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DRIVING THE FUTURE OF CONNECTIVITY

- RAILWAY SIGNALING CABLES
- OPTICAL FIBER CABLES
- OPTICAL DISTRIBUTION NETWORK (ODN)

GENERAL CATALOGUE 2024

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About Cablescom

Cables de Comunicaciones is one of the main European companies dedicated to the design and manufacture of copper and fibre cables for signalling systems and telecom networks. Ever since its foundation in 1971, Cablescom has contributed to develop and expand telecom infrastructures.

Cables de Comunicaciones has always been supported by large business groups due to the reliability and quality of its products. Satisfied clients from the main telecom and railway companies over 50 countries worldwide rely on our know-how for their cable production, entrusting our connectivity solutions to future-proof their networks.

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CABLESCOM CARRIES OUT ITS ACTIVITY IN ZARAGOZA, IN THE MALPICA INDUSTRIAL AREA, ON A 77.000 M^2 FACILITY WHERE OUR PRODUCTION PLANT, OFFICES AND WAREHOUSES ARE LOCATED.

The success of Cablescom´s activity is based on an efficient organization, a dynamic and proactive managing staff along together a highly motivated professional team committed to the company´s goals and values.

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WE RELY ON OUR SOLID VALUES SEEKING TO ACHIEVE OUR VISION AND MISSION FOR EXCELLENCE IN OUR PRODUCTS AND SERVICES.

Commitment to results.
We strive to increase the profitability of our shareholders, ensuring compliance to achieve the company established goals.

Transparency.
Our work is based on mutual respect, trust and honesty.

People First.
We firmly believe in teamwork, personal and professional achievements and an open and efficient communication to reject any form of discrimination.

Sustainable Development.
We are committed to balance operational needs in order to avoid, reduce or control any possible environmental pollution.

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RAILWAY SIGNALING CABLES

1.1.-RAILWAY SIGNALING CABLES - SPAIN

1.2.-RAILWAY SIGNALING CABLES - FRANCE

1.3.-RAILWAY SIGNALING CABLES - GERMANY

1.4.-RAILWAY SIGNALING CABLES - HUNGARY

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MULTICONDUCTOR CABLES

CONTROL-COMMAND AND RAILWAY SIGNALLING CABLES MULTICONDUCTORS – OUTDOOR – H - EAPSSP

EA470H0

DESCRIPTION AND APPLICATION

Cables from 2 to 61 conductors. Copper conductor of 1,4mm section insulated with polyethylene. Conductors are stranded in layers to form the core, core that is protected with a EAPSSP type sheath. They are used in signaling railway applications. Recommended for installation in ducts or buried. Cable protected against rodents. CPR Classification: Fca.

CONSTRUCTION

- **Conductors:** Annealed copper. Section: 1,4 mm.
- **Insulating:** Solid polyethylene.
- **Cabling element:** Conductors.
- **Core Construction:** Conductors are stranded in layers. See coloured code table.
- **Core wrapping:** Dielectric tape longitudinally applied with overlap.
- **Screen:** Aluminium-copolymer tape longitudinally applied with overlap.
- **Inner sheath:** Polyethylene.
- **Armour:** Two steel tapes helically applied.
- **Outer Sheath:** UV resistant black polyethylene.
- **Marking:** CABLESCOM / Year / Lenght (Other type of marking available under request).

COLOUR CODE

LAYER	CONDUCTOR							
	PILOT	DIRECTION	CONDUCTOR 1	CONDUCTOR 2	CONDUCTOR 3	CONDUCTOR 4	CONDUCTOR 5	CONDUCTOR 6
CENTRAL	BLACK	WHITE	RED	GREY				
LAYER	BLACK	WHITE	RED	GREY	BLUE	BROWN	GREEN	YELLOW

ELECTRICAL AND MECHANICAL CHARACTERISTICS (20°C)

		1.4 mm
Conductor resistance (Ω/km)		11,2 ± 0,5; Max: 11,9
Minimum insulation resistance (MΩ.km, 20 °C, 500 V)		15000
Dielectric strength (Vcc, 3 s)	Conductors	3000
	Core-Screen	3500
Bending		15 x Ø cable
Temperatura range		-25° C / +75° C

DIMENSIONS AND WEIGHTS

Section: 1.4 mm			
Code	Nº Conductors	Nominal diameter (mm)	Nominal weight (kg/km)
EA470H0A400020WN	2	12,6	244
EA470H0A400040WN	4	13,7	264
EA470H0A400070WN	7	15,2	343
EA470H0A400090WN	9	16,5	402
EA470H0A400120WN	12	17,9	476
EA470H0A400190WN	19	19,8	631
EA470H0A400270WN	27	22,7	821
EA470H0A400370WN	37	25,1	1.034
EA470H0A400480WN	48	28,1	1.279
EA470H0A400610WN	61	30,2	1.537

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CONTROL-COMMAND AND RAILWAY SIGNALLING CABLES MULTICONDUCTORS – INDOOR – H - EATSST

EA470GV

DESCRIPTION AND APPLICATION

Cables from 2 to 61 conductors. Copper conductor of 1,4mm section insulated with polyethylene. Conductors are stranded in layers to form the core, core that is protected with a double LSZH sheath, aluminium screen and two steel tapes helically applied armour. They are used in railway applications. Recommended for installation in ducts or buried.
CPR Classification: B2ca – s1a, a1.

CONSTRUCTION

- **Conductors:** Annealed copper. Section: 1,4 mm.
- **Insulating:** Solid polyethylene.
- **Cabling element:** Conductors.
- **Core Construction:** Conductors are stranded in layers. See coloured code table.
- **Core wrapping:** Dielectric tape longitudinally applied with overlap.
- **Screen:** Aluminium-copolymer tape longitudinally applied with overlap.
- **Inner sheath:** LSZH material.
- **Armour:** Two steel tapes helically applied.
- **Outer sheath:** UV resistant violet LSZH material.
- **Marking:** CABLESCOM / Year / Lenght (Other type of marking available under request).

COLOUR CODE

LAYER	CONDUCTOR							
	PILOT	DIRECTION	CONDUCTOR 1	CONDUCTOR 2	CONDUCTOR 3	CONDUCTOR 4	CONDUCTOR 5	CONDUCTOR 6
CENTRAL	BLACK	WHITE	RED	GREY				
LAYER	BLACK	WHITE	RED	GREY	BLUE	BROWN	GREEN	YELLOW

ELECTRICAL AND MECHANICAL CHARACTERISTICS (20°C)

		1.4 mm
Conductor resistance (Ω/km)		11,2 ± 0,5; Max: 11,9
Minimum insulation resistance (MΩ.km, 20 °C, 500 V)		15000
Dielectric strength (Vcc, 3 s)	Conductors	3000
	Core-Screen	3500
Bending		15 x Ø cable
Temperatura range		-25° C / +75° C

DIMENSIONS AND WEIGHTS

Section: 1.4 mm			
Code	Nº Conductors	Nominal diameter (mm)	Nominal weight (kg/km)
EA470GVA400020WN	2	12,6	294
EA470GVA400040WN	4	13,7	321
EA470GVA400070WN	7	15,2	407
EA470GVA400090WN	9	17,4	495
EA470GVA400120WN	12	17,9	554
EA470GVA400190WN	19	19,8	719
EA470GVA400270WN	27	22,7	929
EA470GVA400370WN	37	25,1	1.155
EA470GVA400480WN	48	28,1	1.421
EA470GVA400610WN	61	30,2	1.690

CONTROL-COMMAND AND RAILWAY SIGNALLING CABLES MULTICONDUCTORS – OUTDOOR – REDUCTION

EA470HA

DESCRIPTION AND APPLICATION

Cables from 2 to 48 conductors. Copper conductor of 1,4mm section insulated with PE. Conductors are stranded in layers to form the core, core that is protected with a non-inductive reduction factor 0,3 CCPSSP type sheath. They are used as signaling cables, especially in railway applications where protection against HV lines inductions is required. Recommended for installation in ducts or buried. Cable protected against rodents.
CPR Classification: Fca.

