %)

Flame non-propagation
based on UNE-EN 60332-1 / IEC 60332-1
(H≤425 mm)

Fire non-propagation (cat C)
based on UNE-EN 60332-3 / IEC 60332-3
(Fs ≤2 m --> flame source: 20,5 kW)

Low smoke emission
based on UNE-EN 61034 / IEC 61034
(Light transmittance > 80%)

REACTION TO FIRE (EN 50575:2014+A1:2016)

Class C_{ca}-s1b,d1,a1

C_{ca}: It satisfies the non-flame propagation test, with the requirement of non-fire propagation and emitted heat limits for this case.

Low heat generation EN 50399 Flame source: 20,5 kW)
Total heat released: THR ≤ 30 MJ, Maximum value
of the heat released: Peak HRR ≤ 60 kW
Indication of heat increase: FIGRA ≤ 300 W/s.

Low production and opacity of emitted smokes
s1: Total smoke production (TSP) ≤ 50 m2 & Peak
SPR ≤ 0,25 m2/s; EN 50399 (flame source: 20,5 kW).
s1b: s1 + 60% < Transmittance < 80 %
(UNE-EN 61034-2; IEC 61034-2).

Low production of flaming droplets
d1: No flaming droplets/particles persisting longer
than 10' occurs within 1200'.

Low acidity and conductivity of material gases
a1: pH≥ 4,3 conductivity < 2,5 µS/mm
(EN 60754-2; IEC 60754-2).

DECLARATION of PERFORMANCE

DoP: 034/rev.xx

System 1+ Notified body N. 0099

APPLICATIONS (FIXED INSTALLATION)

Industrial use / Public places

APPROVALS

CE / REACH / RoHS / CPR

PACKAGING

Available in drums

OTHERS

Meter by meter marking

CHEMICAL PERFORMANCE

Chemical & Oil resistance: acceptable

UV resistant based on EN 50618

MECHANICAL PERFORMANCE

Impact resistance

AG2 Medium severity

MINIMUM BENDING RADIUS

D: cable outer diameter (mm)

Installation, Handling and Fixed:
Single core: 15xD mm / Multi core 12xD mm

Bending nearby the temperature limits should be carried out extra carefully.

MAXIMUM PULLING FORCE (N):

The maximum pulling force must not exceed:

F = 30 x S (N), where "S" is the cross-sectional area of the conductors (mm^2) and 50 N/mm^2 is the permissible tensile stress for cables with copper conductors If the traction force is applied on the conductors.

F = 3 x (N), where D = overall diameter of the cable (mm) If the traction D^2 force is applied on the oversheath.

THERMAL PERFORMANCE

Maximum conductor temperatures:

Normal operation: 90ºC

Short circuit: 250ºC (t≤5s)

MINIMUM SERVICE TEMPERATURE

-40ºC (fixed and protected installations)

AMBIENT TEMPERATURE OF USE

Minimum: −30ºC (static, not exposed to possible mechanical damage, shocks or vibrations).
Maximum: 60ºC

WATER PERFORMANCE

Water resistance: AD5 jets in all directions

INSTALLATION CONDITIONS

In conducts

Open Air

Buried in ground (directly or in conduit)

Suitable methods of installation
It must be respected the methods of installation established by the standards and regulations that will affect each individual case.

Minimum temperature during installation: 0ºC
(on cable surface)

Outdoor use without direct and permanent exposure to UV radiation

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FR-N1 X1G1 -AR 0,6/1 kV

HIGH SECURITY CABLES

PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section	Thickness of insulation	Nominal insulation diameter	Thickness of sheath	Nominal outer diameter	Nominal weight	Max. DC resistance conductor at 20ºC	Max. current rating		Voltage drop
								Air 30 ºC	Buried 20 ºC	Cos φ= 0,8
	nc x mm²	mm	mm	mm	mm	kg/km	Ω/km	A	A	V/A.km
13902003	1x16	0,7	6,1	1,4	8,9	108	1,91	77	59	3,501
13903003	1x25	0,9	7,7	1,4	10,5	151	1,20	103	75	2,236
13904003	1x35	0,9	8,8	1,4	11,6	189	0,868	129	90	1,642
13905003	1x50	1,0	10,0	1,4	12,8	232	0,641	159	103	1,236
13906003	1x70	1,1	12,1	1,4	14,9	313	0,443	206	130	0,879
13907003	1x95	1,1	13,7	1,5	16,7	410	0,320	253	154	0,657
13908003	1x120	1,2	14,8	1,5	17,8	503	0,253	296	174	0,536
13909003	1x150	1,4	17,1	1,6	20,3	609	0,206	343	197	0,452
13910003	1x185	1,6	19,2	1,6	22,4	753	0,164	395	220	0,376
13911003	1x240	1,7	21,8	1,7	25,2	966	0,125	471	253	0,306
13912003	1x300	1,8	24,3	1,8	27,9	1.173	0,100	547	286	0,260
13913003	1x400	2,0	27,3	1,9	31,1	1.496	0,0778	663	----	0,219
13912103	2x16	0,7	6,1	1,8	15,8	283	1,91	91	71	3,478
13919003	2x25	0,9	7,7	1,8	18,9	479	1,20	108	90	2,217
13926003	2x35	0,9	8,8	1,8	21,2	609	0,868	135	108	1,625

- On the Air the current rating is in according to IEC 60364-5-52 table B.52.12, installation method F for single core cables, and installation method E for multicore cables.
- Buried the current rating is in according to IEC 60364-5-52, table B.52.5 for single core cables, and table B.52.3 for multicore cables, installation method D1.

➢ Nominal values subject to variation depending on manufacturing or standard tolerance.

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FR-N1 X1G1 -AR 0,6/1 kV

HIGH SECURITY CABLES

ALCOBRE
A MEMBER OF HENGTONG GROUP

PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section	Thickness of insulation	Nominal insulation diameter	Thickness of sheath	Nominal outer diameter	Nominal weight	Max. DC resistance conductor at 20ºC	Max. current rating		Voltage drop
								Air 30 ºC	Buried 20 ºC	Cos φ= 0,8
	nc x mm²	mm	mm	mm	mm	kg/km	Ω/km	A	A	V/A.km
13922703	3x16	0,7	6,1	1,8	16,8	333	1,91	100	75	2,117
13923003	3x25	0,9	7,7	1,8	20,2	548	1,20	127	96	1,370
13923403	3x35	0,9	8,8	1,8	22,7	700	0,868	158	115	1,009
13934003	3x50	1,0	10,0	1,8	25,2	875	0,641	192	135	0,766
13940003	3x70	1,1	12,1	1,9	29,9	1,225	0,443	246	167	0,553
13951303	3x95	1,1	13,7	2,0	33,5	1,585	0,320	298	197	0,418
13952003	3x120	1,2	14,8	2,1	36,2	1,951	0,253	346	223	0,346
13958003	3x150	1,4	17,1	2,3	41,6	2,432	0,206	399	251	0,295
13958403	3x185	1,6	19,2	2,4	46,3	3,045	0,164	456	281	0,251
13969003	3x240	1,7	21,8	2,6	52,3	3,925	0,125	538	324	0,208
13981003	3x50+35	1,0/0,9	10,0/8,8	1,8/1,8	25,2/22,7	862	0,641	192	135	0,766
13982003	3x70+50	1,1/1,0	12,1/10,0	1,9/1,8	29,9/25,2	1,268	0,443	246	167	0,553
13983003	3x95+50	1,1/1,0	13,7/10,0	2,0/1,8	33,5/25,2	1,583	0,320	298	197	0,418
13984003	3x120+70	1,2/1,1	14,8/12,1	2,1/1,9	36,2/29,9	2,023	0,253	346	223	0,346
13985003	3x150+70	1,4/1,1	17,1/12,1	2,3/1,9	41,6/29,9	2,408	0,206	399	251	0,295
13986003	3x185+70	1,6/1,1	19,2/12,1	2,4/1,9	46,3/29,9	3,035	0,164	456	281	0,251
13987003	3x240+95	1,7/1,1	21,8/13,7	2,6/2,0	52,3/33,5	3,890	0,125	538	324	0,208
13916703	4x16	0,7	6,1	1,8	16,9	371	1,91	77	59	3,478
13924203	4x25	0,9	7,7	1,8	20,8	549	1,20	97	75	2,217
13930703	4x35	0,9	8,8	1,8	23,5	709	0,868	120	90	1,625
13937503	4x50	1,0	10,0	1,8	26,4	896	0,641	146	106	1,221
13943803	4x70	1,1	12,1	2,0	33,2	1,281	0,443	187	130	0,867
13946503	4x95	1,1	13,7	2,0	33,5	1,585	0,320	298	197	0,418
13955503	4x120	1,2	14,8	2,3	40,5	2,084	0,253	263	174	0,526
13961003	4x150	1,4	17,1	2,4	46,2	2,534	0,206	304	197	0,443
13966503	4x185	1,6	19,2	2,6	51,7	3,193	0,164	347	220	0,368
13972003	4x240	1,7	21,8	2,8	58,4	4,114	0,125	409	253	0,252
13917503	5x16	0,7	6,1	1,8	20,0	447	1,91	77	59	3,478
13924103	5x25	0,9	7,7	1,8	24,3	660	1,20	97	75	2,217

- On the Air the current rating is in according to IEC 60364-5-52 table B.52.13, installation method E.
- Buried the current rating is in according to IEC 60364-5-52, table B.52.5 installation method D1.

➢ Nominal values subject to variation depending on manufacturing or standard tolerance.

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HIGH SECURITY CABLES

HALOGEN FREE

ALCOBRE
A MEMBER OF HENGTONG GROUP

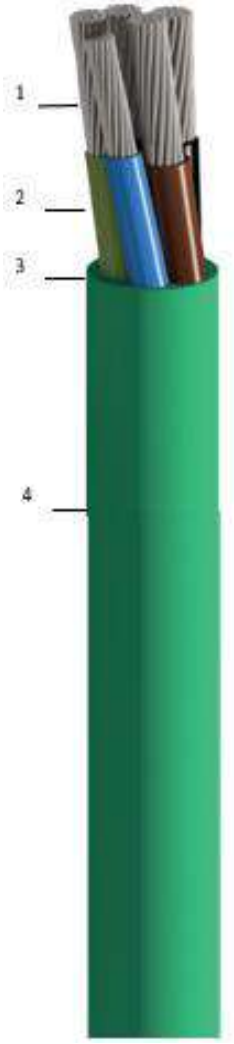
LXZ1 (frt,zh)

Product group 139(C):2024-01

Rated Voltage U_0/U - 0,6/1 kV

CABLE STANDARDS

Construction	Fire performance
IEC 60502-1	EN 60332-3 / IEC 60332-3 Fire non-propagation
HD 603 S1	EN 60332-1 / IEC 60332-1 Flame non-propagation
	EN 60754-2 / IEC 60754-2 Low corrosive gases emission
	EN 60754-1 / IEC 60754-1 LSHF (Low Smoke Halogen Free)
	EN 61034 / IEC 61034 Low smoke emission (Light transmittance > 60%)
	EN 50575:2014+A1:2016 / EN 13501-6 (CPR)



CABLE DESIGN

1. Conductor

Aluminium stranded class 2
according to IEC 60228 and EN 60228

2. Insulation

Cross-linked polyethylene (XLPE) according to IEC 60502-1
Core identification based to NF C32-323 Table 14
The order of the colours without Green/Yellow is as follows:

1 Core x	○ Natural
2 Core x	● Blue + ● Brown
3 Core x	● Brown + ● Black + ● Grey
4 Core x	● Blue + ● Brown + ● Black + ● Grey

The order of the colours with Yellow/Green is as follows:

3 Core G	● Blue + ● Brown + ◐ Green/Yellow
4 Core G	● Brown + ● Black + ● Grey + ◐ Green/Yellow
5 Core G	● Blue + ● Brown + ● Black + ● Grey + ◐ Green/Yellow

3. Inner covering

Optional for multiconductor cables.
Material suitable for the maximum service temperatures of the cable and compatible with the insulation material and the outer sheath.

4. Outer sheath

LSZH Halogen-free thermoplastic polyolefin, type ST8 according to IEC 60502-1,
and type DMZ-E according to UNE 21123-4, Green or Black color.

Marking of cables by printing on the outer sheath, according to the standard, or customer upon agreement.
The packaging labels of these cables include the CE marking according to the Construction Product Regulation UE N. 305/2011 articles 8 and 9.
Minimum content for the external marking of the cable. There may be additional marks respecting what is indicated in the cable construction regulations.

GENERAL APPLICATIONS

Halogen-free, low smoke and low corrosive gases emission in case of a fire.

Cable for use in public and industrial environments when properties against fire propagation, smoke emission, toxic and corrosive gases are required in case of fire. Industrial use on dry building columns where strict safety standards must be met. Good resistance to low temperatures, chemical agents, and general mechanical stress. It can be installed outdoors, in pipes or in cable trucking. May be placed directly on the ground for short periods if the soil is not flooded and if adequate mechanical protection is provided. It can be used in explosive areas, with adequate mechanical protection, but in case of permanent use, the current intensity is reduced by 15%.

APPROVALS

Range: 1 x (16 - 400) mm^2 ; 2 x (1,5 - 35) mm^2 ; 3 – 4 x (16 - 240) mm^2 ; 5 x (16 - 25) mm^2

CE · REACH COMPLIANT · RoHS Compliant · CPR Construction Products Regulation C_{ca}-s1b,d1,a1 EN 50575

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LXZ1 (frt,zh) 0,6/1 kV
HIGH SECURITY CABLES

CABLE SPECIFICATIONS & OTHER CHARACTERISTICS

ELECTRICAL PERFORMANCE

Rated Voltage: 0,6/1 kV A.C. (U_0/U) / 1,2 kV (*Um*)
1,8 kV D.C. (*Umax.*)

Voltage test: Alternating Current 3,5 kV
Direct Current: 8,5 kV

FIRE PERFORMANCE

LSHF Low Smoke Halogen Free
based on UNE-EN 60754-1 / IEC 60754-1
(HCl <0,5 %, Fluor <0,1 %)

Flame non-propagation
based on UNE-EN 60332-1 / IEC 60332-1
(H≤425 mm)

Fire non-propagation (cat C)
based on UNE-EN 60332-3 / IEC 60332-3
(Fs ≤2 m --> flame source: 20,5 kW)

Low smoke emission
based on UNE-EN 61034 / IEC 61034
(Light transmittance > 80%)

REACTION TO FIRE (EN 50575:2014+A1:2016)

Class C_{ca}-s1b,d1,a1

C_{ca}: It satisfies the non-flame propagation test, with the requirement of non-fire propagation and emitted heat limits for this case.

Low heat generation EN 50399 Flame source: 20,5 kW)
Total heat released: THR ≤ 30 MJ, Maximum value of the heat released: Peak HRR ≤ 60 kW
Indication of heat increase: FIGRA ≤ 300 W/s.

Low production and opacity of emitted smokes
s1: Total smoke production (TSP) ≤ 50 m2 & Peak SPR ≤ 0,25 m2/s; EN 50399 (flame source: 20,5 kW).
s1b: s1 + 60% < Transmittance < 80 %
(UNE-EN 61034-2; IEC 61034-2).

Low production of flaming droplets
d1: No flaming droplets/particles persisting longer than 10' occurs within 1200'.

Low acidity and conductivity of material gases
a1: pH≥ 4,3 conductivity < 2,5 µS/mm
(EN 60754-2; IEC 60754-2).

DECLARATION of PERFORMANCE

DoP: 034/rev.xx

System 1+ Notified body N. 0099

APPLICATIONS (FIXED INSTALLATION)

Industrial use / Public places

APPROVALS

CE / REACH / RoHS / CPR

PACKAGING

Available in drums

OTHERS

Meter by meter marking

CHEMICAL PERFORMANCE

Chemical & Oil resistance: acceptable

UV resistant based on EN 50618

MECHANICAL PERFORMANCE

Impact resistance

AG2 Medium severity

MINIMUM BENDING RADIUS

D: cable outer diameter (mm)

Installation, Handling and Fixed:

8xD (D<25) ; 10xD (25≤D ≤50) ; 12xD (D>50)

Bending nearby the temperature limits should be carried out extra carefully.

Minimum bending radii at cable temperature of 20 ºC (± 10ºC)

MAXIMUM PULLING FORCE (N):

The maximum pulling force must not exceed:

F = 30 x S (N), where "S" is the cross-sectional area of the conductors (mm^2) and 50 N/mm^2 is the permissible tensile stress for cables with copper conductors If the traction force is applied on the conductors.

F = 3 x (N), where D = overall diameter of the cable (mm) If the traction D^2 force is applied on the oversheath.

THERMAL PERFORMANCE

Maximum conductor temperatures:

Normal operation: 90ºC

Short circuit: 250ºC (t≤5s)

MINIMUM SERVICE TEMPERATURE

-40ºC (fixed and protected installations)

AMBIENT TEMPERATURE OF USE

Minimum: −30ºC (static, not exposed to possible mechanical damage, shocks or vibrations).
Maximum: 60ºC

WATER PERFORMANCE

Water resistance: AD5 jets in all directions

INSTALLATION CONDITIONS

In conducts

Open Air

Buried in ground (directly or in conduit)

Suitable methods of installation
It must be respected the methods of installation established by the standards and regulations that will affect each individual case.

Minimum temperature during installation: 0ºC
(on cable surface)

Outdoor use without direct and permanent exposure to UV radiation

ALCOBRE reserves the right to alter or modify the specifications and materials according to future technical development that may result in modifications to the technical data provided. The data contained in the technical specifications depend on manufacturing tolerance, or standards. Other constructions on request. Please contact us for latest information.

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LXZ1 (frt,zh) 0,6/1 kV

HIGH SECURITY CABLES

PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section	Thickness of insulation	Nominal insulation diameter	Thickness of sheath	Nominal outer diameter	Nominal weight	Max. DC resistance conductor at 20ºC	Max. current rating		Voltage drop
								Air 30 ºC	Buried 20 ºC	Cos φ= 0,8
	nc x mm²	mm	mm	mm	mm	kg/km	Ω/km	A	A	V/A.km
13902003	1x16	0,7	6,1	1,4	8,9	108	1,91	77	59	3,501
13903003	1x25	0,9	7,7	1,4	10,5	151	1,20	103	75	2,236
13904003	1x35	0,9	8,8	1,4	11,6	189	0,868	129	90	1,642
13905003	1x50	1,0	10,0	1,4	12,8	232	0,641	159	103	1,236
13906003	1x70	1,1	12,1	1,4	14,9	313	0,443	206	130	0,879
13907003	1x95	1,1	13,7	1,5	16,7	410	0,320	253	154	0,657
13908003	1x120	1,2	14,8	1,5	17,8	503	0,253	296	174	0,536
13909003	1x150	1,4	17,1	1,6	20,3	609	0,206	343	197	0,452
13910003	1x185	1,6	19,2	1,6	22,4	753	0,164	395	220	0,376
13911003	1x240	1,7	21,8	1,7	25,2	966	0,125	471	253	0,306
13912003	1x300	1,8	24,3	1,8	27,9	1.173	0,100	547	286	0,260
13913003	1x400	2,0	27,3	1,9	31,1	1.496	0,0778	663	----	0,219
13912103	2x16	0,7	6,1	1,8	15,8	283	1,91	91	71	3,478
13919003	2x25	0,9	7,7	1,8	18,9	479	1,20	108	90	2,217
13926003	2x35	0,9	8,8	1,8	21,2	609	0,868	135	108	1,625

- On the Air the current rating is in according to IEC 60364-5-52 table B.52.12, installation method F for single core cables, and installation method E for multicore cables.
- Buried the current rating is in according to IEC 60364-5-52, table B.52.5 for single core cables, and table B.52.3 for multicore cables, installation method D1.

➢ Nominal values subject to variation depending on manufacturing or standard tolerance.