CONSTRUCTION

- **Conductors:** Annealed copper. Section: 1,4 mm.
- **Insulating:** Solid polyethylene.
- **Cabling element:** Conductors.
- **Core Construction:** Conductors are stranded in layers. See coloured code table.
- **Core wrapping:** Dielectric tape longitudinally applied with overlap.
- **Screen:** Corrugated copper tape longitudinally applied with overlap.
- **Inner sheath:** Polyethylene.
- **Armour:** Two helically applied steel tapes.
- **Outer sheath:** UV resistant black polyethylene.
- **Marking:** CABLESCOM / Year / Lenght (Other type of marking available under request).

COLOUR CODE

LAYER	CONDUCTOR							
	PILOT	DIRECTION	CONDUCTOR 1	CONDUCTOR 2	CONDUCTOR 3	CONDUCTOR 4	CONDUCTOR 5	CONDUCTOR 6
CENTRAL	BLACK	WHITE	RED	GREY				
LAYER	BLACK	WHITE	RED	GREY	BLUE	BROWN	GREEN	YELLOW

ELECTRICAL AND MECHANICAL CHARACTERISTICS (20°C)

		1.4 mm
Conductor resistance (Ω/km)		11,2 ± 0,5; Max: 11,9
Minimum insulation resistance (MΩ.km, 20 °C, 500 V)		15000
Dielectric strength (Vcc, 3 s)	Conductors	3000
	Core-Screen	3500
Induced voltage (V/km)	110 V a 320 V	<0,3
Bending		15 x Ø cable
Temperatura range		-25° C / +75° C

DIMENSIONS AND WEIGHTS

Section: 1.4 mm			
Code	Nº Conductors	Nominal diameter (mm)	Nominal weight (kg/km)
EA470HAA400020WN	2	17,0	566
EA470HAA400040WN	4	17,0	580
EA470HAA400070WN	7	18,2	684
EA470HAA400090WN	9	20,2	733
EA470HAA400120WN	12	22,0	796
EA470HAA400190WN	19	23,9	971
EA470HAA400270WN	27	26,6	1.220
EA470HAA400370WN	37	28,7	1.468
EA470HAA400480WN	48	32,0	1.780

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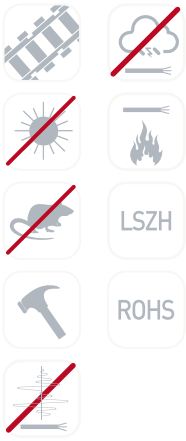
CONTROL-COMMAND AND RAILWAY SIGNALLING CABLES MULTICONDUCTORS – INDOOR – REDUCTION FACTOR
EA470HV

DESCRIPTION AND APPLICATION

Cables from 4 to 48 conductors. Copper conductor of 1,4mm section insulated with polyethylene. Conductors are stranded in layers to form the core, core that is protected with a double LSZH sheath, core that is protected with a non-inductive reduction factor 0,3 sheath. They are used as signaling railway applications where protection against inductions is required. Recommended for installation in ducts or tunnels where its behaviour against fire and rodent must be controlled. CPR Classification: B2ca – s1a, a1.



CONSTRUCTION

- **Conductors:** Annealed copper. Section: 1,4mm.
- **Insulating:** Solid polyethylene.
- **Cabling element:** Conductors.
- **Core Construction:** Conductors are stranded in layers. See coloured code table.
- **Core wrapping:** Dielectric tape longitudinally applied with overlap.
- **Screen:** Corrugated copper tape longitudinally applied with overlap.
- **Inner sheath:** Violet LSZH material.
- **Armour:** Two steel tapes helically applied.
- **Outer sheath:** UV resistant violet LSZH material.
- **Marking:** CABLESCOM / Year / Lenght (Other type of marking available under request).

COLOUR CODE

LAYER	CONDUCTOR							
	PILOT	DIRECTION	CONDUCTOR 1	CONDUCTOR 2	CONDUCTOR 3	CONDUCTOR 4	CONDUCTOR 5	CONDUCTOR 6
CENTRAL	BLACK	WHITE	RED	GREY				
LAYER	BLACK	WHITE	RED	GREY	BLUE	BROWN	GREEN	YELLOW

ELECTRICAL AND MECHANICAL CHARACTERISTICS (20°C)

		1.4 mm
Conductor resistance (Ω/km)		11,2 ± 0,5; Max: 11,9
Minimum insulation resistance (MΩ.km, 20 °C, 500 V)		15000
Dielectric strength (Vcc, 3 s)	Conductors	3000
	Core-Screen	3500
Induced voltage (V/km)	110 V a 320 V	<0,3
Bending		15 x Ø cable
Temperatura range		-25° C / +75° C

DIMENSIONS AND WEIGHTS

Section: 1.4 mm			
Code	Nº Conductors	Nominal diameter (mm)	Nominal weight (kg/km)
EA470HVA400040WN	4	21,2	830
EA470HVA400070WN	7	21,2	850
EA470HVA400090WN	9	21,5	850
EA470HVA400120WN	12	22,0	900
EA470HVA400190WN	19	23,9	1.100
EA470HVA400270WN	27	26,6	1.350
EA470HVA400370WN	37	28,1	1.600
EA470HVA400480WN	48	31,1	2.000

RAILWAY SIGNALLING CABLES, MULTICORE, LSZH SHEATH FOR INDOOR INSTALLATIONS AND RODENT PROTECTED. ADIF STANDARD 03.365.052.4 EA470DV

DESCRIPTION AND APPLICATION

Cables from 4 to 61 conductors of 1.4 mm nominal diameter, with solid polyethylene insulation. The conductors are stranded in layers to form the core which is then protected by a double LSZH sheath. They are used as signalling cables in railways infrastructures. For installation in ducts or directly buried. Appropriate for external installation and in tunnels where fire resistant characteristics and protection against rodents are required.
CPR Classification: B2ca – s1a, d1, a1.

CONSTRUCTION

- **Conductors:** Annealed copper. Nominal diameter 1.4 mm.
- **Insulation:** Solid polyethylene.
- **Cabling elements:** Insulated conductors.
- **Lay-up:** Stranded in layers.
- **Core wrapping:** Dielectric tape longitudinally applied with overlap.
- **Cable screen:** Aluminium copolymer tape longitudinally applied with overlap and bonded to the inner sheath.
- **Inner sheath:** Violet LSZH material, RAL 4008.
- **Armour:** Corrugated steel copolymer tape, longitudinally applied with overlap.
- **Outer sheath:** UV resistant LSZH material coloured violet RAL 4008.
- **Sheath markings:** The outer sheath shall be marked at regular intervals, with the following information:
  - Name of manufacturer/ Year/ Length marks.
  - Other type of marks according to the costumer.

LSZH

ROHS

COLOUR CODE

	1st	2nd	Other conductors to complete the layer will follow the sequence:
COLOUR	BLACK	WHITE	RED – GREY – BLUE – BROWN – GREEN - YELLOW.

ELECTRICAL AND MECHANICAL CHARACTERISTICS (20°C)

		1.4 mm
Conductor resistance (Ω/km)		11,2 ± 0,5; Max: 11,9
Minimum insulation resistance (MΩ.km, 20 °C, 500 V)		35000
Dielectric strength (Vcc, 3 s)	Conductors	3000
	Core-Screen	5000
Admissible bending Radius		15 x Ø cable
Temperatura range		-25° C / +75° C

DIMENSIONS AND WEIGHTS

Section: 1.4 mm			
Code	Nº Conductors	Cable Nominal OD (mm)	Nominal weight (kg/km)
EA470DVA400040WN	4	14.4	285
EA470DVA400070WN	7	15.7	365
EA470DVA400090WN	9	18.4	450
EA470DVA400120WN	12	18.4	500
EA470DVA400190WN	19	20.5	665
EA470DVA400270WN	27	23.4	865
EA470DVA400370WN	37	25.5	1075
EA470DVA400480WN	48	28.4	1320
EA470DVA400610WN	61	31.7	1620

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CONTROL-COMMAND AND RAILWAY SIGNALLING CABLES MULTICONDUCTORS – SELF-SUPPORTED - OUTDOOR
EA470HC

DESCRIPTION AND APPLICATION

Cables from 2 to 61 conductors. Copper conductor of 1,4mm section insulated with PE. Conductors are stranded in layers to form the core, core that is protected with a EAPSSP-8 type sheath. They are used as railway signaling cables. Self-supported aerial installation. This sheath offers protection against hunters. CPR Classification: Fca

CONSTRUCTION

- **Conductors:** Annealed copper. Section: 1,4mm.
- **Insulating:** Solid polyethylene.
- **Cabling element:** Conductors.
- **Core Construction:** Conductors are stranded in layers. See coloured code table.
- **Core wrapping:** Dielectric tape longitudinally applied with overlap.
- **Screen:** Aluminium-copolymer tape longitudinally applied with overlap.
- **Inner sheath:** Polyethylene.
- **Armour:** Two steel tapes helically applied.
- **Support:** Galvanized Steel wire rope.
- **Outer Sheath:** UV resistant black polyethylene.
- **Marking:** CABLESCOM / Year / Lenght (Other type of marking available under request).

COLOUR CODE

LAYER	CONDUCTOR							
	PILOT	DIRECTION	CONDUCTOR 1	CONDUCTOR 2	CONDUCTOR 3	CONDUCTOR 4	CONDUCTOR 5	CONDUCTOR 6
CENTRAL	BLACK	WHITE	RED	GREY				
LAYER	BLACK	WHITE	RED	GREY	BLUE	BROWN	GREEN	YELLOW

ELECTRICAL AND MECHANICAL CHARACTERISTICS (20°C)

		1.4 mm
Conductor resistance (Ω/km)		11,2 ± 0,5; Max: 11,9
Minimum insulation resistance (MΩ.km, 20 °C, 500 V)		15000
Dielectric strength (Vcc, 3 s)	Conductors	3000
	Core-Screen	3500
Bending		15 x Ø cable
Temperatura range		-25° C / +75° C

DIMENSIONS AND WEIGHTS

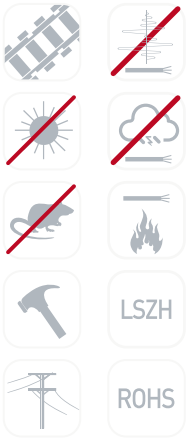
Section: 1.4 mm			
Nº Conductors	Support Type	Nominal diameter (mm)	Nominal weight (kg/km)
2	Type A (1+6+12) 3.0 mm	24,2+14,2	357
4	Type A (1+6+12) 3.0 mm	25,3+15,3	380
7	Type B (1+6+12) 5.5 mm	31,3+17,8	625
9	Type B (1+6+12) 5.5 mm	33,5+20,0	709
12	Type B (1+6+12) 5.5 mm	34,0+20,5	768
19	Type B (1+6+12) 5.5 mm	35,9+22,4	930
27	Type B (1+6+12) 5.5 mm	38,6+25,1	1.125
37	Type B (1+6+12) 5.5 mm	41,0+27,5	1.346
48	Type B (1+6+12) 5.5 mm	43,8+30,3	1.593
61	Type B (1+6+12) 5.5 mm	45,9+32,4	1.857

CONTROL-COMMAND AND RAILWAY SIGNALLING CABLES MULTICONDUCTORS – SELF-SUPPORTED - INDOOR

EA470ZV

DESCRIPTION AND APPLICATION

48 conductors cable. Copper conductor of 1,4mm section insulated with PE. Conductors are stranded in layers to form the core, core that is protected with a self-supported and a non-inductive reduction factor 0,3 CCTSST-8 type sheath. They are used as signaling cables, especially in railway applications, where protection against HV lines inductions is required. Aerial installation and fire retardant characteristics.
CPR Classification: B2ca-s1a, a1.



CONSTRUCTION

- **Conductors:** Annealed copper. Section: 1,4mm.
- **Insulating:** Solid polyethylene.
- **Cabling element:** Conductors. See colour code table.
- **Core wrapping:** Dielectric tape longitudinally applied with overlap.
- **Screen:** Corrugated copper tape longitudinally applied with overlap.
- **Inner sheath:** Violet LSZH material.
- **Armour:** Two steel tapes helically applied.
- **Outer sheath:** UV resistant violet LSZH material.
- **Support:** Galvanized Steel wire rope.
- **Marking:** CABLESCOM / Year / Lenght (Other type of marking available under request).

COLOUR CODE

LAYER	CONDUCTOR							
	PILOT	DIRECTION	CONDUCTOR 1	CONDUCTOR 2	CONDUCTOR 3	CONDUCTOR 4	CONDUCTOR 5	CONDUCTOR 6
CENTRAL	BLACK	WHITE	RED	GREY				
LAYER	BLACK	WHITE	RED	GREY	BLUE	BROWN	GREEN	YELLOW

ELECTRICAL AND MECHANICAL CHARACTERISTICS (20°C)

		1.4 mm
Conductor resistance (Ω/km)		11,2 ± 0,5; Max: 11,9
Minimum insulation resistance (MΩ.km, 20 °C, 500 V)		15000
Dielectric strength (Vcc, 3 s)	Conductors	3000
	Core-Screen	3500
Induced voltage [V/km]	110 V a 320 V	<0,3
Bending		15 x Ø cable
Temperatura range		-25° C / +75° C

DIMENSIONS AND WEIGHTS

Section: 1.4 mm			
Nº Conductors	Support Type	Nominal diameter (mm)	Nominal weight (kg/km)
48	Type B(1+6+12) 5,5mm	45,7+32,2	2.288

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QUADS CABLES

CONTROL-COMMAND AND RAILWAY SIGNALLING CABLES QUADS – OUTDOOR – X - EAPSSP

EA510H0

DESCRIPTION AND APPLICATION

Cables from 1 to 28 quads, of 0.9 or 1.4 mm, polyethylene insulated. Quads are stranded in layers to form the core which is then protected by a double polyethylene sheath, aluminium screen and double Steel tape (EATSST) armour. Cables for networks or trucks, especially in railway applications. Installed in ducts or buried.
CPR Classification: Fca.