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LXZ1 (frt,zh) 0,6/1 kV

HIGH SECURITY CABLES

ALCOBRE
A MEMBER OF HENGTONG GROUP

PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section	Thickness of insulation	Nominal insulation diameter	Thickness of sheath	Nominal outer diameter	Nominal weight	Max. DC resistance conductor at 20ºC	Max. current rating		Voltage drop Cos φ= 0,8
								Air 30 ºC	Buried 20 ºC	
	nc x mm²	mm	mm	mm	mm	kg/km	Ω/km	A	A	V/A.km
13922703	3x16	0,7	6,1	1,8	16,8	333	1,91	100	75	2,117
13923003	3x25	0,9	7,7	1,8	20,2	548	1,20	127	96	1,370
13923403	3x35	0,9	8,8	1,8	22,7	700	0,868	158	115	1,009
13934003	3x50	1,0	10,0	1,8	25,2	875	0,641	192	135	0,766
13940003	3x70	1,1	12,1	1,9	29,9	1,225	0,443	246	167	0,553
13951303	3x95	1,1	13,7	2,0	33,5	1,585	0,320	298	197	0,418
13952003	3x120	1,2	14,8	2,1	36,2	1,951	0,253	346	223	0,346
13958003	3x150	1,4	17,1	2,3	41,6	2,432	0,206	399	251	0,295
13958403	3x185	1,6	19,2	2,4	46,3	3,045	0,164	456	281	0,251
13969003	3x240	1,7	21,8	2,6	52,3	3,925	0,125	538	324	0,208
13981003	3x50+35	1,0/0,9	10,0/8,8	1,8/1,8	25,2/22,7	862	0,641	192	135	0,766
13982003	3x70+50	1,1/1,0	12,1/10,0	1,9/1,8	29,9/25,2	1,268	0,443	246	167	0,553
13983003	3x95+50	1,1/1,0	13,7/10,0	2,0/1,8	33,5/25,2	1,583	0,320	298	197	0,418
13984003	3x120+70	1,2/1,1	14,8/12,1	2,1/1,9	36,2/29,9	2,023	0,253	346	223	0,346
13985003	3x150+70	1,4/1,1	17,1/12,1	2,3/1,9	41,6/29,9	2,408	0,206	399	251	0,295
13986003	3x185+70	1,6/1,1	19,2/12,1	2,4/1,9	46,3/29,9	3,035	0,164	456	281	0,251
13987003	3x240+95	1,7/1,1	21,8/13,7	2,6/2,0	52,3/33,5	3,890	0,125	538	324	0,208
13916703	4x16	0,7	6,1	1,8	16,9	371	1,91	77	59	3,478
13924203	4x25	0,9	7,7	1,8	20,8	549	1,20	97	75	2,217
13930703	4x35	0,9	8,8	1,8	23,5	709	0,868	120	90	1,625
13937503	4x50	1,0	10,0	1,8	26,4	896	0,641	146	106	1,221
13943803	4x70	1,1	12,1	2,0	33,2	1,281	0,443	187	130	0,867
13946503	4x95	1,1	13,7	2,0	33,5	1,585	0,320	298	197	0,418
13955503	4x120	1,2	14,8	2,3	40,5	2,084	0,253	263	174	0,526
13961003	4x150	1,4	17,1	2,4	46,2	2,534	0,206	304	197	0,443
13966503	4x185	1,6	19,2	2,6	51,7	3,193	0,164	347	220	0,368
13972003	4x240	1,7	21,8	2,8	58,4	4,114	0,125	409	253	0,252
13917503	5x16	0,7	6,1	1,8	20,0	447	1,91	77	59	3,478
13924103	5x25	0,9	7,7	1,8	24,3	660	1,20	97	75	2,217

- On the Air the current rating is in according to IEC 60364-5-52 table B.52.13, installation method E.
- Buried the current rating is in according to IEC 60364-5-52, table B.52.5 installation method D1.
- ➢ Nominal values subject to variation depending on manufacturing or standard tolerance.

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HIGH SECURITY CABLES

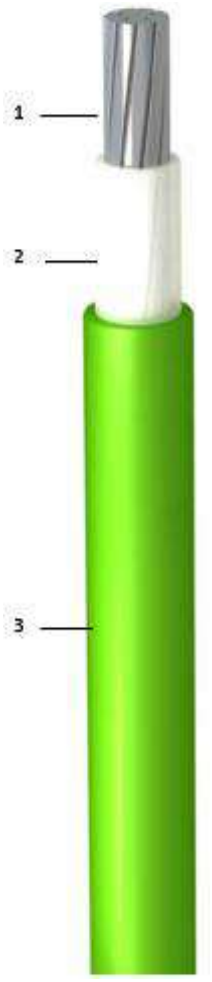
HALOGEN FREE

RZ1 (AS) AL

Product group 150(C):2024-01 | **Rated Voltage U_0/U - 0,6/1 kV**

CABLE STANDARDS

Construction	Fire performance
UNE 21123-4	UNE-EN 60332-3 / IEC 60332-3 Fire non-propagation
IEC 60502-1	UNE-EN 60332-1 / IEC 60332-1 Flame non-propagation
	UNE-EN 60754-2 / IEC 60754-2 Low corrosive gases emission
	UNE-EN 60754-1 / IEC 60754-1 LSHF (Low Smoke Halogen Free)
	UNE-EN 61034 / IEC 61034 Low smoke emission (Light transmittance > 60%)
	EN 50575 (CPR)



CABLE DESIGN

1. Conductor — Aluminium stranded class 2 according to IEC 60228 and EN 60228

2. Insulation — Cross-linked polyethylene (XLPE) according to IEC 60502-1

Core identification based to HD 308 S2 & UNE 21089-1

The order of the colours without Green/Yellow is as follows:

1 Core x	○ Natural
2 Core x	● Blue + ● Brown
3 Core x	● Brown + ● Black + ● Grey
4 Core x	● Blue + ● Brown + ● Black + ● Grey

The order of the colours with Yellow/Green is as follows:

3 Core G	● Blue + ● Brown + ◑ Green/Yellow
4 Core G	● Brown + ● Black + ● Grey + ◑ Green/Yellow
5 Core G	● Blue + ● Brown + ● Black + ● Grey + ◑ Green/Yellow

3. Outer sheath — LSZH Halogen-free thermoplastic polyolefin, type ST8 according to IEC 60502-1, and type DMZ-E according to UNE 21123-4, Green color.

Marking of cables by printing on the outer sheath, according to the standard, or customer upon agreement.
The packaging labels of these cables include the CE marking according to the Construction Product Regulation UE N. 305/2011 articles 8 and 9.
Minimum content for the external marking of the cable. There may be additional marks respecting what is indicated in the cable construction regulations.

GENERAL APPLICATIONS

Halogen-free, low smoke and low corrosive gases emission in case of a fire.

Cable for use in public and industrial environments when properties against fire propagation, smoke emission, toxic and corrosive gases are required in case of fire. Industrial use on dry building columns where strict safety standards must be met. Good resistance to low temperatures, chemical agents, solar radiation, and general mechanical stress.

Suitable for low temperatures and photovoltaic installations.

APPROVALS

Range **AENOR**: 1 x (16 - 400) mm^2 ; 4 x (16 - 50) mm^2 ; 5 x (16 - 25) mm^2

AENOR 042/001164 · CE · REACH Compliant · RoHS Compliant · CPR Construction Products Regulation C_{ca}-s1b,d1,a1 EN 50575

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RZ1 (AS) AL 0,6/1 kV
HIGH SECURITY CABLES

CABLE SPECIFICATIONS & OTHER CHARACTERISTICS

ELECTRICAL PERFORMANCE

Rated Voltage: 0,6/1 kV A.C. (U_0/U) / 1,2 kV (*Um*)
1,8 kV D.C. (*Umax.*)

Voltage test: Alternating Current: 3,5 kV
Direct Current: 8,5 kV

FIRE PERFORMANCE

LSHF Low Smoke Halogen Free
based on UNE-EN 60754-1 / IEC 60754-1
(HCl <0,5 %, Fluor <0,1 %)

Flame non-propagation
based on UNE-EN 60332-1 / IEC 60332-1
(H≤425 mm)

Fire non-propagation (cat C)
based on UNE-EN 60332-3 / IEC 60332-3
(Fs ≤2 m --> flame source: 20,5 kW)

Low smoke emission
based on UNE-EN 61034 / IEC 61034
(Light transmittance > 80%)

REACTION TO FIRE (EN 50575:2014+A1:2016)

Class C_{ca}-s1b,d1,a1

C_{ca}: It satisfies the non-flame propagation test, with the requirement of non-fire propagation and emitted heat limits for this case.

Low heat generation EN 50399 Flame source: 20,5 kW)
Total heat released: THR ≤ 30 MJ, Maximum value of the heat released: Peak HRR ≤ 60 kW
Indication of heat increase: FIGRA ≤ 300 W/s.

Low production and opacity of emitted smokes
s1: Total smoke production (TSP) ≤ 50 m2 & Peak SPR ≤ 0,25 m2/s; EN 50399 (flame source: 20,5 kW).
s1b: s1 + 60% < Transmittance < 80 %
(UNE-EN 61034-2; IEC 61034-2).

Low production of flaming droplets
d1: No flaming droplets/particles persisting longer than 10' occurs within 1200'.

Low acidity and conductivity of material gases
a1: pH≥ 4,3 conductivity < 2,5 µS/mm
(EN 60754-2; IEC 60754-2).

DECLARATION of PERFORMANCE

DoP: 035/rev.xx

System 1+ Notified body N. 0099

APPLICATIONS (FIXED INSTALLATION)

Industrial use / Public places

APPROVALS

AENOR / CE / REACH / RoHS / CPR

PACKAGING

Available in drums

OTHERS

Meter by meter marking

CHEMICAL PERFORMANCE

Chemical & Oil resistance: acceptable

UV resistant based on EN 50618

MECHANICAL PERFORMANCE

Impact resistance: AG2 Medium severity

MINIMUM BENDING RADIUS

D: cable outer diameter (mm)

Installation, Handling and Fixed:

8xD (D<25) ; 10xD (25≤D ≤50) ; 12xD (D>50)

Bending nearby the temperature limits should be carried out extra carefully.

Minimum bending radii at cable temperature of 20 ºC (± 10ºC)

MAXIMUM PULLING FORCE (N):

The maximum pulling force must not exceed:

F = 30 x S (N), where "S" is the cross-sectional area of the conductors (mm^2) and 50 N/mm^2 is the permissible tensile stress for cables with copper conductors If the traction force is applied on the conductors.

F = 3 x (N), where D = overall diameter of the cable (mm) If the traction D^2 force is applied on the oversheath.

THERMAL PERFORMANCE

Maximum conductor temperatures:

Normal operation: 90ºC

Short circuit: 250ºC (t≤5s)

MINIMUM SERVICE TEMPERATURE

-40ºC (fixed and protected installations)

AMBIENT TEMPERATURE OF USE

Minimum: −30ºC (static, not exposed to possible mechanical damage, shocks or vibrations).
Maximum: 60ºC

WATER PERFORMANCE

Water resistance: AD8 Submersion

INSTALLATION CONDITIONS

In conducts

Open Air

Buried (in conduit)

Suitable methods of installation
It must be respected the methods of installation established by the standards and regulations that will affect each individual case.

Minimum temperature during installation: -10ºC
(on cable surface)

Outdoor use without direct and permanent exposure to UV radiation

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RZ1 (AS) AL 0,6/1 kV

HIGH SECURITY CABLES

ALCOBRE
A MEMBER OF HENGTONG GROUP

PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section	Thickness of insulation	Nominal insulation diameter	Thickness of sheath	Nominal outer diameter	Nominal weight	Max. DC resistance conductor at 20ºC	Max. current rating		Voltage drop
								Air 30 ºC	Buried 20 ºC	Cos φ= 0,8
	nc x mm²	mm	mm	mm	mm	kg/km	Ω/km	A	A	V/A.km
15002003	1x16	0,7	6,1	1,4	8,9	112	1,91	77	59	3,501
15003003	1x25	0,9	7,7	1,4	10,5	157	1,20	103	75	2,236
15004003	1x35	0,9	8,8	1,4	11,6	196	0,868	129	90	1,642
15005003	1x50	1,0	10,0	1,4	12,8	238	0,641	159	103	1,236
15006003	1x70	1,1	12,1	1,4	14,9	323	0,443	206	130	0,879
15007003	1x95	1,1	13,7	1,5	16,7	422	0,320	253	154	0,657
15008003	1x120	1,2	14,8	1,5	17,8	518	0,253	296	174	0,536
15009003	1x150	1,4	17,1	1,6	20,3	627	0,206	343	197	0,452
15010003	1x185	1,6	19,2	1,6	22,4	775	0,164	395	220	0,376
15011003	1x240	1,7	21,8	1,7	25,2	995	0,125	471	253	0,306
15012003	1x300	1,8	24,3	1,8	27,9	1.208	0,100	547	286	0,260
15029003	1x400	2,0	27,3	1,9	31,1	1.541	0,0778	663	----	0,219
15016003	4x16	0,7	6,1	1,8	18,3	391	1,91	77	59	3,478
15023503	4x25	0,9	7,7	1,8	22,2	549	1,20	97	75	2,217
15030503	4x35	0,9	8,8	1,8	24,9	700	0,868	120	90	1,625
15037503	4x50	1,0	10,0	1,9	28,0	889	0,641	146	106	1,221
15016003	5x16	0,7	6,1	1,8	20,0	460	1,91	77	59	3,478
15023503	5x25	0,9	7,7	1,8	24,3	659	1,20	97	75	2,217

- On the Air the current rating is in according to IEC 60364-5-52 table B.52.13, installation method F for single core cables, and installation method E for multicore cables.
- Buried the current rating is in according to IEC 60364-5-52, table B.52.5 for single core cables, and table B.52.3 for multicore cables, installation method D1.

➢ Nominal values subject to variation depending on manufacturing or standard tolerance.

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XZ1 (S) AL

Product group 162(E):2024-01

Rated Voltage U_0/U - 0,6/1 kV

CABLE STANDARDS

Construction

UNE-HD 603-5X-1

HD 603 S1/A3

Fire performance

UNE-EN 60332-3 / IEC 60332-3 Fire non-propagation

UNE-EN 60332-1 / IEC 60332-1 Flame non-propagation

UNE-EN 60754-2 / IEC 60754-2 Low corrosive gases emission

UNE-EN 60754-1 / IEC 60754-1 LSHF (Low Smoke Halogen Free)

UNE-EN 61034 / IEC 61034 Low smoke emission (Light transmittance > 60%)

EN 50575 (CPR)

CABLE DESIGN

1. Conductor — Aluminium stranded class 2 according to IEC 60228 and EN 60228

2. Insulation — Cross-linked polyethylene (XLPE), type DIX-3 according to HD 603 S1

1 Core x ○ Natural

3. Outer sheath — LSZH Halogen-free thermoplastic polyolefin, type DMO-1 according to UNE-HD 603-5X-1. Black colour.

Marking of cables by printing on the outer sheath, according to the standard, or customer upon agreement.
The packaging labels of these cables include the CE marking according to the Construction Product Regulation UE N. 305/2011 articles 8 and 9.
Minimum content for the external marking of the cable. There may be additional marks respecting what is indicated in the cable construction regulations.

GENERAL APPLICATIONS

Halogen-free, low smoke and low corrosive gases emission in case of a fire.

Cable for use in public and industrial environments when properties against fire propagation, smoke emission, toxic and corrosive gases are required in case of fire. Industrial use on dry building columns where strict safety standards must be met. Good resistance to low temperatures, chemical agents, solar radiation, and general mechanical stress.

Suitable for low temperatures and photovoltaic installations.

APPROVALS

Range **AENOR**: 1 x (25 – 50 – 95 – 150 - 240) mm^2

Range **IBERDROLA and UNION FENOSA** D: 1 x (50 – 95 – 150 - 240) mm^2

Range **ENDESA**: 1 x (95 – 150 - 240) mm^2

AENOR 075/000106

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XZ1 (S) AL 0,6/1 kV
HIGH SECURITY CABLES

CABLE SPECIFICATIONS & OTHER CHARACTERISTICS

ELECTRICAL PERFORMANCE

Rated Voltage: 0,6/1 kV A.C. (U_0/U) / 1,2 kV (Um)
1,8 kV D.C. ($Umax.$)

Voltage test: Alternating Current 3,5 kV
Direct Current: 8,5 kV

FIRE PERFORMANCE

Flame non-propagation
based on UNE-EN 60332-1 / IEC 60332-1 (H≤425 mm)

Reduced halogen emission. Chlorine <15%

REACTION TO FIRE (EN 50575:2014+A1:2016)

Class E_{ca}

E_{ca}: It satisfies the non-flame propagation test, without additional classifications

DECLARATION of PERFORMANCE

DoP: 010/rev.**

System 3 Notified body N. 0028

APPLICATIONS (FIXED INSTALLATION)

Industrial use

Distribution network.

APPROVALS

AENOR / CE / REACH / RoHS / CPR

PACKAGING

Available in drums.

INSTALLATION CONDITIONS

In conduct

Open Air

Buried in ground (directly or in conduit)

Suitable methods of installation
It must be respected the methods of installation established by the standards and regulations that will affect each individual case.

Minimum temperature during installation: -10ºC
(on cable surface)

CHEMICAL PERFORMANCE

Chemical & Oil resistance: good

UV resistant based on UNE 211605

MECHANICAL PERFORMANCE

Impact resistance

AG2 Medium severity

MINIMUM BENDING RADIUS

D: cable outer diameter (mm)

Installation & Handling: 7xD (D<25) ; 9D (D >25)

Fixed: 6xD (D<25) ; 8D (D >25)

Bending nearby the temperature limits should be carried out extra carefully.

Minimum bending radii at cable temperature of 20ºC (± 10ºC)

MAXIMUM PULLING FORCE (N)

The maximum pulling force must not exceed:

F = 30 x S (N), where "S" is the cross-sectional area of the conductors (mm^2) and 30 N/mm^2 is the permissible tensile stress for cables with copper conductors If the traction force is applied on the conductors

F = 3 x (N), where D = overall diameter of the cable (mm) If the traction D^2 force is applied on the oversheath

THERMAL PERFORMANCE

Maximum conductor temperatures:

Normal operation: 90ºC
Short circuit: 250ºC (t≤5s)

MINIMUM SERVICE TEMPERATURE

-40 ºC (fixed and protected installations)

WATER PERFORMANCE

Water resistance: AD8 Submersion

OTHERS

Meter by meter marking

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PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section	Thickness of insulation	Nominal insulation diameter	Thickness of sheath	Nominal outer diameter	Nominal weight	Max. DC resistance conductor at 20ºC	Max. current rating		Voltage drop
								Air 30 ºC	Buried 20 ºC	Cos φ= 0,8
	nc x mm²	mm	mm	mm	mm	kg/km	Ω/km	A	A	V/A.km
16203001	1x25	0,9	7,7	1,3	10,3	148	1,20	135	96	2,235
16204001	1x35	0,9	8,8	1,3	11,4	186	0,868	169	115	1,639
16205001	1x50	1,0	10,0	1,3	12,6	230	0,641	207	135	1,234
16206001	1x70	1,1	12,1	1,4	14,9	320	0,443	268	167	0,876
16207001	1x95	1,1	13,7	1,4	16,5	411	0,320	328	197	0,654
16208001	1x120	1,2	14,8	1,4	17,6	505	0,253	383	223	0,534
16209001	1x150	1,4	17,1	1,4	19,9	603	0,206	444	251	0,449
16210001	1x185	1,6	19,2	1,5	22,2	760	0,164	510	281	0,373
16211001	1x240	1,7	21,8	1,5	24,8	964	0,125	607	324	0,303
16212001	1x300	1,8	24,3	1,6	27,5	1.174	0,100	703	365	0,257
16212501	1x400	2,0	27,3	1,6	30,5	1.487	0,0778	823	----	0,217

- On the Air the current rating is in according to IEC 60364-5-52 table B.52.12, installation method E.
- Buried the current rating is in according to IEC 60364-5-52, table B.52.5, installation method D1.

➢ Nominal values subject to variation depending on manufacturing or standard tolerance.

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VERY HIGH SECURITY CABLES

HALOGEN-FREE / FIRE RESISTANT

RZ1-K PH90 (AS+)

FXZ1 (frs,zh)

ALCOBRE
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HIGH SECURITY CABLES

HALOGEN FREE

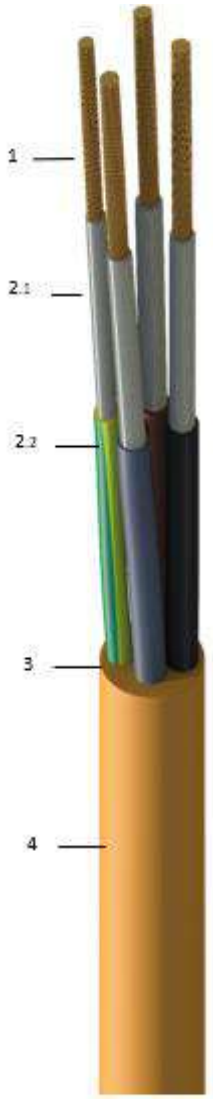
ALCOBRE
A MEMBER OF HENGTONG GROUP

RZ1-K PH90 (AS+)

Product group 132(C):2024-01 **Rated Voltage U_0/U - 0,6/1 kV**

CABLE STANDARDS

Construction	Fire performance
UNE 211025	UNE-EN 60332-3 / IEC 60332-3 Fire non-propagation
IEC 60502-1	UNE-EN 60332-1 / IEC 60332-1 Flame non-propagation
HD 603 S1	UNE-EN 60754-2 / IEC 60754-2 Low corrosive gases emission
	UNE-EN 60754-1 / IEC 60754-1 LSHF (Low Smoke Halogen Free)
	UNE-EN 61034 / IEC 61034 Low smoke emission (Light transmittance > 60%)
	EN 50575:2014+A1:2016 (CPR)



CABLE DESIGN

1. Conductor Flexible electrolytic annealed copper, class 5 (-K) according to IEC 60228 and EN 60228

2. Insulation Mineral ceramic fire-resistant tape

2.1 MICA
2.2 XLPE
Cross-linked polyethylene (XLPE) according to IEC 60502-1 and type DIX-3 according to HD 603 S1

Core identification based to HD 308 S2 & UNE 21089-1

The order of the colours without Green/Yellow is as follows:

1 Core x	○ Natural
2 Core x	● Blue + ● Brown
3 Core x	● Brown + ● Black + ● Grey
4 Core x	● Blue + ● Brown + ● Black + ● Grey
5 Core x	● Blue + ● Brown + ● Black + ● Grey + ● Black

The order of the colours with Yellow/Green is as follows:

3 Core G	● Blue + ● Brown + ◑ Green/Yellow
4 Core G	● Brown + ● Black + ● Grey + ◑ Green/Yellow
5 Core G	● Blue + ● Brown + ● Black + ● Grey + ◑ Green/Yellow

3. Inner covering Optional for multiconductor cables.

Material suitable for the maximum service temperatures of the cable and compatible with the insulation material and the outer sheath.

4. Outer sheath LSZH Halogen-free thermoplastic polyolefin, type ST8 according to IEC 60502-1.

Orange color.

Marking of cables by printing on the outer sheath, according to the standard, or customer upon agreement.
The packaging labels of these cables include the CE marking according to the Construction Product Regulation UE N. 305/2011 articles 8 and 9.
Minimum content for the external marking of the cable. There may be additional marks respecting what is indicated in the cable construction regulations

GENERAL APPLICATIONS

Low Smoke and Halogen-Free and fire-resistant power cable, for emergency circuits.

Fire resistant, halogen-free, high security cable, for power supply to priority security systems that should be maintained in function during a fire. Suitable for indoor use, fixed installations, in public areas such as hospitals, hotels, shopping malls, airports, underground railway networks, tunnels, communication centers, and, in general, in all places where it is required a high degree of protection of persons and assets or/and with a large number of people and electrical/electronic equipment.

They can also be used in exterior installations, since protected from solar radiation and never in contact with water

APPROVALS

Range: 1 x (6 - 400) mm^2; 2-3-4 x (1,5 - 240) mm^2 ; 5 x (1,5 - 150) mm^2 **(in the certification process)**

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RZ1-K PH90 (AS+)

HIGH SECURITY CABLES

ALCOBRE
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CABLE SPECIFICATIONS & OTHER CHARACTERISTICS

ELECTRICAL PERFORMANCE

Rated Voltage: 0,6/1 kV A.C. (U_0/U) / 1,2 kV (Um)
1,8 kV D.C. (Umax.)

Voltage test: Alternating Current: 3,5 kV
Direct Current: 8,5 kV

FIRE PERFORMANCE

Fire resistant 90' at 950ºC (cat C)
category C, W & Z based on BS 6387.

Fire resistant: (PH90) minimum 90 minutes at 840ºC
Based on EN 50200 and IEC 60331-2 for Ø cable < 20 mm.
Based on EN 50362 and IEC 60331-1 for Ø cable > 20 mm.
90' at 950ºC (cat C) category C, W & Z based on BS 6387.

LSHF Low Smoke Halogen Free
based on UNE-EN 60754-1 / IEC 60754-1
Flame non-propagation
based on UNE-EN 60332-1 / IEC 60332-1

Fire non-propagation (cat C)
based on UNE-EN 60332-3 / IEC 60332-3
Low smoke emission
based on UNE-EN 61034 / IEC 61034
(Light transmittance > 60%)

REACTION TO FIRE (EN 50575:2014+A1:2016)

Class C_{ca}-s1b,d1,a1

C_{ca}: It satisfies the non-flame propagation test, with the requirement of non-fire propagation and emitted heat limits for this case.

Low heat generation EN 50399 Flame source: 20,5 kW)
Total heat released: THR ≤ 30 MJ, Maximum value
of the heat released: Peak HRR ≤ 60 kW
Indication of heat increase: FIGRA ≤ 300 W/s

Low production and opacity of emitted smokes
s1: Total smoke production (TSP) ≤ 50 m2 & Peak
SPR ≤ 0,25 m2/s; EN 50399 (flame source: 20,5 kW)

s1b: s1 + 60% < Transmittance < 80 %
(UNE-EN 61034-2; IEC 61034-2)

Low production of flaming droplets
d1: No flaming droplets/particles persisting longer
than 10' occurs within 1200'

Low acidity and conductivity of material gases
a1: pH≥ 4,3 conductivity < 2,5 µS/mm
(EN 60754-2; IEC 60754-2)

DECLARATION of PERFORMANCE

DoP: 036/rev.xx

System 1+ Notified body N. 0099

APPLICATIONS (FIXED INSTALLATION)

Emergency circuits

Industrial use / Public places

APPROVALS

CE / REACH / RoHS / CPR

PACKAGING

Available in drums

OTHERS

Meter by meter marking

CHEMICAL PERFORMANCE

Chemical & Oil resistance: acceptable

UV resistant based on EN 50618 & UNE 211605

MECHANICAL PERFORMANCE

Impact resistance

AG2 Medium severity

MINIMUM BENDING RADIUS

D= Overall diameter of the outer cable (in mm)

Installation, Handling and Fixed:

6xD (D<25) ; 7xD (25≤D ≤50) ; 8xD (D>50)

Minimum bending radii at cable temperature of 20 ºC (± 10ºC)

HIGH FLEXIBILITY

Copper conductor class 5

MAXIMUM PULLING FORCE (N)

The maximum pulling force must not exceed:

F = 50 x S (N), where "S" is the cross-sectional area of the conductors (mm^2) and 50 N/mm^2 is the permissible tensile stress for cables with copper conductors If the traction force is applied on the conductors.

F = 5 x (N), where D = overall diameter of the cable (mm) If the traction D^2 force is applied on the oversheath.

THERMAL PERFORMANCE

Maximum conductor temperatures:

Normal operation: 90ºC
Short circuit: 250ºC (t≤5s)

MINIMUM SERVICE TEMPERATURE

-40ºC (fixed and protected installations)

AMBIENT TEMPERATURE OF USE:

Minimum: −30ºC (static, not exposed to possible mechanical damage, shocks or vibrations). Maximum: 60ºC

WATER PERFORMANCE

Water resistance: AD5 Jets

INSTALLATION CONDITIONS

In conducts

Open Air

Buried

Suitable methods of installation
It must be respected the methods of installation established by the standards and regulations that will affect each individual case.

Minimum temperature during installation: 0ºC
(on cable surface)

Outdoor use without direct and permanent exposure to UV radiation

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RZ1-K PH90 (AS+)

HIGH SECURITY CABLES

ALCOBRE
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PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section	Thickness of insulation	Nominal insulation diameter	Thickness of sheath	Nominal outer diameter	Nominal weight	Max. DC resistance conductor at 20ºC	Max. current rating Air 30 ºC	Voltage drop Cos φ= 0,8
	nc x mm²	mm	mm	mm	mm	kg/km	Ω/km	A	V/A.km
13200255	1x6	0,7	5,3	1,4	8,1	121	3,30	54	6,871
13200305	1x10	0,7	6,3	1,4	9,1	169	1,91	75	4,023
13200355	1x16	0,7	7,3	1,4	10,1	229	1,21	100	2,587
13200405	1x25	0,9	9,1	1,4	11,9	332	0,78	135	1,477
13200455	1x35	0,9	10,4	1,4	13,2	438	0,554	169	1,073
13200505	1x50	1,0	12,2	1,4	15,0	598	0,386	207	0,773
13200555	1x70	1,1	14,1	1,4	16,9	778	0,272	268	0,568
13200605	1x95	1,1	15,5	1,5	18,5	1.011	0,206	328	0,449
13200655	1x120	1,2	18,7	1,5	21,7	1.250	0,161	383	0,368
13200705	1x150	1,4	20,4	1,6	23,6	1.557	0,129	444	0,311
13200755	1x185	1,6	22,5	1,6	25,7	1.881	0,106	510	0,271
13200805	1x240	1,7	25,5	1,7	28,9	2.436	0,0801	607	0,223
13200855	1x300	1,8	26,4	2,0	30,4	3.026	0,0641	703	0,193
13200955	1x400	1,8	31,4	2,1	35,6	3.829	0,0486	823	0,164
13202105	2x1,5	0,7	3,7	1,8	11,0	138	13,3	26	27,260
13202155	2x2,5	0,7	4,2	1,8	12,0	172	7,98	36	16,401
13202205	2x4	0,7	4,7	1,8	13,0	217	4,95	49	10,211
13202255	2x6	0,7	5,3	1,8	14,2	275	3,30	63	6,835
13202305	2x10	0,7	6,3	1,8	16,2	388	1,91	86	3,993
13202355	2x16	0,7	7,3	1,8	18,2	527	1,21	115	2,561
13202405	2x25	0,9	9,1	1,8	21,8	773	0,78	149	1,684
13202455	2x35	0,9	10,4	1,8	24,4	1.018	0,554	185	1,211
13202505	2x50	1,0	12,2	1,9	28,2	1.400	0,386	225	0,876
13202555	2x70	1,1	14,1	1,9	32,0	1.829	0,272	289	0,642
13202605	2x95	1,1	15,5	2,0	35,0	2.340	0,206	352	0,506
13251005	2x120	1,2	18,7	2,1	41,6	2.974	0,161	410	0,413
13257005	2x150	1,4	20,4	2,2	45,2	3.666	0,129	473	0,349
13262505	2x185	1,6	22,5	2,3	49,6	4.449	0,106	542	0,303
13268705	2x240	1,7	25,5	2,5	56,0	5.749	0,0801	641	0,248

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RZ1-K PH90 (AS+)

HIGH SECURITY CABLES

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PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section	Thickness of insulation	Nominal insulation diameter	Thickness of sheath	Nominal outer diameter	Nominal weight	Max. DC resistance conductor at 20ºC	Max. current rating Air 30 ºC	Voltage drop Cos φ= 0,8
	nc x mm²	mm	mm	mm	mm	kg/km	Ω/km	A	V/A.km
13203105	3x1,5	0,7	3,7	1,8	11,6	163	13,3	23	27,260
13203155	3x2,5	0,7	4,2	1,8	12,7	208	7,98	32	16,401
13203205	3x4	0,7	4,7	1,8	13,8	269	4,95	42	10,211
13203255	3x6	0,7	5,3	1,8	15,1	346	3,30	54	6,835
13203305	3x10	0,7	6,3	1,8	17,3	499	1,91	75	3,993
13203355	3x16	0,7	7,3	1,8	19,4	688	1,21	100	2,561
13203405	3x25	0,9	9,1	1,8	23,3	1.019	0,78	127	1,458
13203455	3x35	0,9	10,4	1,8	26,1	1.355	0,554	158	1,057
13203505	3x50	1,0	12,2	1,9	30,2	1.877	0,386	192	0,759
13203555	3x70	1,1	14,1	1,9	34,3	2.465	0,272	246	0,556
13203605	3x95	1,1	15,5	2,0	37,5	3.179	0,206	298	0,438
13241405	3x120	1,2	18,7	2,1	44,6	4.005	0,161	346	0,358
13261203	3x150	1,4	20,4	2,3	48,7	4.979	0,129	399	0,302
13266503	3x185	1,6	22,5	2,4	53,4	6.064	0,106	456	0,262
13241003	3x240	1,7	25,5	2,6	60,3	7.841	0,0801	538	0,215
13204105	4x1,5	0,7	3,7	1,8	12,6	194	13,3	23	23,605
13204155	4x2,5	0,7	4,2	1,8	13,8	250	7,98	32	14,197
13204205	4x4	0,7	4,7	1,8	15,0	329	4,95	42	8,838
13204255	4x6	0,7	5,3	1,8	16,5	427	3,30	54	5,918
13204305	4x10	0,7	6,3	1,8	18,9	623	1,91	75	3,457
13204355	4x16	0,7	7,3	1,8	21,3	868	1,21	100	2,217
13204405	4x25	0,9	9,1	1,8	25,7	1.292	0,78	127	1,458
13204455	4x35	0,9	10,4	1,8	28,8	1.726	0,554	158	1,057
13204505	4x50	1,0	12,2	1,9	33,4	2.400	0,386	167	0,758
13204555	4x70	1,1	14,1	1,9	38,0	3.157	0,272	214	0,556
13204605	4x95	1,1	15,5	2,1	41,8	4.099	0,206	259	0,438
13241505	4x120	1,2	18,7	2,3	49,9	5.161	0,161	301	0,358
13261205	4x150	1,4	20,4	2,4	54,2	6.411	0,129	353	0,302
13266505	4x185	1,6	22,5	2,6	59,7	7.831	0,106	391	0,262
13240005	4x240	1,7	25,5	2,8	67,4	10.131	0,0801	468	0,215

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RZ1-K PH90 (AS+)

HIGH SECURITY CABLES

PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section	Thickness of insulation	Nominal insulation diameter	Thickness of sheath	Nominal outer diameter	Nominal weight	Max. DC resistance conductor at 20ºC	Max. current rating Air 30 ºC	Voltage drop Cos φ= 0,8
	nc x mm²	mm	mm	mm	mm	kg/km	Ω/km	A	V/A.km
13205105	5x1,5	0,7	3,7	1,8	13,6	228	13,3	23	23,605
13205155	5x2,5	0,7	4,2	1,8	15,0	295	7,98	32	14,197
13205205	5x4	0,7	4,7	1,8	16,3	391	4,95	42	8,838
13205255	5x6	0,7	5,3	1,8	18,0	511	3,30	54	5,918
13205305	5x10	0,7	6,3	1,8	20,7	750	1,91	75	3,456
13205355	5x16	0,7	7,3	1,8	23,4	1.052	1,21	100	2,216
13205405	5x25	0,9	9,1	1,8	28,2	1.570	0,78	127	1,457
13205455	5x35	0,9	10,4	1,8	31,7	2.104	0,554	158	1,057
13205505	5x50	1,0	12,2	2,0	37,0	2.941	0,386	167	0,758
13205555	5x70	1,1	14,1	2,1	42,3	3.884	0,272	214	0,556
13205605	5x95	1,1	15,5	2,3	46,5	5.048	0,206	259	0,438
13205555	5x120	1,2	18,7	2,4	55,3	6.373	0,161	301	0,358
13205605	5x150	1,4	20,4	2,6	60,3	7.936	0,129	353	0,305

- On the Air the current rating is in according to IEC 60364-5-52 table B.52.12, installation method F

➢ Nominal values subject to variation depending on manufacturing or standard tolerance.

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FXZ1 (frs,zh)

Product group 132(C):2024-01 — **Rated Voltage U_0/U - 0,6/1 kV**

CABLE STANDARDS

Construction	Fire performance
IEC 60502-1	EN 60332-3 / IEC 60332-3 Fire non-propagation
UNE 211025	EN 60332-1 / IEC 60332-1 Flame non-propagation
HD 603 S1	EN 60754-2 / IEC 60754-2 Low corrosive gases emission
	EN 60754-1 / IEC 60754-1 LSHF (Low Smoke Halogen Free)
	EN 61034 / IEC 61034 Low smoke emission (Light transmittance > 60%)
	EN 50575:2014+A1:2016 (CPR)

CABLE DESIGN

1. Conductor — Flexible electrolytic annealed copper, class 5 (-K) according to IEC 60228 and EN 60228

2. Insulation — Mineral ceramic fire-resistant tape

2.1 MICA
2.2 XLPE — Cross-linked polyethylene (XLPE) according to IEC 60502-1 and type DIX-3 according to HD 603 S1

Core identification based to HD 308 S2 & UNE 21089-1

The order of the colours without Green/Yellow is as follows:

1 Core x	○ Natural
2 Core x	Blue + Brown
3 Core x	Brown + Black + Grey
4 Core x	Blue + Brown + Black + Grey
5 Core x	Blue + Brown + Black + Grey + Black

The order of the colours with Yellow/Green is as follows:

3 Core G	Blue + Brown + Green/Yellow
4 Core G	Brown + Black + Grey + Green/Yellow
5 Core G	Blue + Brown + Black + Grey + Green/Yellow

3. Inner covering — Optional for multiconductor cables.
Material suitable for the maximum service temperatures of the cable and compatible with the insulation material and the outer sheath.

4. Outer sheath — LSZH Halogen-free thermoplastic polyolefin, type ST8 according to IEC 60502-1.
Orange color.

Marking of cables by printing on the outer sheath, according to the standard, or customer upon agreement.
The packaging labels of these cables include the CE marking according to the Construction Product Regulation UE N. 305/2011 articles 8 and 9.
Minimum content for the external marking of the cable. There may be additional marks respecting what is indicated in the cable construction regulations

GENERAL APPLICATIONS

Low Smoke and Halogen-Free and fire-resistant power cable, for emergency circuits.

Fire resistant, halogen-free, high security cable, for power supply to priority security systems that should be maintained in function during a fire. Suitable for indoor use, fixed installations, in public areas such as hospitals, hotels, shopping malls, airports, underground railway networks, tunnels, communication centers, and, in general, in all places where it is required a high degree of protection of persons and assets or/and with a large number of people and electrical/electronic equipment.

They can also be used in exterior installations, since protected from solar radiation and never in contact with water

APPROVALS

Range: 1 x (6 - 400) mm^2; 2-3-4 x (1,5 - 240) mm^2 ; 5 x (1,5 - 150) mm^2

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FXZ1 (frs,zh)
HIGH SECURITY CABLES

CABLE SPECIFICATIONS & OTHER CHARACTERISTICS

ELECTRICAL PERFORMANCE

Rated Voltage: 0,6/1 kV A.C. (U_0/U) / 1,2 kV (Um)
1,8 kV D.C. (Umax.)

Voltage test: Alternating Current 3,5 kV
Direct Current: 8,5 kV

FIRE PERFORMANCE

Fire resistant 90' at 950ºC (cat C)
category C, W & Z based on BS 6387.

Fire resistant: (PH90) minimum 90 minutes at 840ºC
Based on EN 50200 and IEC 60331-2 for Ø cable < 20 mm.
Based on EN 50362 and IEC 60331-1 for Ø cable > 20 mm.
90' at 950ºC (cat C) category C, W & Z based on BS 6387.