CONSTRUCTION

- **Conductors:** Annealed copper solid wire, 0.9 or 1.4 mm. diameter.
- **Insulating:** Solid polyethylene.
- **Core Formation:** Star Quads. See colour code table.
- **Core wrapping:** Dielectric tape longitudinally applied with overlap.
- **Screen:** Aluminium- copolymer tape longitudinally applied with overlap.
- **Inner sheath:** Polyethylene.
- **Armour:** Two steel tapes helically applied.
- **Outer sheath:** UV resistant black polyethylene material.
- **Marking:** CABLESCOM / Year / Lenght (Other type of marking available under request)

COLOUR CODE

LAYER	Quad	CONDUCTOR			
		1	2	3	4
Central and Even Num Layers	First	ORANGE	GREEN	RED	WHITE
	Even Num	YELLOW	GREEN	BLUE	WHITE
	Odd Num	YELLOW	GREEN	RED	WHITE
	Last	ORANGE	GREEN	BLUE	WHITE
Odd Num Layers	First	ORANGE	GREEN	RED	BLACK
	Even Num	YELLOW	GREEN	BLUE	BLACK
	Odd Num	YELLOW	GREEN	RED	BLACK
	Last	ORANGE	GREEN	BLUE	BLACK

ELECTRICAL AND MECHANICAL CHARACTERISTICS (20°C)

		0.9 mm	1.4 mm
Conductor resistance [Ω/km)]		27,5±0,5 Max: 29,0	11,2±0,5 Max: 11,9
Resistance Unbalance [%] 100x(Rmax-Rmin)/(Rmax+Rmin)		Average: 1 % Max: 2 %	
Minimum insulation resistance [MΩxkm, 20 °C, 500 V]		15000	
Mutual Capacitance [nF/km, 1000 Hz]		Average: 38 ± 3;Max: 45	Average: 41 ± 4;Max: 48
Capacitance unbalance [pF/460 m, 1000 Hz]	Pair – Pair Pair – Earth	* Note : The average value only applies from cables with 7 quads Average < 35; Max < 250 Average < 320; Max < 1200	
Dielectric Strength [Vcc, 3 s]	Conductor – Conductor Conductor – Screen	3000 3500	
Nominal Attenuation [dB/km]	1 kHz 10 kHz 30 kHz	0,70 1,60 2,10	0,46 0,85 1,30
Temperature range		-25 °C / +75 °C	
Bending		15 x Ø cable	

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CONTROL-COMMAND AND RAILWAY SIGNALLING CABLES QUADS – OUTDOOR – X - EAPSSP

EA510H0

DIMENSIONS AND WEIGHTS

Section: 0.9 mm			
Code	Nº Quads	Nominal diameter (mm)	Nominal weight (kg/km)
EA510H09000010WN	1	12,9	214
EA510H09000030WN	3	16,2	339
EA510H09000050WN	5	18,8	464
EA510H09000070WN	7	20,6	549
EA510H09000100WN	10	23,1	690
EA510H09000140WN	14	27,0	1.188
EA510H09000190WN	19	30,0	1.443
EA510H09000250WN	25	33,1	1.723
EA510H09000280WN	28	34,5	1.870

Section: 1.4 mm			
Code	Nº Quads	Nominal diameter (mm)	Nominal weight (kg/km)
EA510H0A400010WN	1	15,5	309
EA510H0A400030WN	3	20,4	536
EA510H0A400050WN	5	25,9	815
EA510H0A400070WN	7	26,3	943
EA510H0A400100WN	10	30,5	1.233
EA510H0A400140WN	14	34,5	1.605
EA510H0A400190WN	19	38,6	2.062
EA510H0A400250WN	25	42,9	2.574
EA510H0A400280WN	28	44,8	2.840

CONTROL-COMMAND AND RAILWAY SIGNALLING CABLES QUADS – INDOOR – X - EATSST

EA510GV

DESCRIPTION AND APPLICATION

Cables from 1 to 25 quads, of 0.9 or 1.4 mm, polyethylene insulated. Quads are stranded in layers to form the core which is then protected by a double LSZH material sheath, aluminium screen and double Steel tape (EATSST) armour. Cables for railway telecomunications, to install in ducts or tunnels where behaviour against fire is needed. CPR Classification: B2ca-s1a, a1.

CONSTRUCTION

- **Conductors:** Annealed copper solid wire, 0.9 or 1.4 mm. diameter.
- **Insulating:** Solid polyethylene.
- **Core formation:** Star Quads. See colour code table.
- **Core wrapping:** Dielectric tape longitudinally applied with overlap.
- **Screen:** Aluminium-copolymer tape longitudinally applied with overlap.
- **Inner sheath:** LSZH material.
- **Armour:** Two steel tapes helically applied.
- **Outer sheath:** UV resistant violet LSZH material.
- **Marking:** CABLESCOM / Year / Lenght (Other type of marking available under request)

COLOUR CODE

LAYER	Quad	CONDUCTOR			
		1	2	3	4
Central and Even Num Layers	First	ORANGE	GREEN	RED	WHITE
	Even Num	YELLOW	GREEN	BLUE	WHITE
	Odd Num	YELLOW	GREEN	RED	WHITE
	Last	ORANGE	GREEN	BLUE	WHITE
Odd Num Layers	First	ORANGE	GREEN	RED	BLACK
	Even Num	YELLOW	GREEN	BLUE	BLACK
	Odd Num	YELLOW	GREEN	RED	BLACK
	Last	ORANGE	GREEN	BLUE	BLACK

ELECTRICAL AND MECHANICAL CHARACTERISTICS (20°C)

		0.9 mm	1.4 mm
Conductor resistance [Ω/km)]		27,5±0,5 Max: 29,0	11,2±0,5 Max: 11,9
Resistance Unbalance [%] 100x(Rmax-Rmin)/(Rmax+Rmin)		Average: 1 % Max: 2 %	
Minimum insulation resistance [MΩxkm, 20 °C, 500 V]		15000	
Mutual Capacitance [nF/km, 1000 Hz]		Average: 38 ± 3;Max: 45	Average: 41 ± 4;Max: 48
Capacitance unbalance [pF/460 m, 1000 Hz]	Pair – Pair Pair – Earth	* Note : The average value only applies from cables with 7 quads Average < 35; Max < 250 Average < 320; Max < 1200	
Dielectric Strength [Vcc, 3 s]	Conductor – Conductor Conductor – Screen	3000 3500	
Nominal Attenuation [dB/km]	1 kHz 10 kHz 30 kHz	0,70 1,60 2,10	0,46 0,85 1,30
Temperature range		-25 °C / +75 °C	
Bending		15 x Ø cable	

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CONTROL-COMMAND AND RAILWAY SIGNALLING CABLES QUADS – INDOOR – X - EATSST

EA510GV

DIMENSIONS AND WEIGHTS

Section: 0.9 mm			
Code	Nº Quads	Nominal diameter (mm)	Nominal weight (kg/km)
EA510GV9000010WN	1	12,7	263
EA510GV9000030WN	3	16,0	404
EA510GV9000050WN	5	18,8	552
EA510GV9000070WN	7	20,6	646
EA510GV9000100WN	10	23,3	813
EA510GV9000140WN	14	26,0	1.005
EA510GV9000190WN	19	29,4	1.268
EA510GV9000250WN	25	32,7	1.544

Section: 1.4 mm			
Code	Nº Quads	Nominal diameter (mm)	Nominal weight (kg/km)
EA510GVA400010WN	1	13,6	329
EA510GVA400030WN	3	20,2	622
EA510GVA400050WN	5	25,5	927
EA510GVA400070WN	7	26,1	1.070
EA510GVA400100WN	10	30,9	1.430
EA510GVA400140WN	14	35,1	1.853
EA510GVA400190WN	19	39,0	2.342
EA510GVA400250WN	25	43,5	2.909

CONTROL-COMMAND AND RAILWAY SIGNALLING CABLES QUADS – OUTDOOR – REDUCTION FACTOR

EA510HA

DESCRIPTION AND APPLICATION

Cables from 1 to 28 quads, of 0.9 or 1.4 mm, polyethylene insulated. Conductors are stranded in layers to form the core, core that is protected with non-inductive reduction factor 0,3 PE material type CCPSSP sheath. Cables use for networks or trucks, especially in railway applications where protection against HV lines inductions is required. Installed in ducts or buried with special protection against rodents. CPR Classification: Fca.

CONSTRUCTION

- **Conductors:** Annealed copper solid wire, 0.9 or 1.4 mm. diameter.
- **Insulating:** Solid polyethylene.
- **Core Formation:** Star Quads. See colour code table.
- **Core wrapping:** Dielectric tape longitudinally applied with overlap.
- **Screen:** Corrugated copper tape longitudinally applied with overlap.
- **Inner Sheath:** Black PE material.
- **Armour:** Two steel tapes helically applied.
- **Outer Sheath:** UV resistant black PE material.
- **Marking:** CABLESCOM / Year / Lenght (Other type of marking available under request).

COLOUR CODE

LAYER	Quad	CONDUCTOR			
		1	2	3	4
Central and Even Num Layers	First	ORANGE	GREEN	RED	WHITE
	Even Num	YELLOW	GREEN	BLUE	WHITE
	Odd Num	YELLOW	GREEN	RED	WHITE
	Last	ORANGE	GREEN	BLUE	WHITE
Odd Num Layers	First	ORANGE	GREEN	RED	BLACK
	Even Num	YELLOW	GREEN	BLUE	BLACK
	Odd Num	YELLOW	GREEN	RED	BLACK
	Last	ORANGE	GREEN	BLUE	BLACK

ELECTRICAL AND MECHANICAL CHARACTERISTICS (20°C)

		0.9 mm	1.4 mm
Conductor resistance [Ω/km)]		27,5±0,5 Max: 29,0	11,2±0,5 Max: 11,9
Resistance Unbalance [%] 100x(Rmax-Rmin)/(Rmax+Rmin)		Average: 1 % Max: 2 %	
Minimum insulation resistance [MΩxkm, 20 °C, 500 V]		15000	
Mutual Capacitance [nF/km, 1000 Hz]		Average: 38 ± 3;Max: 45	Average: 41 ± 4;Max: 48
Capacitance unbalance [pF/460 m, 1000 Hz]	Pair – Pair Pair – Earth	* Note : The average value only applies from cables with 7 quads Average < 35; Max < 250 Average < 320; Max < 1200	
Dielectric Strength [Vcc, 3 s]	Conductor – Conductor Conductor – Screen	3000 3500	
Nominal Attenuation [dB/km]	1 kHz 10 kHz 30 kHz	0,70 1,60 2,10	0,46 0,85 1,30
Reduction Factor, FR (50 Hz) Induced voltage [V/km] 110-320		< 0,3	
Temperature range		-25 °C / +75 °C	
Bending		15 x Ø cable	

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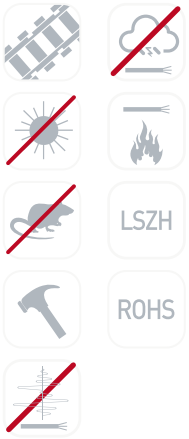
CONTROL-COMMAND AND RAILWAY SIGNALLING CABLES QUADS – OUTDOOR – REDUCTION FACTOR
EA510HA

DIMENSIONS AND WEIGHTS

Section: 0.9 mm			
Code	Nº Quads	Nominal diameter (mm)	Nominal weight (kg/km)
EA510HA9000010WN	1	19,4	597
EA510HA9000030WN	3	20,4	690
EA510HA9000050WN	5	21,3	792
EA510HA9000070WN	7	24,0	932
EA510HA9000100WN	10	26,4	1114
EA510HA9000140WN	14	29,8	1374
EA510HA9000190WN	19	31,7	1634
EA510HA9000280WN	28	35,9	2002

Section: 1.4 mm			
Code	Nº Quads	Nominal diameter (mm)	Nominal weight (kg/km)
EA510HAA400010WN	1	20,8	640
EA510HAA400030WN	3	25,9	930
EA510HAA400050WN	5	26,4	1145
EA510HAA400070WN	7	31,3	1465
EA510HAA400100WN	10	35,1	1790
EA510HAA400140WN	14	38,6	2250
EA510HAA400190WN	19	42,9	2610
EA510HAA400250WN	25	47,2	3255

RAILWAY SIGNALLING CABLES, QUADS, PE SHEATH FOR INDOOR INSTALLATIONS AND PROTECTED AGAINST INTERFERENCES. ADIF STANDARD 03.365.052.4 EA510HV



DESCRIPTION AND APPLICATION

Cables from 1 to 25 quads of 0.9 or 1.4 mm, polyethylene insulated. Quads are stranded in layers to form the core which is then protected by an anti inductive sheath with reduction factor 0,3.
They are used as control cables up to 90 kHz signals, especially in rail infrastructures, when protection is required against the induction of high voltage lines. For installation in ducts or directly buried in tunnels where protection against rodents and fire resistant characteristics are needed.
CPR Classification: B2ca, s1a, d1, a1. (Check availability)

CONSTRUCTION

- **Conductors**: Annealed copper solid wire, 0.9 or 1.4 mm. diameter.
- **Insulation**: Solid polyethylene.
- **Cabling element**: The pairs into the quads are identified by colour of the wires insulation in each layer according to the codes in the table below.
- **Core formation**: Stranded in Layers.
- **Screening**: Corrugated copper tape longitudinally applied with overlap.
- **Inner sheath**: LSZH violet material.
- **Armouring**: Two helically applied steel tapes (0,5 mm thickness).
- **Outer sheath**: UV resistant violet LSZH RAL 4008.
- **Sheath marks**: The sheath shall be marked, at a regular intervals, with the following information:
  - CABLESCOM / year / Length markings.
  - Other type of marking available upon request.