LSHF Low Smoke Halogen Free
based on UNE-EN 60754-1 / IEC 60754-1
Flame non-propagation
based on UNE-EN 60332-1 / IEC 60332-1

Fire non-propagation (cat C)
based on UNE-EN 60332-3 / IEC 60332-3
Low smoke emission
based on UNE-EN 61034 / IEC 61034
(Light transmittance > 60%)

REACTION TO FIRE (EN 50575:2014+A1:2016)

Class C_{ca}-s1b,d1,a1

C_{ca}: It satisfies the non-flame propagation test, with the requirement of non-fire propagation and emitted heat limits for this case.

Low heat generation EN 50399 Flame source: 20,5 kW)
Total heat released: THR ≤ 30 MJ, Maximum value of the heat released: Peak HRR ≤ 60 kW
Indication of heat increase: FIGRA ≤ 300 W/s

Low production and opacity of emitted smokes
s1: Total smoke production (TSP) ≤ 50 m2 & Peak SPR ≤ 0,25 m2/s; EN 50399 (flame source: 20,5 kW)

s1b: s1 + 60% < Transmittance < 80 %
(UNE-EN 61034-2; IEC 61034-2)

Low production of flaming droplets
d1: No flaming droplets/particles persisting longer than 10' occurs within 1200'

Low acidity and conductivity of material gases
a1: pH≥ 4,3 conductivity < 2,5 µS/mm
(EN 60754-2; IEC 60754-2)

DECLARATION of PERFORMANCE

DoP: 036/rev.xx

System 1+ Notified body N. 0099

APPLICATIONS (FIXED INSTALLATION)

Emergency circuits

Industrial use / Public places

APPROVALS

CE / REACH / RoHS / CPR

PACKAGING

Available in drums

OTHERS

Meter by meter marking

CHEMICAL PERFORMANCE

Chemical & Oil resistance: acceptable

UV resistant based on EN 50618 & UNE 211605

MECHANICAL PERFORMANCE

Impact resistance

AG2 Medium severity

MINIMUM BENDING RADIUS

D= Overall diameter of the outer cable (in mm)

Installation, Handling and Fixed:

6xD (D<25) ; 7xD (25≤D ≤50) ; 8xD (D>50)

Minimum bending radii at cable temperature of 20 ºC (± 10ºC)

HIGH FLEXIBILITY

Copper conductor class 5

MAXIMUM PULLING FORCE (N)

The maximum pulling force must not exceed:

F = 50 x S (N), where "S" is the cross-sectional area of the conductors (mm^2) and 50 N/mm^2 is the permissible tensile stress for cables with copper conductors If the traction force is applied on the conductors.

F = 5 x (N), where D = overall diameter of the cable (mm) If the traction D^2 force is applied on the oversheath.

THERMAL PERFORMANCE

Maximum conductor temperatures:

Normal operation: 90ºC
Short circuit: 250ºC (t≤5s)

MINIMUM SERVICE TEMPERATURE

-40ºC (fixed and protected installations)

AMBIENT TEMPERATURE OF USE:

Minimum: −30ºC (static, not exposed to possible mechanical damage, shocks or vibrations).
Maximum: 60ºC

WATER PERFORMANCE

Water resistance: AD5 Jets

INSTALLATION CONDITIONS

In conducts

Open Air

Buried

Suitable methods of installation
It must be respected the methods of installation established by the standards and regulations that will affect each individual case.

Minimum temperature during installation: 0ºC
(on cable surface)

Outdoor use without direct and permanent exposure to UV radiation

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PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section	Thickness of insulation	Nominal insulation diameter	Thickness of sheath	Nominal outer diameter	Nominal weight	Max. DC resistance conductor at 20ºC	Max. current rating Air 30 ºC	Voltage drop Cos φ= 0,8
	nc x mm²	mm	mm	mm	mm	kg/km	Ω/km	A	V/A.km
13200255	1x6	0,7	5,3	1,4	8,1	121	3,30	54	6,871
13200305	1x10	0,7	6,3	1,4	9,1	169	1,91	75	4,023
13200355	1x16	0,7	7,3	1,4	10,1	229	1,21	100	2,587
13200405	1x25	0,9	9,1	1,4	11,9	332	0,78	135	1,477
13200455	1x35	0,9	10,4	1,4	13,2	438	0,554	169	1,073
13200505	1x50	1,0	12,2	1,4	15,0	598	0,386	207	0,773
13200555	1x70	1,1	14,1	1,4	16,9	778	0,272	268	0,568
13200605	1x95	1,1	15,5	1,5	18,5	1.011	0,206	328	0,449
13200655	1x120	1,2	18,7	1,5	21,7	1.250	0,161	383	0,368
13200705	1x150	1,4	20,4	1,6	23,6	1.557	0,129	444	0,311
13200755	1x185	1,6	22,5	1,6	25,7	1.881	0,106	510	0,271
13200805	1x240	1,7	25,5	1,7	28,9	2.436	0,0801	607	0,223
13200855	1x300	1,8	26,4	2,0	30,4	3.026	0,0641	703	0,193
13200955	1x400	1,8	31,4	2,1	35,6	3.829	0,0486	823	0,164
13202105	2x1,5	0,7	3,7	1,8	11,0	138	13,3	26	27,260
13202155	2x2,5	0,7	4,2	1,8	12,0	172	7,98	36	16,401
13202205	2x4	0,7	4,7	1,8	13,0	217	4,95	49	10,211
13202255	2x6	0,7	5,3	1,8	14,2	275	3,30	63	6,835
13202305	2x10	0,7	6,3	1,8	16,2	388	1,91	86	3,993
13202355	2x16	0,7	7,3	1,8	18,2	527	1,21	115	2,561
13202405	2x25	0,9	9,1	1,8	21,8	773	0,78	149	1,684
13202455	2x35	0,9	10,4	1,8	24,4	1.018	0,554	185	1,211
13202505	2x50	1,0	12,2	1,9	28,2	1.400	0,386	225	0,876
13202555	2x70	1,1	14,1	1,9	32,0	1.829	0,272	289	0,642
13202605	2x95	1,1	15,5	2,0	35,0	2.340	0,206	352	0,506
13251005	2x120	1,2	18,7	2,1	41,6	2.974	0,161	410	0,413
13257005	2x150	1,4	20,4	2,2	45,2	3.666	0,129	473	0,349
13262505	2x185	1,6	22,5	2,3	49,6	4.449	0,106	542	0,303
13268705	2x240	1,7	25,5	2,5	56,0	5.749	0,0801	641	0,248

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PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section	Thickness of insulation	Nominal insulation diameter	Thickness of sheath	Nominal outer diameter	Nominal weight	Max. DC resistance conductor at 20ºC	Max. current rating Air 30 ºC	Voltage drop Cos φ= 0,8
	nc x mm²	mm	mm	mm	mm	kg/km	Ω/km	A	V/A.km
13203105	3x1,5	0,7	3,7	1,8	11,6	163	13,3	23	27,260
13203155	3x2,5	0,7	4,2	1,8	12,7	208	7,98	32	16,401
13203205	3x4	0,7	4,7	1,8	13,8	269	4,95	42	10,211
13203255	3x6	0,7	5,3	1,8	15,1	346	3,30	54	6,835
13203305	3x10	0,7	6,3	1,8	17,3	499	1,91	75	3,993
13203355	3x16	0,7	7,3	1,8	19,4	688	1,21	100	2,561
13203405	3x25	0,9	9,1	1,8	23,3	1.019	0,78	127	1,458
13203455	3x35	0,9	10,4	1,8	26,1	1.355	0,554	158	1,057
13203505	3x50	1,0	12,2	1,9	30,2	1.877	0,386	192	0,759
13203555	3x70	1,1	14,1	1,9	34,3	2.465	0,272	246	0,556
13203605	3x95	1,1	15,5	2,0	37,5	3.179	0,206	298	0,438
13241405	3x120	1,2	18,7	2,1	44,6	4.005	0,161	346	0,358
13261203	3x150	1,4	20,4	2,3	48,7	4.979	0,129	399	0,302
13266503	3x185	1,6	22,5	2,4	53,4	6.064	0,106	456	0,262
13241003	3x240	1,7	25,5	2,6	60,3	7.841	0,0801	538	0,215
13204105	4x1,5	0,7	3,7	1,8	12,6	194	13,3	23	23,605
13204155	4x2,5	0,7	4,2	1,8	13,8	250	7,98	32	14,197
13204205	4x4	0,7	4,7	1,8	15,0	329	4,95	42	8,838
13204255	4x6	0,7	5,3	1,8	16,5	427	3,30	54	5,918
13204305	4x10	0,7	6,3	1,8	18,9	623	1,91	75	3,457
13204355	4x16	0,7	7,3	1,8	21,3	868	1,21	100	2,217
13204405	4x25	0,9	9,1	1,8	25,7	1.292	0,78	127	1,458
13204455	4x35	0,9	10,4	1,8	28,8	1.726	0,554	158	1,057
13204505	4x50	1,0	12,2	1,9	33,4	2.400	0,386	167	0,758
13204555	4x70	1,1	14,1	1,9	38,0	3.157	0,272	214	0,556
13204605	4x95	1,1	15,5	2,1	41,8	4.099	0,206	259	0,438
13241505	4x120	1,2	18,7	2,3	49,9	5.161	0,161	301	0,358
13261205	4x150	1,4	20,4	2,4	54,2	6.411	0,129	353	0,302
13266505	4x185	1,6	22,5	2,6	59,7	7.831	0,106	391	0,262
13240005	4x240	1,7	25,5	2,8	67,4	10.131	0,0801	468	0,215

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PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section	Thickness of insulation	Nominal insulation diameter	Thickness of sheath	Nominal outer diameter	Nominal weight	Max. DC resistance conductor at 20ºC	Max. current rating Air 30 ºC	Voltage drop Cos φ= 0,8
	nc x mm²	mm	mm	mm	mm	kg/km	Ω/km	A	V/A.km
13205105	5x1,5	0,7	3,7	1,8	13,6	228	13,3	23	23,605
13205155	5x2,5	0,7	4,2	1,8	15,0	295	7,98	32	14,197
13205205	5x4	0,7	4,7	1,8	16,3	391	4,95	42	8,838
13205255	5x6	0,7	5,3	1,8	18,0	511	3,30	54	5,918
13205305	5x10	0,7	6,3	1,8	20,7	750	1,91	75	3,456
13205355	5x16	0,7	7,3	1,8	23,4	1.052	1,21	100	2,216
13205405	5x25	0,9	9,1	1,8	28,2	1.570	0,78	127	1,457
13205455	5x35	0,9	10,4	1,8	31,7	2.104	0,554	158	1,057
13205505	5x50	1,0	12,2	2,0	37,0	2.941	0,386	167	0,758
13205555	5x70	1,1	14,1	2,1	42,3	3.884	0,272	214	0,556
13205605	5x95	1,1	15,5	2,3	46,5	5.048	0,206	259	0,438
13205555	5x120	1,2	18,7	2,4	55,3	6.373	0,161	301	0,358
13205605	5x150	1,4	20,4	2,6	60,3	7.936	0,129	353	0,305

- On the Air the current rating is in according to IEC 60364-5-52 table B.52.12, installation method F

➢ Nominal values subject to variation depending on manufacturing or standard tolerance.

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5

ELECTROMAGNETIC PROTECTED CABLES

VHV / VHV (REN)

HN 33-S-34

ALCOBRE

A MEMBER OF HENGTONG GROUP

ELECTROMAGNETIC PROTECTED

PVC STANDARD SCREENED

ALCOBRE
A MEMBER OF HENGTONG GROUP

VHV / VHV (REN)

Product group 111(E):2024-01

Rated Voltage U_0/U - 0,6/1 kV

CABLE STANDARDS

Construction	Fire performance
IEC 60502-1	EN 60332-1 / IEC 60332-1 Flame non-propagation
ET-ECBT-CBS REN	EN 50575:2014+A1:2016 (CPR)

CABLE DESIGN

1. Conductor — Electrolytic annealed copper class 2, according to IEC 60228 and EN 60228

2. Insulation — Polyvinyl chloride, type PVC/A, according to IEC 60502-1.

≤ 5 Core: Identification based to IEC 60445 (ET-ECBT-CBS REN)

1 Core x	● Black
2 Core x	● Blue + ● Black
4 Core x	● Blue + ● Black + ● Brown + ● Grey

≥ 6 Core Identification based to IEC 60445 (ET-ECBT-CBS REN)

7 - 14 - 19 - 24 - 30 - 37 Core x	❶ Black numbered.

≤ 5 Core: Identification based to HD 308 S2

≥ 6 Core Identification based to EN 50334

The order of the colours without Green/Yellow is as follows:

1 Core x	○ Natural
2 Core x	● Blue + ● Brown
3 Core x	● Brown + ● Black + ● Grey
4 Core x	● Blue + ● Brown + ● Black + ● Grey
5 Core x	● Blue + ● Brown + ● Black + ● Grey + ● Black
≥ 6 Core x	❶ Black numbered.

The order of the colours with Green/Yellow is as follows:

3 Core G	● Blue + ● Brown + ◑ Green/Yellow
4 Core G	● Brown + ● Black + ● Grey + ◑ Green/Yellow
5 Core G	● Blue + ● Brown + ● Black + ● Grey + ◑ Green/Yellow
≥ 6 Core G	❶ Black numbered + ◑ Green/Yellow

3. Inner Sheath — Polyvinyl chloride, type PVC/A

4. Screen — CTS Copper tape, helical applied

5. Outer sheath — PVC polyvinyl chloride type ST2, according to EN 50363-4-1, Black color.

Marking of cables by printing on the outer sheath, according to the standard, or customer upon agreement.
The packaging labels of these cables include the CE marking according to the Construction Product Regulation UE N. 305/2011 articles 8 and 9.
Minimum content for the external marking of the cable. There may be additional marks respecting what is indicated in the cable construction regulations

GENERAL APPLICATIONS

Electrical cable for substation system

Fixed signaling, control and measurement or for fixed supply of auxiliary services. In industrial areas, power plants, substations (REN systems) and buildings. Suitable for electrical circuits that require protection from electrical or electromagnetic fields. Can be installed outdoors, in ducts, or directly buried.

APPROVALS

Range: 1 x (50 - 240) mm^2 ; 2 x (1,5 – 120) mm^2 ; 3 - 4 x (1,5 – 95) mm^2 ; 5 x (1,5 – 70) mm^2 ; 7 – 10 – 12 – 14 – 19 - 24 x (1,5 – 2,5) mm^2

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CABLE SPECIFICATIONS & OTHER CHARACTERISTICS

ELECTRICAL PERFORMANCE

Rated Voltage: 0,6/1 kV A.C. (U_0/U)

Voltage test: Alternating Current 3,5 kV (5 min.)
Direct Current: 8,5 kV

FIRE PERFORMANCE

Flame non-propagation
based on EN 60332-1 / IEC 60332-1 (H≤425 mm)

Reduced halogen emission. Chlorine <15%

REACTION TO FIRE (EN 50575:2014+A1:2016)

Class E_{ca}

E_{ca}: It satisfies the non-flame propagation test, without additional classifications

DECLARATION of PERFORMANCE

DoP: 030/rev.**

System 3 Notified body N. 0028

APPLICATIONS (FIXED INSTALLATION)

Substations systems / Industrial use

APPROVALS

REN / CE / REACH / RoHS / CPR

PACKAGING

Available in drums.

OTHERS

Meter by meter marking

INSTALLATION CONDITIONS

In conduct

Buried in ground (in conduit)

Suitable methods of installation
It must be respected the methods of installation established by the standards and regulations that will affect each individual case.

Minimum temperature during installation: 0ºC
(on cable surface)

CHEMICAL PERFORMANCE

Chemical & Oil resistance: acceptable

MECHANICAL PERFORMANCE

Impact resistance

AG2 Medium severity

MINIMUM BENDING RADIUS

D= Overall diameter of the outer cable (in mm)

Handling, during Installation and Fixed:
10xD (D ≤ 25); 12xD (D > 25)

Minimum bending radii at cable temperature of 20 ºC (± 10ºC)

MAXIMUM PULLING FORCE (N)

The maximum pulling force must not exceed:

F = 50 x S (N), where "S" is the cross-sectional area of the conductors (mm^2) and 50 N/mm^2 is the permissible tensile stress for cables with copper conductors If the traction force is applied on the conductors

F = 5 x (N), where D = overall diameter of the cable (mm) If the traction D^2 force is applied on the oversheath

MAXIMUM RESISTANCE OF THE SHIELD

In all cases, the direct current electrical resistance of the shield must be less than 4 mΩ /m at 20°C

THERMAL PERFORMANCE

Maximum conductor temperatures:

Normal operation: 70ºC
Short circuit: 160ºC (t≤5s)

MINIMUM SERVICE TEMPERATURE

-25 ºC (fixed and protected installations)

WATER PERFORMANCE

Water resistance: AD3 water sprays

AMBIENT TEMPERATURE OF USE:

Minimum: −15ºC (static, not exposed to possible mechanical damage, shocks or vibrations)
Maximum: 60ºC

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PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section	Nominal diameter under screen	Nominal over sheath	Nominal weight	Max. DC resistance conductor at 20ºC	Max. current rating		Voltage drop
						Air 30 ºC	Buried 20 ºC	Cos φ= 0,8
	nc x mm²	mm	mm	kg/km	Ω/km	A	A	V/A.km
11132901	1x50	12,8	17,0	769	0,387	167	116	0,751
11138001	1x70	14,3	18,5	1.009	0,268	216	143	0,548
11144001	1x95	16,4	20,6	1.308	0,193	264	169	0,421
11150001	1x120	17,8	22,0	1.565	0,153	308	192	0,349
11156001	1x150	20,0	24,2	1.887	0,124	356	217	0,3
11162001	1x185	21,8	26,0	2.309	0,0991	409	243	0,257
11197501	1x240	24,4	28,6	2.865	0,0754	485	280	0,216
11198501	1x300	27,8	32,8	3.756	0,0601	561	316	0,188
11080001	1x400	30,6	36,0	4.970	0,0470	656	----	0,166
11105001	2x1,5	8,4	12,6	269	12,10	22	21	20,178
11115501	2x2,5	9,3	13,5	318	7,41	30	29	12,394
11119001	2x4	10,4	14,6	386	4,61	40	37	7,752
11112701	2x6	10,9	15,1	436	3,08	51	46	5,209
11117001	2x10	13,3	17,5	611	1,83	70	60	3,13
11124501	2x16	15,2	19,4	798	1,15	94	79	1,998
11119601	2x25	18,5	22,7	1.136	0,727	119	99	1,296
11126001	2x35	20,6	25,2	1.438	0,524	148	119	0,957
11133001	2x50	23,6	28,2	1.842	0,387	180	140	0,726
11139010	2x70	27,0	32,0	2.493	0,268	232	173	0,526
11145001	2x95	31,6	37,0	3.345	0,193	282	204	0,401
11151001	2x120	34,3	39,7	3.983	0,153	328	231	0,332
11112501	3x1,5	8,9	12,5	289	12,10	19	18	20,178
11112601	3x2,5	9,7	13,3	335	7,41	25	24	12,394
11112801	3x4	11,6	15,2	439	4,61	34	30	7,752
11113001	3x6	12,9	16,2	482	3,08	43	38	5,209
11113001	3x10	14,7	18,0	649	1,83	60	50	3,130
11119001	3x16	18,1	21,3	989	1,15	80	64	1,998
11126001	3x25	20,0	23,1	1.262	0,727	101	82	1,296
11133001	3x35	20,8	24,1	1.436	0,524	126	98	0,957
11140501	3x50	25,4	29,6	1.980	0,387	153	116	0,726
11140601	3x70	27,6	31,2	2.598	0,268	196	143	0,526
11146601	3x95	31,7	35,7	3.482	0,193	238	169	0,401

- On the Air the current rating is in according to IEC 60364-5-52 table B.52.3, installation method F for single core cable, and table B.52.2, installation method E for multicore cables.
- Buried the current rating is in accordance to IEC 60364-5-52, table B.52.5, method of installation D1.