COLOUR CODE

LAYER	Quad	CONDUCTOR			
		1	2	3	4
Central and Even Num Layers	First	ORANGE	GREEN	RED	WHITE
	Even Num	YELLOW	GREEN	BLUE	WHITE
	Odd Num	YELLOW	GREEN	RED	WHITE
	Last	ORANGE	GREEN	BLUE	WHITE
Odd Num Layers	First	ORANGE	GREEN	RED	BLACK
	Even Num	YELLOW	GREEN	BLUE	BLACK
	Odd Num	YELLOW	GREEN	RED	BLACK
	Last	ORANGE	GREEN	BLUE	BLACK

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RAILWAY SIGNALLING CABLES, QUADS, PE SHEATH FOR INDOOR INSTALLATIONS AND PROTECTED AGAINST INTERFERENCES. ADIF STANDARD 03.365.052.4 EA510HV

ELECTRICAL AND MECHANICAL CHARACTERISTICS (20°C)

		0.9 mm	1.4 mm
Conductor resistance [Ω/km)]		27,5±0,5 Max: 29,0	11,2±0,5 Max: 11,9
Minimum insulation resistance [MΩxkm, 20 °C, 500 V]		35000	
Mutual Capacitance [nF/km, 1000 Hz]		≤45	≤48
Capacitance unbalance [pF/460 m, 1000 Hz]	Pair – Pair Pair – Earth	* Note : The average value only applies from cables with 7 quads Average < 35; Max < 250 Average < 320; Max < 1200	
Dielectric Strength [Vcc, 3 s]	Conductor – Conductor Conductor – Screen	≥3000 ≥5000	
Nominal Attenuation [dB/km]	1 kHz 10 kHz 30 kHz	0,70 1,60 2,10	0,46 0,85 1,30
Reduction factor, Rk (50 Hz)	110 (V/Km) 320 (V/km)	0,3	
Temperature range		-25 °C / +75 °C	
Bending		15 x Ø cable	

DIMENSIONS AND WEIGHTS

Section: 0.9 mm			
Code	Nº Quads	Nominal diameter (mm)	Nominal weight (kg/km)
EA510HV9000010WN	1	19.1	712
EA510HV9000030WN	3	21.1	819
EA510HV9000050WN	5	23.6	971
EA510HV9000070WN	7	24.0	1050
EA510HV9000100WN	10	26.4	1247
EA510HV9000140WN	14	29.8	1539
EA510HV9000190WN	19	32.7	1801
EA510HV9000250WN	25	35.8	2124

Section: 1.4 mm			
Code	Nº Quads	Nominal diameter (mm)	Nominal weight (kg/km)
EA510HVA400010WN	1	19.1	731
EA510HVA400030WN	3	24.9	1083
EA510HVA400050WN	5	28.7	1400
EA510HVA400070WN	7	29.6	1589
EA510HVA400100WN	10	33.1	1935
EA510HVA400140WN	14	37.2	2409
EA510HVA400190WN	19	41.5	2967
EA510HVA400250WN	25	46.2	3627

CONTROL-COMMAND AND RAILWAY SIGNALLING CABLES QUADS – SELF-SUPPORTED – OUTDOOR – X-EAPSSP-8.

ADIF STANDARD 03.365.052.4 EA510HC

DESCRIPTION AND APPLICATION

Cables from 1 to 28 quads, of 0.9 or 1.4 mm, polyethylene insulated. Conductors are stranded in layers to form the core, core that is protected with a self-supported typo EAPSSP-8 sheath. Cables use for networks or trucks, especially in railway applications.
Aerial installation.
CPR Classification: Fca.

CONSTRUCTION

- **Conductors:** Annealed copper solid wire, 0.9 or 1.4 mm. diameter.
- **Insulating:** Solid polyethylene.
- **Core Formation:** Star Quads. See colour code table.
- **Core wrapping:** Dielectric tape longitudinally applied with overlap.
- **Screen:** Aluminium- copolymer tape longitudinally applied with overlap.
- **Inner sheath:** Low Density polyethylene.
- **Armour:** Two steel tapes helically applied.
- **Outer sheath:** black PE material.
- **Support:** Galvanized Steel wire rope.
- **Marking:** CABLESCOM / Year / Lenght (Other type of marking available under request).

ELECTRICAL AND MECHANICAL CHARACTERISTICS (20°C)

		0.9 mm	1.4 mm
Conductor resistance [Ω/km]		27,5±0,5 Max: 29,0	11,2±0,5 Max: 11,9
Minimum insulation resistance [MΩxkm, 15 °C, 500 V]		15000	
Resistance Unbalance [%] 100x(Rmax-Rmin)/(Rmax+Rmin)		Average: 1 %; Max: 2 %	
Mutual Capacitance [nF/km, 1000 Hz]		Average: 38 ± 3 Max: 45	Average: 41 ± 4 Max: 48
Capacitance unbalance [pF/460 m, 1000 Hz]	Pair – Pair Pair – Earth	* Note : The average value only applies from cables with 7 quads Average < 35; Max < 250 Average < 320; Max < 1200	
Dielectric Strength [Vcc, 3 s]	Conductor – Conductor Conductor – Screen Screen - Armour	3000 3500 2800	
Nominal Attenuation [dB/km]	1 kHz 10 kHz 30 kHz	0,70 1,60 2,10	0,46 0,85 1,30
Temperature range		-25 °C / +75 °C	
Bending		15 x Ø cable	

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CONTROL-COMMAND AND RAILWAY SIGNALLING CABLES QUADS – SELF-SUPPORTED – OUTDOOR – X-EAPSSP-8.

ADIF STANDARD 03.365.052.4 EA510HC

DIMENSIONS AND WEIGHTS

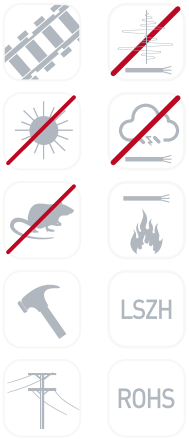
Section: 0.9 mm			
Nº Conductors	Support Type	Nominal diameter (mm)	Nominal weight (kg/km)
1	Type A (1+6+12) 3.0 mm	24,3+14,3	325
3	Type A (1+6+12) 3.0 mm	27,6+17,6	456
5	Type B (1+6+12) 5.5 mm	34,7+21,2	756
7	Type B (1+6+12) 5.5 mm	36,5+23,0	846
10	Type B (1+6+12) 5.5 mm	39,0+25,5	996
14	Type B (1+6+12) 5.5 mm	41,7+28,2	1.183
19	Type B (1+6+12) 5.5 mm	44,7+31,2	1.407
25	Type B (1+6+12) 5.5 mm	49,2+35,7	1.689
28	Type B (1+6+12) 5.5 mm	49,2+35,7	1.790

Section: 1.4 mm			
Nº Conductors	Support Type	Nominal diameter (mm)	Nominal weight (kg/km)
1	Type A (1+6+12) 3.0 mm	25,2+15,2	389
3	Type A (1+6+12) 3.0 mm	31,8+21,8	663
5	Type B (1+6+12) 5.5 mm	41,2+27,7	1.105
7	Type B (1+6+12) 5.5 mm	42,7+29,2	1.259
10	Type B (1+6+12) 5.5 mm	45,8+32,3	1.536
14	Type B (1+6+12) 5.5 mm	49,6+36,1	1.905
19	Type B (1+6+12) 5.5 mm	53,9+40,4	2.354
25	Type B (1+6+12) 5.5 mm	58,3+44,8	2.874
28	Type B (1+6+12) 5.5 mm	59,3+45,8	3.123

CONTROL-COMMAND AND RAILWAY SIGNALLING CABLES QUADS – SELF-SUPPORTED – INDOOR – REDUCTION FACTOR. ADIF STANDARD 03.365.052.4 EA510ZV

DESCRIPTION AND APPLICATION

25 star quad cable, conductors section 1,4 mm, PE insulating. Conductors are stranded in layers to form the core, core that is protected with a self-supported and a non-inductive reduction factor 0,3 CCTSST-8 type LSZH sheath. Cables use for networks or trucks, especially in railway applications. Aerial installation and fireproof characteristics. CPR Classification: B2ca-s1a, a1.



CONSTRUCTION

- **Conductors:** Annealed copper. Section: 1,4mm.
- **Insulating:** Solid polyethylene.
- **Core Formation:** Star Quads. See colour code table.
- **Core wrapping:** Dielectric tape longitudinally applied with overlap.
- **Screen:** Corrugated copper tape longitudinally applied with overlap.
- **Inner sheath:** Violet LSZH material.
- **Armour:** Two steel tapes helically applied.
- **Outer sheath:** UV resistant violet LSZH material.
- **Support:** Galvanized Steel wire rope.
- **Marking:** CABLESCOM / Year / Lenght (Other type of marking available under request)

ELECTRICAL AND MECHANICAL CHARACTERISTICS (20°C)

		1.4 mm
Conductor resistance [Ω/km]		Average: 11,2±0,5; Max: 11,9
Minimum insulation resistance [MΩxkm, 15 °C, 500 V]		15000
Resistance Unbalance [%] 100x(Rmax-Rmin)/(Rmax+Rmin)		Average: 1 %; Max: 2 %
Mutual Capacitance [nF/km, 1000 Hz]		Average: 41 ± 4 Max: 48
Capacitance unbalance [pF/460 m, 1000 Hz] * Note : The average value only applies from cables with 7 quads	Pair – Pair Pair – Earth	Average < 35; Max < 250 Average < 320; Max < 1200
Dielectric Strength [Vcc, 3 s]	Conductor – Conductor Conductor – Screen Screen - Armour	3000 3500 2800
Nominal Attenuation [dB/km]	1 kHz 10 kHz 30 kHz	0,46 0,85 1.30
Reduction Factor, FR (50 Hz) Induced voltage [V/km] 110-320		<0,3
Temperature range		-25 °C / +75 °C
Bending		15 x Ø cable

DIMENSIONS AND WEIGHTS

Section: 1,4 mm			
Nº Conductors	Support Type	Nominal diameter (mm)	Nominal weight (kg/km)
25	Tipo B (1+6+12) 5,5 mm	60,0+46,5	3.855

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PAIRS CABLES

RAILWAY SIGNALLING CABLES, SHIELDED PAIRS, PE SHEATH FOR EXTERNAL INSTALLATIONS AND PROTECTED AGAINST INTERFERENCES. ADIF STANDARD 03.365.052.4 EA491K0

DESCRIPTION AND APPLICATION

Cables of 1 to 20 pairs individually shielded with an aluminium/polyester laminate. Conductors of 0.9 and 1.4 mm nominal diameter, PE insulation. Pairs are stranded in layers to form the core that is protected with an anti-inductive polyethylene sheath with a reduction factor of 0.1.
They are used as signalling cables in railways infrastructures where protection against power lines induction is required. For installation in ducts or directly buried. Cable protected against rodents.
CPR Classification: Fca

CONSTRUCTION

- **Conductors:** Annealed copper, 0.9 and 1.4 mm of nominal diameter.
- **Insulation:** Solid polyethylene.
- **Cabling elements:** Shielded pairs with an aluminium/polyester tape. Continuity tinned wire under the tape.
- **Core formation:** Stranded in layers.
- **Core wrapping:** Dielectric tape longitudinally applied with overlap.
- **Cable screen:** Copper wires helicoidally applied.
- **Inner sheath:** Polyethylene.
- **Armour:** Two steel tapes helically applied.
- **Outer sheath:** UV resistant black polyethylene.
- **Sheath marking:** The outer sheath shall be marked in white ink, at regular intervals, with the following information:
  - Name of manufacturer/ Year/ Length marks.
  - Other type of marks according to the costumer.

ELECTRICAL AND MECHANICAL CHARACTERISTICS (20°C)

		0.9 mm	1.4 mm
Conductor resistance (Ω/km, c.c.)		Average: 27.5±1; Maximum 29.0	Average: 11.2±0.5; Maximum 11.9
Minimum Insulation resistance (MΩxkm, 500 Vdc) One conductor against others connected to screen to earth		> 35000	
Resistance Unbalance [%]	100x(Rmax-Rmin)/(Rmax+Rmin)	Average: 1.0 Maximum: 2.0	
Mutual Capacitance [nF/km, 1000 Hz] Note :Average limit apply only to cables from 7 pairs		Average: 59 ± 3* Maximum: 65	
Dielectric Strength [Vcc, 3 s]	Conductor – Conductor Conductor – Screen Indiv. Screen – Indiv. Screen	> 4500 > 1500 > 300	
Inductance (mH/Km, 1.000±200 Hz)		≤0.72	
Nominal Attenuation (dB/km)	1 kHz 3 kHz 5 kHz 10 kHz	> 80 > 80 > 80 > 75	
Nominal Attenuation (dB/km)	1 kHz 3 kHz 5 kHz 10 kHz	> 80 > 80 > 75 > 65	
Reduction Factor, RK (50 Hz) Inducted Tension [V/km]: 200 – 500		0.1	
Temperature range		-25 °C / +75 °C	
Bending radius		15 x Ø cable	

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RAILWAY SIGNALLING CABLES, SHIELDED PAIRS, PE SHEATH FOR EXTERNAL INSTALLATIONS AND PROTECTED AGAINST INTERFERENCES. ADIF STANDARD 03.365.052.4 EA491K0

DIMENSIONS AND WEIGHTS

0.9 mm			
Code	Nº Quads	Nominal diameter (mm)	Nominal weight (kg/km)
EA491K091000100N	1	23.5	1000
EA491K091000300N	3	25.3	1120
EA491K091000500N	5	26.0	1250
EA491K091000600N	6	27.3	1350
EA491K091000800N	8	29.8	1500
EA491K091001000N	10	32.0	1625
EA491K091001400N	14	35.7	1750

1.4 mm			
Code	Nº Quads	Nominal diameter (mm)	Nominal weight (kg/km)
EA491K0A4000100N	1	22.5	1000
EA491K0A4000200N	2	27.9	1400
EA491K0A4000300N	3	29.9	1530
EA491K0A4000400N	4	30.8	1600
EA491K0A4000500N	5	31.0	1700
EA491K0A4000600N	6	34.8	1950
EA491K0A4000800N	8	37.0	2150
EA491K0A4001000N	10	38.5	2350
EA491K0A4001200N	12	41.0	2500
EA491K0A4001400N	14	43.1	2650
EA491K0A4001600N	16	45.8	3000
EA491K0A4001800N	18	48.4	3300
EA491K0A4002000N	20	50.4	3500

CONTROL-COMMAND AND RAILWAY SIGNALLING CABLES PAIRS – OUTDOOR - EAPSSP

EA2YAH0

DESCRIPTION AND APPLICATION

1 pair Railway ERMTS signalling conexión cable, conductors insulated with solid polyethylene. EAP inner sheath, two steel tapes helically applied armour and black polyethylene outer sheath. Recommended for installation in ducts or buried. Cable protected against rodents.
CPR Classification: Fca

CONSTRUCTION

- **Conductors:** Annealed copper. Section: 0,9 and 1,4 mm
- **Insulation:** Solid polyethylene.
- **Cabling element:** 1 pair.
- **Core wrapping:** Dielectric tape longitudinally applied with overlap.
- **Cable screen:** Aluminium-copolymer tape longitudinally applied with overlap.
- **Inner sheath:** Black polyethylene.
- **Armour:** Two steel tapes helically applied.
- **Outer sheath:** UV resistant black polyethylene.
- **Marking:** CABLESCOM/ Year/ Lenght (Other type of marking available under request).