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VHV / VHV (REN)

PVC STANDARD SCREENED

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PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section	Nominal diameter under screen	Nominal over sheath	Nominal weight	Max. DC resistance conductor at 20ºC	Max. current rating		Voltage drop
						Air 30 ºC	Buried 20 ºC	Cos φ= 0,8
	nc x mm²	mm	mm	kg/km	Ω/km	A	A	V/A.km
11115001	3x16+10	17,8	21,0	992	1,15	80	64	1,998
11115101	3x25+16	21,2	24,5	1.435	0,727	101	82	1,296
11115201	3x35+16	22,7	26,0	1.652	0,524	126	98	0,957
11135301	3x50+25	26,7	30,3	2.268	0,387	153	116	0,728
11132001	3x70+35	30,1	34,0	3.062	0,268	196	143	0,527
11147001	3x95+50	34,6	40,0	4.101	0,193	238	169	0,401
11153001	3x120+70	38,2	42,7	5.182	0,153	276	192	0,333
11153201	3x150+70	42,0	46,6	6.104	0,124	319	217	0,285
11159001	3x185+95	46,4	51,1	7.572	0,0991	364	243	0,243
11170001	3x240+120	52,8	57,8	9.759	0,0754	430	280	0,203
11113501	4x1,5	9,7	13,4	325	12,10	19	18	20,178
11117701	4x2,5	10,6	14,3	384	7,41	25	24	12,394
11111501	4x4	12,7	16,1	465	4,61	34	30	7,752
11114501	4x6	14,2	17,5	577	3,08	43	38	5,209
11119501	4x10	16,2	19,6	791	1,83	60	50	3,130
11116001	4x16	18,3	21,6	1.072	1,15	80	64	1,998
11123501	4x25	22,1	25,4	0.554	0,727	101	82	1,296
11130501	4x35	22,7	26,0	1.842	0,524	126	98	0,957
11137501	4x50	26,7	30,4	2.498	0,387	153	116	0,726
11143501	4x70	31,1	34,1	3.386	0,268	196	143	0,526
11159001	4x95	34,6	40,0	4.582	0,193	238	169	0,401
11114001	5x1,5	10,6	14,0	386	12,10	19	18	20,178
11118101	5x2,5	11,7	15,2	439	7,41	25	24	12,394
11112201	5x4	14,0	17,4	546	4,61	34	30	7,752
11114601	5x6	15,6	19,0	679	3,08	43	38	5,209
11137801	5x10	17,9	21,2	931	1,83	60	50	3,130
11117501	5x16	20,3	23,5	1.269	1,15	80	64	1,998
11130501	5x25	24,6	27,9	1.874	0,727	101	82	1,296
11137501	5x35	27,1	30,7	2.429	0,524	126	98	0,957
11143601	5x50	32,3	36,4	3.322	0,387	153	116	0,726
11143901	5x70	36,4	40,6	4.467	0,268	196	143	0,526

- On the Air the current rating is in according to IEC 60364-5-52 table B.52.3, installation method E for three core cables.
- Buried the current rating is in according to IEC 60364-5-52, table B.52.4, method installation D1.

➢ Nominal values subject to variation depending on manufacturing or standard tolerance.

ALCOBRE reserves the right to alter or modify the specifications and materials according to future technical development that may result in modifications to the technical data provided. The data contained in the technical specifications depend on manufacturing tolerance, or standards. Other constructions on request. Please contact us for latest information.

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VHV / VHV (REN) (control)

PVC STANDARD SCREENED

PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section nc x mm²	Nominal diameter under screen mm	Nominal over sheath mm	Nominal weight kg/km	Max. DC resistance conductor at 20ºC Ω/km
11170901	7x1,5	12,2	15,3	501	12,10
11111401	7x2,5	13,5	17,7	623	7,41
11191201	10x1,5	15,2	15,3	625	12,10
11191301	10x2,5	17,0	15,3	777	7,41
11191221	12x1,5	16,0	20,2	702	12,10
11191221	12x1,5	16,0	20,2	702	12,10
11191431	14x1,5	16,8	21,0	848	12,10
11191421	14x2,5	18,7	22,9	1.068	7,41
11191911	19x1,5	19,0	23,6	976	12,10
11191921	19x2,5	21,2	25,8	1.238	7,41
11193411	24x1,5	22,0	26,2	1.209	12,10
11192421	24x2,5	24,4	28,6	1.462	7,41

- Nominal values subject to variation depending on manufacturing or standard tolerance.

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ELECTROMAGNETIC PROTECTED

PVC STANDARD SCREENED

ALCOBRE
A MEMBER OF HENGTONG GROUP

HN 33-S-34

Product group 110(E):2024-01 **Rated Voltage U_0/U - 0,6/1 kV**

CABLE STANDARDS

Construction	Fire performance
HN -33-S-34	NF C 32-070 (Cat C1)
HD 604 S1	EN 60332-1 / IEC 60332-1 Flame non-propagation
IEC 60502-1	EN 50575:2014+A1:2016 (CPR)

CABLE DESIGN

1. Conductor	Electrolytic annealed copper class 2, according to IEC 60228 and EN 60228
2. Insulation	Polyvinyl chloride, type PVC/A, according to IEC 60502-1. Black Insulated conductors (numbered, white print) ❶ Black numbered
3. Water Blockage	WB Water Blocking tape
4. Inner Sheath	Polyvinyl chloride, type PVC/A
5. Screen	CCT Corrugated copper tape applied
6. Outer sheath	PVC polyvinyl chloride type ST2, according to IEC 60502-1. Black color.

Marking of cables by printing on the outer sheath, according to the standard, or customer upon agreement.
The packaging labels of these cables include the CE marking according to the Construction Product Regulation UE N. 305/2011 articles 8 and 9.
Minimum content for the external marking of the cable. There may be additional marks respecting what is indicated in the cable construction regulations

GENERAL APPLICATIONS

Electrical cable for substation system

These cables are used in transformer stations. They are protected against electromagnetic interferences.

Can be installed outdoors, in ducts, or directly buried.

APPROVALS

Range: 1 x (50 - 240) mm^2 ; 2 - 3 x (1,5 - 50) mm^2 ; 4 x (1,5 - 35) mm^2 ; 5 x (1,5 - 16) mm^2
7 – 10 – 12 – 14 – 19 x (1,5 – 4) mm^2 ; 24 - 27x (1,5 – 2,8) mm^2

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TEL. +351 256 579 440 · www.alcobre.pt / sales@alcobre.pt / PE Filipe Silva

ALCOBRE reserves the right to alter or modify the specifications and materials according to future technical development that may result in modifications to the technical data provided.
The data contained in the technical specifications depend on manufacturing tolerance, or standards. Other constructions on request. Please contact us for latest information.

HN 33-S-34

PVC STANDARD SCREENED

CABLE SPECIFICATIONS & OTHER CHARACTERISTICS

ELECTRICAL PERFORMANCE

Rated Voltage: 0,6/1 kV A.C. (U_0/U)

Voltage test: Alternating Current 3,5 kV (5 min.)
Direct Current: 8,5 kV

FIRE PERFORMANCE

Flame non-propagation
based on EN 60332-1 / IEC 60332-1 (H≤425 mm)

Reduced halogen emission. Chlorine <15%

REACTION TO FIRE (EN 50575:2014+A1:2016)

Class E_{ca}

E_{ca}: It satisfies the non-flame propagation test, without additional classifications

DECLARATION of PERFORMANCE

DoP: 030/rev.**

System 3 Notified body N. 0028

APPLICATIONS (FIXED INSTALLATION)

Transformer stations / Substations systems

Industrial use

APPROVALS

CE / REACH / RoHS / CPR

PACKAGING

Available in drums.

OTHERS

Meter by meter marking

INSTALLATION CONDITIONS

In conduct

Buried in ground

Suitable methods of installation
It must be respected the methods of installation established by the standards and regulations that will affect each individual case.

Minimum temperature during installation: 0ºC
(on cable surface)

CHEMICAL PERFORMANCE

Chemical & Oil resistance: good

MECHANICAL PERFORMANCE

Impact resistance

AG2 Medium severity

MINIMUM BENDING RADIUS

D= Overall diameter of the outer cable (in mm)

Handling, during Installation and Fixed:
10xD (D ≤ 25); 12xD (D > 25)

Minimum bending radii at cable temperature of 20 ºC (± 10ºC)

MAXIMUM PULLING FORCE (N)

The maximum pulling force must not exceed:

F = 50 x S (N), where "S" is the cross-sectional area of the conductors (mm^2) and 50 N/mm^2 is the permissible tensile stress for cables with copper conductors If the traction force is applied on the conductors

F = 5 x (N), where D = overall diameter of the cable (mm) If the traction D^2 force is applied on the oversheath

MAXIMUM RESISTANCE OF THE SHIELD

In all cases, the direct current electrical resistance of the shield must be less than 2 mΩ /m at 20°C

THERMAL PERFORMANCE

Maximum conductor temperatures:

Normal operation: 75ºC
Short circuit: 160ºC (t≤5s)

MINIMUM SERVICE TEMPERATURE

-25 ºC (fixed and protected installations)

WATER PERFORMANCE

Water resistance: AD7 (immersion, limited to 2 months)

AMBIENT TEMPERATURE OF USE:

Minimum: −15ºC (static, not exposed to possible mechanical damage, shocks or vibrations)
Maximum: 60ºC

ALCOBRE reserves the right to alter or modify the specifications and materials according to future technical development that may result in modifications to the technical data provided. The data contained in the technical specifications depend on manufacturing tolerance, or standards. Other constructions on request. Please contact us for latest information.

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HN 33-S-34

PVC STANDARD SCREENED

ALCOBRE
A MEMBER OF HENGTONG GROUP

PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section	Nominal diameter under screen	Nominal over sheath	Nominal weight	Max. DC resistance conductor at 20ºC	Max. current rating Air 30 ºC	Voltage drop Cos φ= 0,8
	nc x mm²	mm	mm	kg/km	Ω/km	A	V/A.km
11032901	1x50	12,8	18,6	810	0,387	219	0,741
11033001	1x70	14,3	20,1	1.057	0,268	281	0,513
11044001	1x95	16,4	22,6	1.387	0,193	341	0,369
11096901	1x120	17,8	24,0	1.640	0,153	396	0,293
11097001	1x150	20,0	26,2	1.969	0,124	456	0,741
11097201	1x185	22,0	28,2	2.402	0,0991	521	0,190
11097501	1x240	24,6	31,2	2.999	0,0754	615	0,144
11001001	2x1,5	8,6	14,4	316	12,10	22	20,178
11005001	2x2,5	9,5	15,3	378	7,41	30	14,186
11009001	2x4	11,4	17,2	528	4,61	40	8,825
11002001	2x6	11,9	17,7	625	3,08	51	5,896
11007001	2x10	13,6	19,3	864	1,83	70	3,503
11024501	2x16	15,4	21,6	848	1,15	94	2,202
11019021	2x25	18,7	24,9	1.147	0,727	119	1,392
11026001	2x35	20,8	27,0	1.358	0,524	148	1,003
11026501	2x50	24,2	30,8	1.784	0,387	180	0,741
11002501	3x1,5	9,2	15,0	350	12,10	19	20,178
11006101	3x2,5	10,1	15,9	414	7,41	25	14,186
11002801	3x4	12,1	17,9	526	4,61	34	8,825
11013001	3x6	12,7	18,5	609	3,08	34	5,896
11015001	3x10	14,2	20,4	786	1,83	101	3,503
11017001	3x16	16,3	22,5	1.031	1,15	101	2,202
11022501	3x25	19,9	26,1	1.444	0,727	101	1,392
11027001	3x35	22,5	28,7	1.723	0,524	126	1,003
11028001	3x50	25,8	32,0	2.193	0,387	126	0,741
11003601	4x1,5	10,0	15,8	400	12,10	219	0,741
11007301	4x2,5	11,0	16,8	465	7,41	281	0,513
11011501	4x4	13,4	19,1	688	4,61	341	0,369
11004501	4x6	14,0	19,7	787	3,08	396	0,293
11009501	4x10	16,0	22,1	1.045	1,83	456	0,741
11016001	4x16	18,2	24,4	1.259	1,15	521	0,190
11023501	4x25	22,6	28,8	1.807	0,727	615	0,144
11024001	4x35	25,2	31,8	2.133	0,524	22	20,178
11007501	5x1,5	10,9	16,7	474	12,10	30	14,186
11008001	5x2,5	12,1	17,9	572	7,41	40	8,825
11012001	5x4	14,6	20,4	677	4,61	51	5,896
11004601	5x6	15,3	21,5	844	3,08	70	3,503
11010001	5x10	17,5	23,7	1.071	1,83	94	2,202
11017501	5x16	20,1	26,3	1.437	1,15	119	1,392

- On the Air the current rating is in according to IEC 60364-5-52 table B.52.10, installation method F for single core cables, and installation method E for multicore cables.

➢ Nominal values subject to variation depending on manufacturing or standard tolerance.

ALCOBRE reserves the right to alter or modify the specifications and materials according to future technical development that may result in modifications to the technical data provided. The data contained in the technical specifications depend on manufacturing tolerance, or standards. Other constructions on request. Please contact us for latest information.

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HN 33-S-34 (control)

PVC STANDARD SCREENED

ALCOBRE
A MEMBER OF HENGTONG GROUP

PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section nc x mm²	Nominal diameter under screen mm	Nominal over sheath mm	Nominal weight kg/km	Max. DC resistance conductor at 20ºC Ω/km
11070901	7x1,5	11,8	17,6	537	12,10
11011401	7x2,5	13,6	19,3	673	7,41
11011411	7x4	16,0	22,2	929	4,61
11011461	7x6	16,7	22,9	1.081	3,08
11091121	10x1,5	15,1	20,8	661	12,10
11091131	10x2,5	16,8	23,0	830	7,41
11091501	10x4	20,6	26,8	1.146	4,61
11091221	12x1,5	15,7	21,8	746	12,10
11091401	12x2,5	17,4	23,6	912	7,41
11091411	12x4	21,3	27,5	1.278	4,61
11091431	14x1,5	16,4	22,6	893	12,10
11091421	14x2,5	18,3	24,5	1.099	7,41
11091441	14x4	22,8	29,0	1.453	4,61
11091911	19x1,5	18,3	24,5	971	12,10
11091921	19x2,5	20,9	27,1	1.237	7,41
11092401	19x4	26,6	33,2	1.849	4,61
11093411	24x1,5	21,6	27,8	1.169	12,10
11093421	24x2,5	24,6	31,2	1.554	7,41
11093511	27x1,5	22,3	28,5	1.280	12,10
11093521	27x2,5	25,2	31,8	1.685	7,41

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6

AERIAL BUNDLE CABLES

XS

LXS

RZ Cu

RZ AL

AERIAL TORSADE

ABC – AERIAL BUNDLED CONDUCTOR

ALCOBRE
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AERIAL BUNDLE CABLES

COPPER AERIAL CABLES

ALCOBRE
A MEMBER OF HENGTONG GROUP

XS

Product group 140(A):2024-01

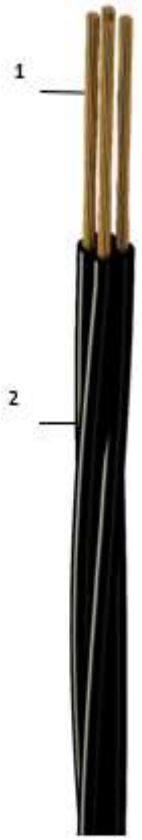
Rated Voltage U_0/U - 0,6/1 kV

CABLE STANDARDS

Construction	Fire performance
NP 3528 / HD 626	IEC 60754-1 / EN 60754-1
DMA C33-209	

CABLE DESIGN

1. Conductor	Electrolytic annealed copper class 2, according to IEC 60228 and EN 60228
2. Insulation	XLPE - Cross-linked polyethylene (with carbon black overload) Black Insulated conductors (numbered, white print)



The packaging labels of these cables include the CE marking according to the Construction Product Regulation UE N. 305/2011 articles 8 and 9. Minimum content for the external marking of the cable. There may be additional marks respecting what is indicated in the cable construction regulations

GENERAL APPLICATIONS

Cable for aerial distribution networks.

Cables for overhead power distribution systems mainly for public distribution.

Outdoor installation in overhead lines tightened between supports, lines attached to facades.

Excellent resistance to external agents.

Not suitable for installation directly underground.

APPROVALS

Range E-Redes (EDP-Electricity of Portugal): 2x4 mm^2

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CABLE SPECIFICATIONS & OTHER CHARACTERISTICS

ELECTRICAL PERFORMANCE

Rated Voltage: 0,6/1 kV A.C. (U_0/U)

Voltage test: Alternating Current 4 kV (5 min.)

FIRE PERFORMANCE

Based on IEC 60754-1 / EN 60754-1

REACTION TO FIRE (EN 50575:2014+A1:2016)

Class F_{ca} (if applicable)

F_{ca}: It satisfies the tests, without additional classifications

APPLICATIONS (FIXED INSTALLATION)

Industrial use

APPROVALS

E-REDES / CE / REACH / RoHS

PACKAGING

Available in drums.

OTHERS

Meter by meter marking

INSTALLATION CONDITIONS

Fixed

Outdoor installation in overhead lines tightened between supports, lines attached to facades.

Suitable methods of installation

It must be respected the methods of installation established by the standards and regulations that will affect each individual case.

Minimum temperature during installation: -10ºC (on cable surface)

CHEMICAL PERFORMANCE

Chemical & Oil resistance: good

Resistance to weathering and UV rays: excellent

MECHANICAL PERFORMANCE

Impact resistance

AG2 Medium severity

MAXIMUM PULLING FORCE (N)

The maximum pulling force must not exceed:

F = 50 x S (N), where "S" is the cross-sectional area of the conductors (mm^2) and 50 N/mm^2 is the permissible tensile stress for cables with copper conductors If the traction force is applied on the conductors

THERMAL PERFORMANCE

Maximum conductor temperatures:

Normal operation: 90ºC
Short circuit: 250ºC (t≤5s)

MINIMUM SERVICE TEMPERATURE

-15 ºC (fixed)

WATER PERFORMANCE

Water resistance: AD7 (immersion, limited to 2 months)

AMBIENT TEMPERATURE OF USE:

Minimum: −25ºC (static, not exposed to possible mechanical damage, shocks or vibrations)
Maximum: 70ºC

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PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section	Nominal overall diameter	Nominal weight	Max. DC resistance conductor at 20ºC	Max. current rating Air 40 ºC	Voltage drop Cos φ= 0,8
	nc x mm²	mm	kg/km	Ω/km	A	V/A.km
14010001	2x4	10,2	104	4,61	40	8,269
14030001	2x6	10,8	141	3,08	52	5,553
14050001	2x10	12,5	216	1,83	70	3,334
14060001	2x16	14,3	328	4,61	94	2,127
14011001	3x4	11,0	157	4,61	31	8,269
14031001	3x6	11,7	211	3,08	39	5,553
14020001	4x4	12,3	208	4,61	31	8,269
14040001	4x6	13,1	282	3,08	39	5,553
14053001	4x10	15,1	433	1,83	54	3,334
14063001	4x16	17,3	654	4,61	72	2,127
14026001	5x4	13,7	260	4,61	31	8,269
14046001	5x6	14,6	352	3,08	39	5,553
14055001	5x10	16,8	541	1,83	54	3,334
14065001	5x16	19.3	818	4,61	65	2,127

- On the Air the Maximum admissible intensities is in according to NP 3528 / DMA C33 209. Cables exposed to the sun.

➢ Nominal values subject to variation depending on manufacturing or standard tolerance.

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AERIAL BUNDLE CABLES

ALUMINIUM AERIAL CABLES

ALCOBRE
A MEMBER OF HENGTONG GROUP

LXS

Product group 141(A):2024-01

Rated Voltage U_0/U - 0,6/1 kV

CABLE STANDARDS

Construction	Fire performance
NP 3528 / HD 626	IEC 60754-1 / EN 60754-1
DMA C33-209	

CABLE DESIGN

1. Conductor	Aluminium stranded class 2 according to IEC 60228 and EN 60228
2. Insulation	Cross-linked polyethylene (with carbon black overload) Black Insulated conductors (numbered, white print)

The packaging labels of these cables include the CE marking according to the Construction Product Regulation UE N. 305/2011 articles 8 and 9. Minimum content for the external marking of the cable. There may be additional marks respecting what is indicated in the cable construction regulations

GENERAL APPLICATIONS

Cable for aerial distribution networks.

Cables for overhead power distribution systems mainly for public distribution.

Outdoor installation in overhead lines tightened between supports.

Excellent resistance to external agents.

Not suitable for installation directly underground.

APPROVALS

Range E-Redes (EDP-Electricity of Portugal): All sections standard

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CABLE SPECIFICATIONS & OTHER CHARACTERISTICS

ELECTRICAL PERFORMANCE

Rated Voltage: 0,6/1 kV A.C. (U_0/U)

Voltage test: Alternating Current 4 kV (5 min.)

FIRE PERFORMANCE

Based on IEC 60754-1 / EN 60754-1

REACTION TO FIRE (EN 50575:2014+A1:2016)

Class F_{ca} (if applicable)

F_{ca}: It satisfies the non-flame propagation test, without additional classifications

APPLICATIONS (FIXED INSTALLATION)

Industrial use

APPROVALS

E-REDES / CE / REACH / RoHS

PACKAGING

Available in drums.

OTHERS

Meter by meter marking

INSTALLATION CONDITIONS

Fixed

Outdoor installation in overhead lines tightened between supports, lines attached to facades.

Suitable methods of installation

It must be respected the methods of installation established by the standards and regulations that will affect each individual case.

Minimum temperature during installation: -10ºC (on cable surface)

CHEMICAL PERFORMANCE

Chemical & Oil resistance: good

Resistance to weathering and UV rays: excellent

MECHANICAL PERFORMANCE

Impact resistance

AG2 Medium severity

MAXIMUM PULLING FORCE (N)

The maximum pulling force must not exceed:

F = 30 x S (N), where "S" is the cross-sectional area of the conductors (mm^2) and 30 N/mm^2 is the permissible tensile stress for cables with copper conductors If the traction force is applied on the conductors

THERMAL PERFORMANCE

Maximum conductor temperatures:

Normal operation: 90ºC
Short circuit: 250ºC (t≤5s)

MINIMUM SERVICE TEMPERATURE

-15 ºC (fixed)

WATER PERFORMANCE

Water resistance: AD7 (immersion, limited to 2 months)

AMBIENT TEMPERATURE OF USE:

Minimum: −25ºC (static, not exposed to possible mechanical damage, shocks or vibrations)
Maximum: 70ºC

ALCOBRE reserves the right to alter or modify the specifications and materials according to future technical development that may result in modifications to the technical data provided. The data contained in the technical specifications depend on manufacturing tolerance, or standards. Other constructions on request. Please contact us for latest information.

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PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section	Nominal overall diameter	Nominal weight	Max. DC resistance conductor at 20ºC	Max. current rating Air 40 ºC	Voltage drop Cos φ= 0,8
	nc x mm²	mm	kg/km	Ω/km	A	V/A.km
14101001	2x16	15,2	133	1,91	85	3,489
14113201	2x25	18,3	204	1,20	97	2,226
14113401	2x35	21,4	283	0,868	120	1,632
14101501	3x16	16,0	204	1,91	75	3,489
14102001	4x16	18,0	272	1,91	75	3,489
14113501	4x25	18,5	407	1,20	97	2,226
14123501	4x35	24,7	549	0,868	120	1,632
14133501	4x50	29,5	714	0,641	150	1,229
14143001	4x70	31,0	892	0,443	190	0,860
14153501	4x95	37,5	1.341	0,320	230	0,652
14163501	4x120	39,8	1.694	0,253	242	0,468
14102501	5x16	21,0	325	1,91	75	3,489
14114001	4x25+16	19,0	475	1,20	100	2,226
14124001	4x35+16	26,0	612	0,868	120	1,632
14134001	4x50+16	30,5	782	0,641	150	1,229
14144001	4x70+16	33,0	1.090	0,443	190	0,860
14150001	4x95+16	39,0	1.404	0,320	230	0,652
14114501	4x25+2x16	21,0	527	1,20	100	2,226
14124501	4x35+2x16	28,0	677	0,868	120	1,632
14134501	4x50+2x16	32,0	782	0,641	150	1,229
14145501	4x70+2x16	35,0	1.090	0,443	190	0,860

- On the Air the maximum admissible intensities is in according to NP 3528 / DMA C33 209 / HD626. Cables exposed to the sun.

➢ Nominal values subject to variation depending on manufacturing or standard tolerance.

ALCOBRE reserves the right to alter or modify the specifications and materials according to future technical development that may result in modifications to the technical data provided. The data contained in the technical specifications depend on manufacturing tolerance, or standards. Other constructions on request. Please contact us for latest information.

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AERIAL BUNDLE CABLES

COPPER AERIAL CABLES

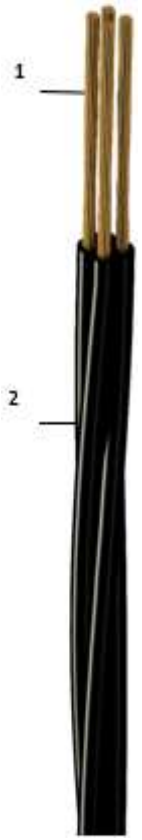
RZ CU

Product group 143(A):2024-01

Rated Voltage U_0/U - 0,6/1 kV

CABLE STANDARDS

Construction	Fire performance
UNE 21030-2	IEC 60754-1 / EN 60754-1



CABLE DESIGN

3. Conductor	Electrolytic annealed copper class 2, according to IEC 60228 and EN 60228
4. Insulation	Cross-linked polyethylene (with carbon black overload) Black Insulated conductors (numbered, white print)

The packaging labels of these cables include the CE marking according to the Construction Product Regulation UE N. 305/2011 articles 8 and 9. Minimum content for the external marking of the cable. There may be additional marks respecting what is indicated in the cable construction regulations

GENERAL APPLICATIONS

Cable for aerial distribution networks.

Cables for overhead power distribution systems mainly for public distribution.

Outdoor installation in overhead lines tightened between supports, lines attached to facades.

Excellent resistance to external agents.

Not suitable for installation directly underground.

APPROVALS

Range: All sections standard

ALCOBRE reserves the right to alter or modify the specifications and materials according to future technical development that may result in modifications to the technical data provided. The data contained in the technical specifications depend on manufacturing tolerance, or standards. Other constructions on request. Please contact us for latest information.

RZ CU
COPPER AERIAL CABLES

CABLE SPECIFICATIONS & OTHER CHARACTERISTICS

ELECTRICAL PERFORMANCE

Rated Voltage: 0,6/1 kV A.C. (U_0/U)

Voltage test: Alternating Current 4 kV (5 min.)

FIRE PERFORMANCE

Based on IEC 60754-1 / EN 60754-1

REACTION TO FIRE (EN 50575:2014+A1:2016)

Class F_{ca} (if applicable)

F_{ca}: It satisfies the tests, without additional classifications

APPLICATIONS (FIXED INSTALLATION)

Industrial use

APPROVALS

CE / REACH / RoHS

PACKAGING

Available in drums.

OTHERS

Meter by meter marking

INSTALLATION CONDITIONS

Fixed

Outdoor installation in overhead lines tightened between supports, lines attached to facades.

Suitable methods of installation

It must be respected the methods of installation established by the standards and regulations that will affect each individual case.

Minimum temperature during installation: -10ºC (on cable surface)

CHEMICAL PERFORMANCE

Chemical & Oil resistance: good

Resistance to weathering and UV rays: excellent

MECHANICAL PERFORMANCE

Impact resistance

AG2 Medium severity

MAXIMUM PULLING FORCE (N)

The maximum pulling force must not exceed:

F = 50 x S (N), where "S" is the cross-sectional area of the conductors (mm^2) and 50 N/mm^2 is the permissible tensile stress for cables with copper conductors If the traction force is applied on the conductors

THERMAL PERFORMANCE

Maximum conductor temperatures:

Normal operation: 90ºC
Short circuit: 250ºC (t≤5s)

MINIMUM SERVICE TEMPERATURE

-15 ºC (fixed)

WATER PERFORMANCE

Water resistance: AD7 (immersion, limited to 2 months)

AMBIENT TEMPERATURE OF USE:

Minimum: −25ºC (static, not exposed to possible mechanical damage, shocks or vibrations)
Maximum: 70ºC

ALCOBRE reserves the right to alter or modify the specifications and materials according to future technical development that may result in modifications to the technical data provided. The data contained in the technical specifications depend on manufacturing tolerance, or standards. Other constructions on request. Please contact us for latest information.

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PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre Code	Cross Section	Nominal overall diameter	Nominal weight	Max. DC resistance conductor at 20ºC	Max. current rating Air 40 ºC	Voltage drop Cos φ= 0,8
	nc x mm²	mm	kg/km	Ω/km	A	V/A.km
14310001	2x4	10,2	104	41	40	8,269
14330001	2x6	10,8	141	55	52	5,553
14350001	2x10	12,5	216	50	70	3,334
14360001	2x16	14,3	328	57	94	2,127
14311001	3x4	11,0	157	44	31	8,269
14331001	3x6	11,7	211	55	39	5,553
14320001	4x4	12,3	208	49	31	8,269
14340001	4x6	13,1	282	55	39	5,553
14353001	4x10	15,1	433	60	54	3,334
14363001	4x16	17,3	654	69	72	2,127
14326001	5x4	13,7	260	55	31	8,269
14346001	5x6	14,6	352	55	39	5,553
14355001	5x10	16,8	541	67	54	3,334
14365001	5x16	19.3	818	77	65	2,127

- On the Air the Maximum admissible intensities is in according to UNE 211435, table A.2, cables exposed to the sun.

➢ Nominal values subject to variation depending on manufacturing or standard tolerance.

ALCOBRE reserves the right to alter or modify the specifications and materials according to future technical development that may result in modifications to the technical data provided. The data contained in the technical specifications depend on manufacturing tolerance, or standards. Other constructions on request. Please contact us for latest information.

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RZ AL

Product group 144(A):2024-01

Rated Voltage U_0/U - 0,6/1 kV

CABLE STANDARDS

Construction	Fire performance
UNE 21030-1	IEC 60754-1 / EN 60754-1

CABLE DESIGN

1. Conductor	AAC - Aluminium stranded class 2 AAAC – Almelec 29,5 / 54,6 / 80 mm^2 (when applicable) according to IEC 60228 and EN 60228
2. Insulation	Cross-linked polyethylene (with carbon black overload) Black Insulated conductors (numbered, white print)

The packaging labels of these cables include the CE marking according to the Construction Product Regulation UE N. 305/2011 articles 8 and 9. Minimum content for the external marking of the cable. There may be additional marks respecting what is indicated in the cable construction regulations

GENERAL APPLICATIONS

Cable for aerial distribution networks.

Cables for overhead power distribution systems mainly for public distribution.
Outdoor installation in overhead lines tightened between supports.
Excellent resistance to external agents.
Not suitable for installation directly underground.

APPROVALS

Range **AENOR**: 2 x 16 Al; 2 x 25 Al; 4 x 16 Al; 4 x 25 Al; 4 x 50 Al; 3 x 95/50 Al; 3 x 150/95 Al; 1 x 25 Al/54,6 Alm; 1 x 50 Al/54,6 Alm; 3 x 25 Al/29,5 Alm; 3 x 25 Al/54,6 Alm; 3 x 50 Al/29,5 Alm; 3 x 50 Al/54,6 Alm; 3 x 95 Al/54,6 Alm; 3 x 150 Al/80 Alm

ALCOBRE reserves the right to alter or modify the specifications and materials according to future technical development that may result in modifications to the technical data provided. The data contained in the technical specifications depend on manufacturing tolerance, or standards. Other constructions on request. Please contact us for latest information.

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CABLE SPECIFICATIONS & OTHER CHARACTERISTICS

ELECTRICAL PERFORMANCE

Rated Voltage: 0,6/1 kV A.C. (U_0/U)

Voltage test: Alternating Current 4 kV (5 min.)

FIRE PERFORMANCE

Based on IEC 60754-1 / EN 60754-1

REACTION TO FIRE (EN 50575:2014+A1:2016)

Class F_{ca} (if applicable)

F_{ca}: It satisfies tests, without additional classifications

APPLICATIONS (FIXED INSTALLATION)

Industrial use

APPROVALS

AENOR / CE / REACH / RoHS

PACKAGING

Available in drums.

OTHERS

Meter by meter marking

INSTALLATION CONDITIONS

Fixed

Outdoor installation in overhead lines tightened between supports, lines attached to facades.

Suitable methods of installation

It must be respected the methods of installation established by the standards and regulations that will affect each individual case.

Minimum temperature during installation: -10ºC (on cable surface)

CHEMICAL PERFORMANCE

Chemical & Oil resistance: good

Resistance to weathering and UV rays: excellent

MECHANICAL PERFORMANCE

Impact resistance

AG2 Medium severity

MAXIMUM PULLING FORCE (N)

The maximum pulling force must not exceed:

F = 30 x S (N), where "S" is the cross-sectional area of the conductors (mm^2) and 30 N/mm^2 is the permissible tensile stress for cables with copper conductors If the traction force is applied on the conductors

THERMAL PERFORMANCE

Maximum conductor temperatures:

Normal operation: 90ºC
Short circuit: 250ºC (t≤5s)

MINIMUM SERVICE TEMPERATURE

-15 ºC (fixed)

WATER PERFORMANCE

Water resistance: AD7 (immersion, limited to 2 months)

AMBIENT TEMPERATURE OF USE:

Minimum: −25ºC (static, not exposed to possible mechanical damage, shocks or vibrations)
Maximum: 70ºC

ALCOBRE reserves the right to alter or modify the specifications and materials according to future technical development that may result in modifications to the technical data provided. The data contained in the technical specifications depend on manufacturing tolerance, or standards. Other constructions on request. Please contact us for latest information.

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PHYSICAL AND ELECTRICAL CHARACTERISTICS

Type	Alcobre code	Cross Section nc x mm²	Nominal overall diameter mm	Nominal weight kg/km	Minimum bending radius mm	Maximum current rating Air 40 ºC A	Voltage drop Cos φ= 0,8 V/A.km
without neutral suspension	14400901	2x16	14,4	132	60	81	3,489
	14401901	2x25	17,4	205	70	109	2,226
	14401401	4x16	17,5	265	70	72	3,489
	14402501	4x25	21,1	397	85	97	2,226
	14403501	4x50	27,2	687	140	144	1,229
	14408501	3x95/50	34,3	1.133	170	223	0,652
	14470501	3x150/95	41,8	1.742	210	301	0,446
with neutral suspension	14421001	1x25/54,6	21,5	322	120	110	2,224
	14422001	1x50/54,6	24,1	397	140	165	1,227
	14430001	3x25/29,5	22,0	422	130	97	2,226
	14430401	3x25/54,6	24,8	522	150	100	2,226
	14440501	3x50/29,5	26,0	634	150	144	1,229
	14440901	3x50/54,6	31,2	743	190	150	1,229
	14450401	3x95/54,6	40,6	1.191	240	230	0,652
	14460701	3x150/80	48,2	1.726	290	305	0,446

- The current rating is in according to UNE 211435, table A.2 (cables exposed to solar radiation).
- The current rating is in according to the Spanish regulation REBT ITC-BT-06.

➢ Nominal values subject to variation based on manufacturing tolerances.

ALCOBRE reserves the right to alter or modify the specifications and materials according to future technical development that may result in modifications to the technical data provided. The data contained in the technical specifications depend on manufacturing tolerance, or standards. Other constructions on request. Please contact us for latest information.

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AERIAL TORSADÉ

Product group 142(A):2024-01 **Rated Voltage U_0/U - 0,6/1 kV**

CABLE STANDARDS

Construction	Fire performance	
NF C 33-209	IEC 60754-1	EN 60754-1
HD 626	IEC 60754-2	EN 60754-2
XP C 20540		

CABLE DESIGN

1. Conductor	AAC - Aluminium stranded class 2
	AAAC – Almelec 29,5 / 54,6 / 80 mm^2 (when applicable)
	Pair Pilot - Copper solid class 1 (when applicable)
	according to IEC 60228 and EN 60228
2. Insulation	Cross-linked polyethylene (with carbon black overload)
	Black Insulated conductors (white print)

The packaging labels of these cables include the CE marking according to the Construction Product Regulation UE N. 305/2011 articles 8 and 9. Minimum content for the external marking of the cable. There may be additional marks respecting what is indicated in the cable construction regulations

GENERAL APPLICATIONS

Cable for aerial distribution networks.

Cables for overhead power distribution systems mainly for public distribution.
Outdoor installation in overhead lines tightened between supports.
Excellent resistance to external agents.
Not suitable for installation directly underground.

APPROVALS

Range **ENEDIS (EDF):** 2x25mm^2 ; 2x25mm^2 + 2x1,5mm^2 ; 4x25mm^2 ; 4x25mm^2 + 2x1,5mm^2

ALCOBRE reserves the right to alter or modify the specifications and materials according to future technical development that may result in modifications to the technical data provided. The data contained in the technical specifications depend on manufacturing tolerance, or standards. Other constructions on request. Please contact us for latest information.

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CABLE SPECIFICATIONS & OTHER CHARACTERISTICS

ELECTRICAL PERFORMANCE

Rated Voltage: 0,6/1 kV A.C. (U_0/U)

Voltage test: Alternating Current 4 kV (5 min.)

FIRE PERFORMANCE

Based on IEC 60754-1 / EN 60754-1

REACTION TO FIRE (EN 50575:2014+A1:2016)

Class F_{ca} (if applicable)

F_{ca}: It satisfies tests, without additional classifications

APPLICATIONS (FIXED INSTALLATION)

Industrial use

APPROVALS

ENEDIS / CE / REACH / RoHS

PACKAGING

Available in drums.

OTHERS

Meter by meter marking

INSTALLATION CONDITIONS

Fixed

Outdoor installation in overhead lines tightened between supports, lines attached to facades.

Suitable methods of installation

It must be respected the methods of installation established by the standards and regulations that will affect each individual case.

Minimum temperature during installation: -10ºC (on cable surface)

CHEMICAL PERFORMANCE

Chemical & Oil resistance: good

Resistance to weathering and UV rays: excellent

MECHANICAL PERFORMANCE

Impact resistance

AG2 Medium severity

MAXIMUM PULLING FORCE (N)

The maximum pulling force must not exceed:

F = 30 x S (N), where "S" is the cross-sectional area of the conductors (mm^2) and 30 N/mm^2 is the permissible tensile stress for cables with copper conductors If the traction force is applied on the conductors

THERMAL PERFORMANCE

Maximum conductor temperatures:

Normal operation: 90ºC
Short circuit: 250ºC (t≤5s)

MINIMUM SERVICE TEMPERATURE

-15 ºC (fixed)

WATER PERFORMANCE

Water resistance: AD7 (immersion, limited to 2 months)

AMBIENT TEMPERATURE OF USE:

Minimum: −25ºC (static, not exposed to possible mechanical damage, shocks or vibrations)
Maximum: 70ºC

ALCOBRE reserves the right to alter or modify the specifications and materials according to future technical development that may result in modifications to the technical data provided. The data contained in the technical specifications depend on manufacturing tolerance, or standards. Other constructions on request. Please contact us for latest information.

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AERIAL TORSADÉ

ALUMINIUM AERIAL CABLES

PHYSICAL AND ELECTRICAL CHARACTERISTICS

Type	Alcobre code	Cross Section nc x mm²	Nominal overall diameter mm	Nominal weight kg/km	Minimum bending radius mm	Maximum current rating Air 40 ºC A	Voltage drop Cos φ= 0,8 V/A.km
without neutral suspension	14201001	2x16	15,0	136	70	85	3,489
	14211001	2x25	18,0	200	85	97	2,226
	14223501	2x35	20.1	279	95	120	1,632
	14233401	2x50	24,0	364	130	150	1,229
	14202001	4x16	18,0	272	70	75	3,489
	14213501	4x25	22,0	399	85	97	2,226
	14223601	4x35	24,7	549	95	120	1,632
	14201201	2x16+2x1,5	15,5	151	70	85	3,489
	14211501	2x25+2x1,5	18,5	234	85	97	2,226
	14223601	2x35+2x1,5	20,6	291	95	120	1,632
	14233501	2x50+2x1,5	24,5	381	130	150	1,229
	14202201	4x16+2x1,5	18,5	289	70	75	3,489
	14214001	4x25+2x1,5	22,5	435	85	97	2,226
	14223801	4x35+2x1,5	25,2	549	95	120	1,632
with neutral suspension	14221101	1x54,6 + 3x25 + Kx16	31.1	552	120	100	2,226
	14221251	1x54,6 + 3x35 + Kx16	33.4	786	130	120	1,632
	14221901	1x54,6 + 3x50 + Kx16	36.2	998	140	150	1,229
	14222801	1x54,6 + 3x70 + Kx16	38.2	1.162	150	190	0,860
	14222901	1x54,6 + 3x70 + Kx25	40.9	1.192	160	190	0,860
	14223101	1x70 + 3x70 + Kx16	41.7	1.182	165	190	0,860
	14224401	1x70 + 3x95 + Kx16	44.3	1.392	175	230	0,652
	14226001	1x70 + 3x120 + Kx16	46.4	1.686	185	273	0,504
	14227001	1x70 + 3x150 + Kx16	48.6	1.875	195	305	0,446
	14228001	1x95 + 3x120 + Kx16	47.5	1.792	190	273	0,504
	14229001	1x95 + 3x150 + Kx16	49.6	1.991	198	305	0,446

- Suspended cable: conductor, whose main function is to support the cable in aerial installations, can be separated or an integral part of the cable it supports. K: represents the number of public lighting conductors; can be equal to 1, 2 or 3..The current rating is in according to IEC 60364-5-52, table B.52.13, installation method E.
- The permissible current intensity is in accordance with IEC 60364-5-52, B.52.13 above installation method E.

➢ Nominal values subject to variation based on manufacturing tolerances.

ALCOBRE reserves the right to alter or modify the specifications and materials according to future technical development that may result in modifications to the technical data provided. The data contained in the technical specifications depend on manufacturing tolerance, or standards. Other constructions on request. Please contact us for latest information.

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ABC CABLES

Product group 145(A):2024-01 **Rated Voltage U_0/U - 0,6/1 kV**

CABLE STANDARDS

Construction	Fire performance	
SANS 1418 part 1	IEC 60754-1	EN 60754-1
SANS 1418 part 2	IEC 60754-2	EN 60754-2

CABLE DESIGN

3. Conductor	AAC - Aluminium stranded class 2 AAAC – Almelec 29,5 / 54,6 / 80 mm^2 (when applicable) according to IEC 60228 and EN 60228
4. Insulation	Cross-linked polyethylene (with carbon black overload) Black Insulated conductors (white print)

The packaging labels of these cables include the CE marking according to the Construction Product Regulation UE N. 305/2011 articles 8 and 9. Minimum content for the external marking of the cable. There may be additional marks respecting what is indicated in the cable construction regulations

GENERAL APPLICATIONS

Cable for aerial distribution networks.

Cables for overhead power distribution systems mainly for public distribution.
Outdoor installation in overhead lines tightened between supports.
Excellent resistance to external agents.
Not suitable for installation directly underground.

APPROVALS

Range**:**

ALCOBRE reserves the right to alter or modify the specifications and materials according to future technical development that may result in modifications to the technical data provided. The data contained in the technical specifications depend on manufacturing tolerance, or standards. Other constructions on request. Please contact us for latest information.

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CABLE SPECIFICATIONS & OTHER CHARACTERISTICS

ELECTRICAL PERFORMANCE

Rated Voltage: 0,6/1 kV A.C. (U_0/U)

Voltage test: Alternating Current 4 kV (5 min.)

FIRE PERFORMANCE

Based on IEC 60754-1 / EN 60754-1

REACTION TO FIRE (EN 50575:2014+A1:2016)

Class F_{ca} (if applicable)

F_{ca}: It satisfies tests, without additional classifications

APPLICATIONS (FIXED INSTALLATION)

Industrial use

APPROVALS

CE / REACH / RoHS

PACKAGING

Available in drums.

INSTALLATION CONDITIONS

Fixed

Outdoor installation in overhead lines tightened between supports, lines attached to facades.

Suitable methods of installation

It must be respected the methods of installation established by the standards and regulations that will affect each individual case.

Minimum temperature during installation: -10ºC (on cable surface)

CHEMICAL PERFORMANCE

Chemical & Oil resistance: good

Resistance to weathering and UV rays: excellent

MECHANICAL PERFORMANCE

Impact resistance

AG2 Medium severity

MAXIMUM PULLING FORCE (N)

The maximum pulling force must not exceed:

F = 30 x S (N), where "S" is the cross-sectional area of the conductors (mm^2) and 30 N/mm^2 is the permissible tensile stress for cables with copper conductors If the traction force is applied on the conductors

THERMAL PERFORMANCE

Maximum conductor temperatures:

Normal operation: 90ºC
Short circuit: 250ºC (t≤5s)

MINIMUM SERVICE TEMPERATURE

-15 ºC (fixed)

WATER PERFORMANCE

Water resistance: AD7 (immersion, limited to 2 months)

AMBIENT TEMPERATURE OF USE:

Minimum: −25ºC (static, not exposed to possible mechanical damage, shocks or vibrations)
Maximum: 70ºC

ALCOBRE reserves the right to alter or modify the specifications and materials according to future technical development that may result in modifications to the technical data provided. The data contained in the technical specifications depend on manufacturing tolerance, or standards. Other constructions on request. Please contact us for latest information.

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PHYSICAL AND ELECTRICAL CHARACTERISTICS

Alcobre code	Cross Section nc x mm²	Nominal overall diameter mm	Nominal weight kg/km	Minimum bending radius mm	Maximum current rating Air 40 ºC A	Voltage drop Cos φ= 0,8 V/A.km
14501901	AL 16/2	14,6	135	215	81	3,489
14502001	AL 25/2	20,5	200	300	109	2,226
14521251	AL 35/3+16A+54,6N	30,7	705	440	120	1,632
14521301	AL 35/3+25A+54,6N	33,4	740	450	120	1,632
14521801	AL 50/3+54,6N	30,3	735	440	150	1,229
14521901	AL 50/3+16A+54,6N	32,7	800	500	150	1,229
14522101	AL 50/3+2x16A+54,6N	36,7	890	540	150	1,229
14522001	AL 50/3+25A+54,6N	33,4	840	510	150	1,229
14522801	AL 70/3+16A+54,6N	37,9	1.035	560	190	0,860
14523101	AL 70/3+2x16A+54,6N	43,9	1.120	650	190	0,860
14523001	AL 70/3+25A+54,6N	39,9	1.070	590	190	0,860
14524001	AL 95/3+54,6N	36,7	1.185	540	230	0,652
14524501	AL 95/3+2x16A+54,6N	48,4	1.345	720	230	0,652
14525001	AL 95/3+25A+54,6N	43,9	1.285	650	230	0,652
14527001	AL 120/3+25A+54,6N	47,7	1.492	710	273	0,504
14528001	AL 150/3+2x16A+54,6N	57,1	1.795	850	305	0,446
14528501	AL 150/3+2x95	52,6	2.080	770	305	0,446
14501941	AL 16/4	20,3	266	300	81	3,489
14502501	AL 25/4	24,2	404	360	109	2,226
14522111	AL 50/4+25A	34,3	795	515	150	1,229
14522901	AL 70/4+25A	42,5	1.104	580	190	0,860
14526001	AL 95/4+25A	44,3	1.410	640	230	0,652
14525101	AL 95/4+2x16A	48,4	1.419	720	230	0,652
14563501	AL 120/4	43,2	1.562	640	273	0,504
14527101	AL 120/4+2x16A	52,6	1.695	780	273	0,504

- Nominal values subject to variation based on manufacturing tolerances.

ALCOBRE reserves the right to alter or modify the specifications and materials according to future technical development that may result in modifications to the technical data provided. The data contained in the technical specifications depend on manufacturing tolerance, or standards. Other constructions on request. Please contact us for latest information.

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PHOTOVOLTAIC SYSTEM CABLES

PVC UNARMOURED

PV AL XLPE,PVC 1,5/1,5 kV

PV AL XLPE,PVC 1,8/3 kV

LSHF UNARMOURED

PV AL XLPE,LSHF 1,5/1,5 kV

PV AL XLPE,LSHF 1,8/3 kV

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PV AL XLPE/PVC

Product group 462(E):2024-01 **Rated Voltage U_0/U 1,5/1,5 kV**

CABLE STANDARDS

Construction
IEC 60502-1
HD 603
EN 50618 (partial)

Fire performance
EN 60332-1-2 / IEC 60332-1-2 / UNE-EN 60332-1 Flame non-propagation
EN 50575:2014+A1:2016 (CPR) if applicable

CABLE DESIGN

1. Conductor Aluminium stranded class 2
according to IEC 60228 and EN 60228

2. Insulation Cross-linked polyethylene type DIX-3 according to HD 603-1
and type (XLPE) according to IEC 60502-1
1 Core x ○ Natural

3. Sheath PVC polyvinyl chloride, type DMV-18 according to HD 603 S1,
and type ST2 according to IEC 60502-1.
Black color.

Marking of cables by printing on the outer sheath, according to the standard, or customer upon agreement.
The packaging labels of these cables include the CE marking according to the Construction Product Regulation UE N. 305/2011 articles 8 and 9.
Minimum content for the external marking of the cable. There may be additional marks respecting what is indicated in the cable construction regulations

GENERAL APPLICATIONS

PV Aluminum, cable suitable for outdoor solar installations, all types of underground.

This cable is recommended for connections between string boxes and photovoltaic inverters, on large-scale roofs or installations on the ground.
Suitable for low temperatures in photovoltaic installations.

APPROVALS

Range: 1 x (50 – 400) mm^2

ALCOBRE reserves the right to alter or modify the specifications and materials according to future technical development that may result in modifications to the technical data provided. The data contained in the technical specifications depend on manufacturing tolerance, or standards. Other constructions on request. Please contact us for latest information.

PV AL XLPE/PVC 1,5/1.5 kV

PVC UNARMOURED

CABLE SPECIFICATIONS & OTHER CHARACTERISTICS

ELECTRICAL PERFORMANCE

Rated Voltage: 1,5/1,5 (1,8) kV D.C. according to EN 50618

Voltage test: Alternating Current 4 kV
Direct Current: 8,5 kV

FIRE PERFORMANCE

Flame non-propagation
based on EN 60332-1 / IEC 60332-1 (H≤425 mm)

Reduced halogen emission. Chlorine <15%

REACTION TO FIRE (EN 50575:2014+A1:2016) (if applicable)

Class E_{ca}

E_{ca}: It satisfies the non-flame propagation test, without additional classifications

DECLARATION of PERFORMANCE

if applicable

APPLICATIONS (FIXED INSTALLATION)

Solar PV installations

APPROVALS

CE / REACH / RoHS / CPR

PACKAGING

Available in drums.

INSTALLATION CONDITIONS

In conduct

Open Air

Buried in ground (directly or in conduit)

Suitable methods of installation
It must be respected the methods of installation established by the standards and regulations that will affect each individual case.

Minimum temperature during installation: -0ºC
(on cable surface)

CHEMICAL PERFORMANCE

Chemical & Oil resistance: Good.

Grease & mineral oils resistance: Good.

UV Resistant based on EN 50618 and HD 605/A1.

MECHANICAL PERFORMANCE

Impact resistance: AG2 Medium severity

MINIMUM BENDING RADIUS

D= Overall diameter of the outer cable (in mm)

Handling, during installation and fixed:
8xD (D mm)

Minimum bending radii at cable temperature: 20 ºC (± 10ºC)

MAXIMUM PULLING FORCE (N)

The maximum pulling force must not exceed:

F = 30 x S (N), where "S" is the cross-sectional area of the conductors (mm^2) and 30 N/mm^2 is the permissible tensile stress for cables with copper conductors If the traction force is applied on the conductors

F = 3 x (N), where D = overall diameter of the cable (mm) If the traction D^2 force is applied on the oversheath

THERMAL PERFORMANCE

Maximum conductor temperatures:

Normal operation: 90ºC
Short circuit: 250ºC (t≤5s)

MINIMUM SERVICE TEMPERATURE

-40 ºC (fixed and protected installations)

WATER PERFORMANCE

Water resistance: AD8 Submersion

OTHERS

Meter by meter marking

O_3 Resistance to Ozone according to EN 50618

Weather, tear and abrasion resistance

ALCOBRE reserves the right to alter or modify the specifications and materials according to future technical development that may result in modifications to the technical data provided. The data contained in the technical specifications depend on manufacturing tolerance, or standards. Other constructions on request. Please contact us for latest information.

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PV AL XLPE/PVC 1,5/1.5 kV

PVC UNARMOURED

DIMENSIONAL AND MECHANICAL CHARACTERISTICS

Alcobre code	Nº. Cores X Cross Section	Diameter of conductor	Thickness of insulation	Diameter over insulation	Thickness of sheath	Diameter outer sheath	Cable weight	Minimum bending radius	
								during installation	after installation
	nc x mm²	mm	mm	mm	mm	mm	kg/km	mm	mm
46205001	1x50	8,0	1,0	10,0	1,4	12,9	239	129	77
46206001	1x70	9,8	1,1	12,0	1,5	15,1	330	151	91
46207001	1x95	11,5	1,1	13,7	1,5	16,8	418	168	101
46208001	1x120	12,9	1,2	15,3	1,6	18,6	511	186	112
46209001	1x150	14,3	1,4	17,1	1,7	20,6	633	206	124
46210001	1x185	16,0	1,6	19,2	1,7	22,7	780	227	136
46211001	1x240	18,4	1,7	21,8	1,8	25,5	991	255	153
46212001	1x300	20,7	1,8	24,3	1,9	28,2	1.210	282	169
46229001	1x400	23,3	2,0	27,3	2,0	31,4	1.550	314	188

ELECTRICAL AND OTHER CHARACTERISTICS

Nº. Cores X Cross Section	Max. DC resistance conductor at 20ºC	Max. AC resistance conductor at 90ºC	Fault current carrying of conductor (1s)	Capacitance	Reactance at 50Hz	Max. current rating		Voltage drop Cos φ= 0,8	Maximum pulling force of conductor
						*(1) Air 30 ºC	**(2) Buried 20 ºC		
nc x mm²	Ω/km	Ω/km	kA	µF/km	Ω/km	A	A	V/A.km	kN
1x50	0,641	0,822	4.7	0,57	0,09	159	117	1,211	1,05
1x70	0,443	0,568	6.6	0,63	0,09	206	144	0,875	1,50
1x95	0,320	0,410	8.9	0,72	0,08	253	172	0,653	2,10
1x120	0,253	0,324	12.1	0,73	0,08	296	197	0,534	2,85
1x150	0,206	0,265	14,2	0,74	0,08	343	220	0,449	3,60
1x185	0,164	0,211	17,5	0,75	0,08	395	250	0,373	4,50
1x240	0,125	0,1617	22,6	0,76	0,08	471	290	0,304	5,55
1x300	0,100	0,1301	28,3	0,81	0,08	547	326	0,253	7,20
1x400	0,0778	0,1008	37.7	0,82	0,08	663	----	0,220	9,00

*(1) The maximum current rating is in according to IEC 60364-5-52 table B.52.13, installation method F, single core cable, trefoil formation (three loaded conductors).

**(2) The maximum current rating is in according to IEC 60364-5-52, table B.52.5 method of installation D2, single core cable, three loaded conductors, at a ground temperature of 20ºC, thermal resistivity 2.5 K · m / W, depth 0.7 m.

- Nominal values subject to variation depending on manufacturing or standard tolerance.
- Heavy impact and armoured versions available.
- Optional rodent-proof and termite-proof also available.

ALCOBRE reserves the right to alter or modify the specifications and materials according to future technical development that may result in modifications to the technical data provided. The data contained in the technical specifications depend on manufacturing tolerance, or standards. Other constructions on request. Please contact us for latest information.

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PV AL XLPE/PVC

Product group 465(E):2024-01 **Rated Voltage U_0/U 1,8/3 kV**

CABLE STANDARDS

Construction
IEC 60502-1
NF C 32-321
EN 50618 (partial)

Fire performance
EN 60332-1-2 / IEC 60332-1-2 / UNE-EN 60332-1 Flame non-propagation
EN 50575:2014+A1:2016 (CPR)

CABLE DESIGN

1. Conductor Aluminium stranded class 2
according to IEC 60228 and EN 60228

2. Insulation Cross-linked polyethylene type DIX-3 according to HD 603-1
and type (XLPE) according to IEC 60502-1
Core: Identification:
1 Core x ○ Natural

3. Sheath PVC polyvinyl chloride, type DMV-18 according to HD 603 S1,
and type ST2 according to IEC 60502-1.
Black color.

Marking of cables by printing on the outer sheath, according to the standard, or customer upon agreement.
The packaging labels of these cables include the CE marking according to the Construction Product Regulation UE N. 305/2011 articles 8 and 9.
Minimum content for the external marking of the cable. There may be additional marks respecting what is indicated in the cable construction regulations

GENERAL APPLICATIONS

PV Aluminum, cable suitable for outdoor solar installations, all types of underground.

This cable is recommended for connections between string boxes and photovoltaic inverters, on large-scale roofs or installations on the ground.
Suitable for low temperatures in photovoltaic installations.

APPROVALS

Range: 1 x (50 – 400) mm^2

ALCOBRE reserves the right to alter or modify the specifications and materials according to future technical development that may result in modifications to the technical data provided.
The data contained in the technical specifications depend on manufacturing tolerance, or standards. Other constructions on request. Please contact us for latest information.

PV AL XLPE/PVC 1,8/3 kV

PVC UNARMOURED

CABLE SPECIFICATIONS & OTHER CHARACTERISTICS

ELECTRICAL PERFORMANCE

Rated Voltage: 1,8/3 kV A.C. (U_0/U)
3,6 kV D.C. (*Umax.*)

Voltage test: Alternating Current 6,5 kV
Direct Current: 15 kV

FIRE PERFORMANCE

Flame non-propagation
based on EN 60332-1 / IEC 60332-1 (H≤425 mm)

Reduced halogen emission. Chlorine <15%

REACTION TO FIRE (EN 50575:2014+A1:2016) (if applicable)

Class E_{ca}

E_{ca}: It satisfies the non-flame propagation test, without additional classifications

DECLARATION of PERFORMANCE

if applicable

APPLICATIONS (FIXED INSTALLATION)

Solar PV installations

APPROVALS

CE / REACH / RoHS / CPR

PACKAGING

Available in drums.

INSTALLATION CONDITIONS

In conduct

Open Air

Buried in ground (directly or in conduit)

Suitable methods of installation
It must be respected the methods of installation established by the standards and regulations that will affect each individual case.

Minimum temperature during installation: -0ºC
(on cable surface)

CHEMICAL PERFORMANCE

Chemical & Oil resistance: Good.

Grease & mineral oils resistance: Good.

UV Resistant based on EN 50618 and HD 605/A1.

MECHANICAL PERFORMANCE

Impact resistance: AG2 Medium severity

MINIMUM BENDING RADIUS

D= Overall diameter of the outer cable (in mm)

Handling, during installation and fixed:
6xD (D mm)

Minimum bending radii at cable temperature: 20 ºC (± 10ºC)

MAXIMUM PULLING FORCE (N)

The maximum pulling force must not exceed:

F = 30 x S (N), where "S" is the cross-sectional area of the conductors (mm^2) and 30 N/mm^2 is the permissible tensile stress for cables with copper conductors If the traction force is applied on the conductors

F = 3 x (N), where D = overall diameter of the cable (mm) If the traction D^2 force is applied on the oversheath

THERMAL PERFORMANCE

Maximum conductor temperatures:

Normal operation: 90ºC
Short circuit: 250ºC (t≤5s)

MINIMUM SERVICE TEMPERATURE

-40 ºC (fixed and protected installations)

WATER PERFORMANCE

Water resistance: AD8 Submersion

OTHERS

Meter by meter marking

O_3 Resistance to Ozone according to EN 50618

Weather, tear and abrasion resistance

ALCOBRE reserves the right to alter or modify the specifications and materials according to future technical development that may result in modifications to the technical data provided. The data contained in the technical specifications depend on manufacturing tolerance, or standards. Other constructions on request. Please contact us for latest information.

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PV AL XLPE/PVC 1,8/3 kV

PVC UNARMOURED

ALCOBRE
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DIMENSIONAL AND MECHANICAL CHARACTERISTICS

Alcobre code	Nº. Cores X Cross Section	Diameter of conductor	Thickness of insulation	Diameter over insulation	Thickness of sheath	Diameter outer sheath	Cable weight	Minimum bending radius	
								during installation	after installation
	nc x mm²	mm	mm	mm	mm	mm	kg/km	mm	mm
46505001	1x50	8,0	2,0	12,0	1,5	15,1	300	152	91
46506001	1x70	9,8	2,0	13,8	1,5	16,9	384	170	102
46507001	1x95	11,5	2,0	15,5	1,6	18,8	487	189	113
46508001	1x120	12,9	2,0	16,9	1,6	20,2	570	203	122
46509001	1x150	14,3	2,0	18,3	1,7	21,8	680	220	132
46510001	1x185	16,0	2,0	20,0	1,8	23,7	827	239	143
46511001	1x240	18,4	2,0	22,4	1,8	26,1	1.020	264	158
46512001	1x300	20,7	2,0	24,7	1,9	28,6	1.234	287	172
46529001	1x400	23,3	2,0	27,3	2,0	31,4	1.552	324	194

ELECTRICAL AND OTHER CHARACTERISTICS

Nº. Cores X Cross Section	Max. DC resistance conductor at 20ºC	Max. AC resistance conductor at 90ºC	Fault current carrying of conductor (1s)	Capacitance	Reactance at 50Hz	Max. current rating		Voltage drop Cos φ= 0,8	Maximum pulling force of conductor
						*(1) Air 30 ºC	**(2) Buried 20 ºC		
nc x mm²	Ω/km	Ω/km	kA	µF/km	Ω/km	A	A	V/A.km	kN
1x50	0,641	0,822	4.7	0,57	0,09	159	103	1,211	1,05
1x70	0,443	0,568	6.6	0,63	0,09	206	130	0,875	1,50
1x95	0,320	0,410	8.9	0,72	0,08	253	154	0,653	2,10
1x120	0,253	0,324	12.1	0,73	0,08	296	174	0,534	2,85
1x150	0,206	0,265	14,2	0,74	0,08	343	197	0,449	3,60
1x185	0,164	0,211	17,5	0,75	0,08	395	220	0,373	4,50
1x240	0,125	0,1617	22,6	0,76	0,08	471	253	0,304	5,55
1x300	0,100	0,1301	28,3	0,81	0,08	547	286	0,253	7,20
1x400	0,0778	0,1008	37.7	0,82	0,08	663	----	0,220	9,00

*(1) The maximum current rating is in according to IEC 60364-5-52 table B.52.13, installation method F, single core cable, trefoil formation (three loaded conductors).

**(2) The maximum current rating is in according to IEC 60364-5-52, table B.52.5 method of installation D1, single core cable, three loaded conductors, at a ground temperature of 20ºC, thermal resistivity 2.5 K · m / W, depth 0.7 m.

- Nominal values subject to variation depending on manufacturing or standard tolerance.
- Heavy impact and armoured versions available.
- Optional rodent-proof and termite-proof also available.

ALCOBRE reserves the right to alter or modify the specifications and materials according to future technical development that may result in modifications to the technical data provided. The data contained in the technical specifications depend on manufacturing tolerance, or standards. Other constructions on request. Please contact us for latest information.

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PV AL XLPE/LSHF

Product group 461(E):2024-01 **Rated Voltage U_0/U 1,5/1,5 kV**

CABLE STANDARDS

Construction	Fire performance
IEC 60502-1	EN 60332-3 / IEC 60332-3 Fire non-propagation
HD 603	EN 60332-1 / IEC 60332-1 Flame non-propagation
EN 50618 (partial)	EN 60754-2 / IEC 60754-2 Low corrosive gases emission
	EN 60754-1 / IEC 60754-1 LSHF (Low Smoke Halogen Free)
	EN 61034 / IEC 61034 Low smoke emission (Light transmittance > 60)
	EN 50575:2014+A1:2016 (CPR) if applicable

CABLE DESIGN

1. Conductor Aluminium stranded class 2
according to IEC 60228 and EN 60228

2. Insulation Cross-linked polyethylene type DIX-3 according to HD 603-1
and type (XLPE) according to IEC 60502-1
Core: Identification:
1 Core x ○ Natural

3. Outer sheath LS0H Halogen-free thermoplastic polyolefin,
type ST7 according to IEC 60502-1.
Black color.

Marking of cables by printing on the outer sheath, according to the standard, or customer upon agreement.
The packaging labels of these cables include the CE marking according to the Construction Product Regulation UE N. 305/2011 articles 8 and 9.
Minimum content for the external marking of the cable. There may be additional marks respecting what is indicated in the cable construction regulations

GENERAL APPLICATIONS

PV Aluminum, cable suitable for outdoor solar installations, all types of underground.

This cable is recommended for connections between string boxes and photovoltaic inverters, on large-scale roofs or installations on the ground.

Suitable for low temperatures in photovoltaic installations.

APPROVALS

Range: 1 x (50 – 400) mm^2

ALCOBRE reserves the right to alter or modify the specifications and materials according to future technical development that may result in modifications to the technical data provided.
The data contained in the technical specifications depend on manufacturing tolerance, or standards. Other constructions on request. Please contact us for latest information.

PV AL XLPE/LSHF 1,5/1,5 kV

HIGH SECURITY CABLES / HALOGEN FREE

CABLE SPECIFICATIONS & OTHER CHARACTERISTICS

ELECTRICAL PERFORMANCE

Rated Voltage: 1,5/1,5 (1,8) kV D.C. according to EN 50618

Voltage test: Alternating Current 4 kV
Direct Current: 8,5 kV

FIRE PERFORMANCE

LSHF Low Smoke Halogen Free
based on UNE-EN 60754-1 / IEC 60754-1
(HCl <0,5 %, Fluor <0,1 %)

Flame non-propagation
based on UNE-EN 60332-1 / IEC 60332-1
(H≤425 mm)

Fire non-propagation (cat C)
based on UNE-EN 60332-3 / IEC 60332-3
(Fs ≤2 m --> flame source: 20,5 kW)

Low smoke emission
based on UNE-EN 61034 / IEC 61034
(Light transmittance > 80%)

REACTION TO FIRE (EN 50575:2014+A1:2016)

(if applicable)

Class C_{ca}-s1b,d1,a1

DECLARATION of PERFORMANCE

if applicable

APPLICATIONS (FIXED INSTALLATION)

Solar PV installations

APPROVALS

CE / REACH / RoHS / CPR

PACKAGING

Available in drums.

INSTALLATION CONDITIONS

In conduct

Open Air

Buried in ground (directly or in conduit)

Suitable methods of installation
It must be respected the methods of installation established by the standards and regulations that will affect each individual case.

Minimum temperature during installation: -5ºC
(on cable surface)

CHEMICAL PERFORMANCE

Chemical & Oil resistance: Good.

Grease & mineral oils resistance: Good.

UV Resistant based on EN 50618 and HD 605/A1.

MECHANICAL PERFORMANCE

Impact resistance: AG2 Medium severity

MINIMUM BENDING RADIUS

D= Overall diameter of the outer cable (in mm)

Handling, during installation and fixed:
6xD (D mm)

Minimum bending radii at cable temperature: 20 ºC (± 10ºC)

MAXIMUM PULLING FORCE (N)

The maximum pulling force must not exceed:

F = 30 x S (N), where "S" is the cross-sectional area of the conductors (mm^2) and 30 N/mm^2 is the permissible tensile stress for cables with copper conductors If the traction force is applied on the conductors

F = 3 x (N), where D = overall diameter of the cable (mm) If the traction D^2 force is applied on the oversheath

THERMAL PERFORMANCE

Maximum conductor temperatures:

Normal operation: 90ºC
Short circuit: 250ºC (t≤5s)

MINIMUM SERVICE TEMPERATURE

-40 ºC (fixed and protected installations)

WATER PERFORMANCE

Water resistance: AD8 Submersion

OTHERS

Meter by meter marking

O_3 Resistance to Ozone according to EN 50618

Weather, tear and abrasion resistance

ALCOBRE reserves the right to alter or modify the specifications and materials according to future technical development that may result in modifications to the technical data provided. The data contained in the technical specifications depend on manufacturing tolerance, or standards. Other constructions on request. Please contact us for latest information.

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PV AL XLPE/LSHF 1,5/1,5 kV

HIGH SECURITY CABLES / HALOGEN FREE

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DIMENSIONAL AND MECHANICAL CHARACTERISTICS

Alcobre code	Nº. Cores X Cross Section	Diameter of conductor	Thickness of insulation	Diameter over insulation	Thickness of sheath	Diameter outer sheath	Cable weight	Minimum bending radius	
								during installation	after installation
	nc x mm²	mm	mm	mm	mm	mm	kg/km	mm	mm
46105001	1x50	8,0	1,0	10,0	1,4	12,8	241	128	102
46106001	1x70	9,8	1,1	12,0	1,5	15,1	334	151	121
46107001	1x95	11,5	1,1	13,7	1,5	16,7	427	167	134
46108001	1x120	12,9	1,2	15,3	1,6	18,0	534	180	144
46109001	1x150	14,3	1,4	17,1	1,6	20,3	635	203	162
46110001	1x185	16,0	1,6	19,2	1,7	22,6	796	226	181
46111001	1x240	18,4	1,7	21,8	1,8	25,4	1.022	254	203
46112001	1x300	20,7	1,8	24,3	1,9	28,1	1.239	281	225
46129001	1x400	23,3	2,0	27,3	2,0	31,3	1.578	313	250

ELECTRICAL AND OTHER CHARACTERISTICS

Nº. Cores X Cross Section	Max. DC resistance conductor at 20ºC	Max. AC resistance conductor at 90ºC	Fault current carrying of conductor (1s)	Capacitance	Reactance at 50Hz	Max. current rating		Voltage drop Cos φ= 0,8	Maximum pulling force of conductor
						*(1) Air 30 ºC	**(2) Buried 20 ºC		
nc x mm²	Ω/km	Ω/km	kA	µF/km	Ω/km	A	A	V/A.km	kN
1x50	0,641	0,822	4.7	0,57	0,09	159	117	1,211	1,05
1x70	0,443	0,568	6.6	0,63	0,09	206	144	0,875	1,50
1x95	0,320	0,410	8.9	0,72	0,08	253	172	0,653	2,10
1x120	0,253	0,324	12.1	0,73	0,08	296	197	0,534	2,85
1x150	0,206	0,265	14,2	0,74	0,08	343	220	0,449	3,60
1x185	0,164	0,211	17,5	0,75	0,08	395	250	0,373	4,50
1x240	0,125	0,1617	22,6	0,76	0,08	471	290	0,304	5,55
1x300	0,100	0,1301	28,3	0,81	0,08	547	326	0,253	7,20
1x400	0,0778	0,1008	37.7	0,82	0,08	663	----	0,220	9,00

*(1) The maximum current rating is in according to IEC 60364-5-52 table B.52.13, installation method F, single core cable, trefoil formation (three loaded conductors).

**(2) The maximum current rating is in according to IEC 60364-5-52, table B.52.5 method of installation D2, single core cable, three loaded conductors, at a ground temperature of 20ºC, thermal resistivity 2.5 K · m / W, depth 0.7 m.

- Nominal values subject to variation depending on manufacturing or standard tolerance.
- Heavy impact and armoured versions available.
- Optional rodent-proof and termite-proof also available.

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ALCOBRE reserves the right to alter or modify the specifications and materials according to future technical development that may result in modifications to the technical data provided. The data contained in the technical specifications depend on manufacturing tolerance, or standards. Other constructions on request. Please contact us for latest information.

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PV AL XLPE/LSZH

Product group 464(E):2024-01 **Rated Voltage U_0/U 1,8/3 kV**

CABLE STANDARDS

Construction	**Fire performance**
IEC 60502-1	EN 60332-3 / IEC 60332-3 Fire non-propagation
HD 603	EN 60332-1 / IEC 60332-1 Flame non-propagation
EN 50618 (partial)	EN 60754-2 / IEC 60754-2 Low corrosive gases emission
	EN 60754-1 / IEC 60754-1 LSHF (Low Smoke Halogen Free)
	EN 61034 / IEC 61034 Low smoke emission (Light transmittance > 60
	EN 50575:2014+A1:2016 (CPR) if applicable

CABLE DESIGN

1. Conductor Aluminium stranded class 2
according to IEC 60228 and EN 60228

2. Insulation Cross-linked polyethylene type DIX-3 according to HD 603-1
and type (XLPE) according to IEC 60502-1
Core: Identification:
1 Core x ○ Natural

3. Outer sheath LS0H Halogen-free thermoplastic polyolefin,
type ST7 according to IEC 60502-1.
Black color.

Marking of cables by printing on the outer sheath, according to the standard, or customer upon agreement.
The packaging labels of these cables include the CE marking according to the Construction Product Regulation UE N. 305/2011 articles 8 and 9.
Minimum content for the external marking of the cable. There may be additional marks respecting what is indicated in the cable construction regulations

GENERAL APPLICATIONS

PV Aluminum, cable suitable for outdoor solar installations, all types of underground.

This cable is recommended for connections between string boxes and photovoltaic inverters, on large-scale roofs or installations on the ground.

Suitable for low temperatures in photovoltaic installations.

APPROVALS

Range: 1 x (50 – 500) mm^2

ALCOBRE reserves the right to alter or modify the specifications and materials according to future technical development that may result in modifications to the technical data provided.
The data contained in the technical specifications depend on manufacturing tolerance, or standards. Other constructions on request. Please contact us for latest information.

PV AL XLPE/LSHF 1,8/3 kV

HIGH SECURITY CABLES / HALOGEN FREE

CABLE SPECIFICATIONS & OTHER CHARACTERISTICS

ELECTRICAL PERFORMANCE

Rated Voltage: 1,8/3 kV A.C. (U_0/U)
3,6 kV D.C. (*Umax.*)

Voltage test: Alternating Current 6,5 kV
Direct Current: 15 kV

FIRE PERFORMANCE

LSHF Low Smoke Halogen Free
based on UNE-EN 60754-1 / IEC 60754-1
(HCl <0,5 %, Fluor <0,1 %)

Flame non-propagation
based on UNE-EN 60332-1 / IEC 60332-1
(H≤425 mm)

Fire non-propagation (cat C)
based on UNE-EN 60332-3 / IEC 60332-3
(Fs ≤2 m --> flame source: 20,5 kW)

Low smoke emission
based on UNE-EN 61034 / IEC 61034
(Light transmittance > 80%)

REACTION TO FIRE (EN 50575:2014+A1:2016)

Class C_{ca}-s1b,d1,a1

(if applicable)

DECLARATION of PERFORMANCE

if applicable

APPLICATIONS (FIXED INSTALLATION)

Solar PV installations

APPROVALS

CE / REACH / RoHS / CPR

PACKAGING

Available in drums.

INSTALLATION CONDITIONS

In conduct

Open Air

Buried in ground (directly or in conduit)

Suitable methods of installation
It must be respected the methods of installation established by the standards and regulations that will affect each individual case.

Minimum temperature during installation: -5ºC
(on cable surface)

CHEMICAL PERFORMANCE

Chemical & Oil resistance: Good.

Grease & mineral oils resistance: Good.

UV Resistant based on EN 50618 and HD 605/A1.

MECHANICAL PERFORMANCE

Impact resistance: AG2 Medium severity

MINIMUM BENDING RADIUS

D= Overall diameter of the outer cable (in mm)

Handling, during installation and fixed:
6xD (D mm)

Minimum bending radii at cable temperature: 20 ºC (± 10ºC)

MAXIMUM PULLING FORCE (N)

The maximum pulling force must not exceed:

F = 30 x S (N), where "S" is the cross-sectional area of the conductors (mm^2) and 30 N/mm^2 is the permissible tensile stress for cables with copper conductors If the traction force is applied on the conductors

F = 3 x (N), where D = overall diameter of the cable (mm) If the traction D^2 force is applied on the oversheath

THERMAL PERFORMANCE

Maximum conductor temperatures:

Normal operation: 90ºC
Short circuit: 250ºC (t≤5s)

MINIMUM SERVICE TEMPERATURE

-40 ºC (fixed and protected installations)

WATER PERFORMANCE

Water resistance: AD8 Submersion

OTHERS

Meter by meter marking

O_3 Resistance to Ozone according to EN 50618

Weather, tear and abrasion resistance

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PV AL XLPE/LSHF 1,8/3 kV

HIGH SECURITY CABLES / HALOGEN FREE

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DIMENSIONAL AND MECHANICAL CHARACTERISTICS

Alcobre code	Nº. Cores X Cross Section	Diameter of conductor	Thickness of insulation	Diameter over insulation	Thickness of sheath	Diameter outer sheath	Cable weight	Minimum bending radius	
								during installation	after installation
	nc x mm²	mm	mm	mm	mm	mm	kg/km	mm	mm
46405001	1x50	8,0	2,0	12,0	1,5	15,0	295	150	75
46406001	1x70	9,8	2,0	13,8	1,5	16,8	379	168	84
46407001	1x95	11,5	2,0	15,5	1,6	18,7	483	187	94
46408001	1x120	12,9	2,0	16,9	1,6	19,6	573	196	98
46409001	1x150	14,3	2,0	18,3	1,7	21,7	673	217	109
46410001	1x185	16,0	2,0	20,0	1,7	23,4	806	234	117
46411001	1x240	18,4	2,0	22,4	1,8	26,0	1.019	260	130
46412001	1x300	20,7	2,0	24,7	1,9	28,5	1.224	285	143
46429001	1x400	23,3	2,0	27,3	2,0	31,3	1.531	313	157
46414001	1x500	26,4	2,2	30,8	2,2	35,2	2.025	352	176

ELECTRICAL AND OTHER CHARACTERISTICS

Nº. Cores X Cross Section	Max. DC resistance conductor at 20ºC	Max. AC resistance conductor at 90ºC	Fault current carrying of conductor (1s)	Capacitance	Reactance at 50Hz	Max. current rating		Voltage drop Cos φ= 0,8	Max. allowable pulling force of conductor
						*(1) Air 40 ºC	**(2) Buried 25 ºC		
nc x mm²	Ω/km	Ω/km	kA	µF/km	Ω/km	A	A	V/A.km	kN
1x50	0,641	0,822	4.7	0,57	0,09	184	139	1,211	1,95
1x70	0,443	0,568	6.6	0,63	0,09	237	170	0,875	2,73
1x95	0,320	0,410	8.9	0,72	0,08	289	204	0,653	3,71
1x120	0,253	0,324	12.1	0,73	0,08	337	233	0,534	4,68
1x150	0,206	0,265	14,2	0,74	0,08	389	261	0,449	5,85
1x185	0,164	0,211	17,5	0,75	0,08	447	296	0,373	7,29
1x240	0,125	0,1617	22,6	0,76	0,08	530	343	0,304	9,36
1x300	0,100	0,1301	28,3	0,81	0,08	613	386	0,253	11,70
1x400	0,0778	0,1008	37.7	0,82	0,08	740	455	0,220	15,60
1x500	0,0605	0,0812	47,2	0,83	0,07	812	532	0,187	19,50

*(1) The maximum current rating is in according to IEC 60364-5-52 table B.52.13, installation method F, single core cable, trefoil formation (three loaded conductors).

**(2) The maximum current rating is in according to IEC 60364-5-52, table B.52.5 method of installation D1, single core cable, three loaded conductors, at a ground temperature of 20ºC, thermal resistivity 2.5 K m/W, depth 0.7 m.

- Nominal values subject to variation depending on manufacturing or standard tolerance.
- Heavy impact and armoured versions also available.
- Optional rodent-proof and termite-proof also available.

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