ELECTRICAL AND MECHANICAL CHARACTERISTICS (20°C)

		0.9 mm	1.4 mm
Conductor resistance (Ω/km, c.c.)		Average: 27.5±1; Maximum 29.0	Average: 11.2±0.5; Maximum 11.9
Minimum Insulation resistance (MΩxkm, 500 Vcc) One conductor against others connected to screen to earth		⩾ 15000	
Resistance Unbalance [%]	100x(Rmax-Rmin)/(Rmax+Rmin)	2 %	
Mutual Capacitance [nF/km, 1000 Hz] Note :Average limit apply only to cables from 7 pairs		Average: 52 ± 3* Maximum: 58	
Capacitance unbalance [pF/460 m, 1000 Hz]	Pair – Pair Pair – Earth	Average < 35; Max < 250 Average < 320; Max < 1200	
Dielectric Strength [Vcc, 3 s]	Conductor – Conductor Conductor – Screen	3000 3500	
Capacitance unbalance (%)		Average ⩽ 4%	
Nominal Attenuation (dB/km)	800 Hz 1500 Hz 3000 Hz 1 MHz	0,74 1,01 1,42 12,8	0,47 0,65 0,92 7,98
Temperature range		-25 °C / +75 °C	
Bending radius		15 x Ø cable	

DIMENSIONS AND WEIGHTS

Code	Conductor Diameter	Nominal OD [mm]	Nominal weight [kg/km]
EA2YAH090000100N	0,9	12,0	183
EA2YAH0A4000100N	1,4	14,2	251

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CONTROL-COMMAND AND RAILWAY SIGNALLING CABLES PAIRS – INDOOR - EATSST

EA2YAGV

DESCRIPTION AND APPLICATION

1 pair Railway ERMTS signalling conexión cable, conductors insulated with solid polyethylene. LSZH inner sheath, two steel tapes helically applied armour and violet LSZH outer sheath. The cable is used for ERTMS beacon signaling connection systems where fire protection is required.
Recommended for installation in ducts, trays or in tunnels.
Clasificación CPR: B2ca - s1a, a1.

CONSTRUCTION

- **Conductors**: Annealed copper. Section: 0,9 and 1,4 mm
- **Insulation**: Solid polyethylene.
- **Cabling element**: 1 pair.
- **Core wrapping**: Dielectric tape longitudinally applied with overlap.
- **Cable screen**: Aluminium-copolymer tape longitudinally applied with overlap.
- **Inner sheath**: violet LSZH thermoplastic sheath.
- **Armour**: Two steel tapes helically applied.
- **Outer sheath**: UV resistant violet LSZH.
- **Marking**: CABLESCOM/ Year/ Lenght (Other type of marking available under request)

ELECTRICAL AND MECHANICAL CHARACTERISTICS (20°C)

		0.9 mm	1.4 mm
Conductor resistance (Ω/km, c.c.)		Average: 27.5±1; Maximum 29.0	Average: 11.2±0.5; Maximum 11.9
Minimum Insulation resistance (MΩxkm, 500 Vcc) One conductor against others connected to screen to earth		⩾ 15000	
Resistance Unbalance [%]	100x(Rmax-Rmin)/(Rmax+Rmin)	2 %	
Mutual Capacitance [nF/km, 1000 Hz] Note :Average limit apply only to cables from 7 pairs		Average: 52 ± 3* Maximum: 58	
Capacitance unbalance [pF/460 m, 1000 Hz]	Pair – Pair Pair – Earth	<260 <2625	
Dielectric Strength [Vcc, 3 s]	Conductor – Conductor Conductor – Screen	3000 3500	
Capacitance unbalance (%)		Average ⩽ 4%	
Nominal Attenuation (dB/km)	800 Hz 1500 Hz 3000 Hz 1 MHz	0,74 1,01 1,42 12,8	0,47 0,65 0,92 7,98
Temperature range		-25 °C / +75 °C	
Bending radius		15 x Ø cable	

DIMENSIONS AND WEIGHTS

Code	Conductor Diameter	Nominal OD [mm]	Nominal weight [kg/km]
EA2YAGV90000100N	0,9	11,8	227
EA2YAGV40000100N	1,4	14.0	306

CONTROL-COMMAND AND RAILWAY SIGNALLING CABLES PAIRS – OUTDOOR – REDUCTION FACTOR - PCCPSSP.

ADIF STANDARD 03.365.052.4 EA2YAPB

DESCRIPTION AND APPLICATION

1 pair Railway ERMTS signalling conexion cable, conductors insulated with solid polyethylene. This cable is protected against external inductions from the catenary with a reduction factor of 0.3, by means of a double metal sheath (CCPSSP) with a copper wires screen and two steel tapes in helix. Black PE inner, intermediate and outdoor sheath.
Recommended for installation in ducts or buried.
CPR Classification: Fca.

CONSTRUCTION

- **Conductors**: Annealed copper. Section: 0,9 and 1,4 mm
- **Insulation**: Solid polyethylene.
- **Cabling element**: 1 pair.
- **Core wrapping**: Dielectric tape longitudinally applied with overlap.
- **Protection sheath**: black polyethylene.
- **Cable screen**: Copper wire screen.
- **Inner sheath**: black polyethylene.
- **Armour**: Two steel tapes helically applied.
- **Outer sheath**: UV resistant black polyethylene.
- **Marking**: CABLESCOM/ Year/ Lenght (Other type of marking available under request)

ELECTRICAL AND MECHANICAL CHARACTERISTICS (20°C)

		0.9 mm	1.4 mm
Conductor resistance (Ω/km, c.c.)		Average: 27.5±1; Maximum 29.0	Average: 11.2±0.5; Maximum 11.9
Minimum Insulation resistance (MΩxkm, 500 Vcc)		⩾ 15000	
Resistance Unbalance [%]	100x(Rmax-Rmin)/(Rmax+Rmin)	2 %	
Mutual Capacitance [nF/km, 1000 Hz]		Average: 52 ± 2 Maximum: 58	
Capacitance unbalance [pF/460 m, 1000 Hz]	Pair – Pair Pair – Earth	<260 <2625	
Dielectric Strength [Vcc, 3 s]	Conductor – Conductor Conductor – Screen	3000 3500	
Capacitance unbalance (%)		Average ⩽ 4%	
Nominal Attenuation (dB/km)	800 Hz 1500 Hz 3000 Hz 1 MHz	0,74 1,01 1,42 12,8	0,47 0,65 0,92 7,98
Reduction factor (50 Hz)	Induced voltage [V/km] 110-320	< 0,3	
Temperature range		-25 °C / +75 °C	
Bending radius		15 x Ø cable	

DIMENSIONS AND WEIGHTS

Code	Conductor Diameter	Nominal OD [mm]	Nominal weight [kg/km]
EA2YAPB90000100N	0,9	16,4	510
EA2YAPBA4000100N	1,4	18,6	605

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CONTROL-COMMAND AND RAILWAY SIGNALLING CABLES PAIRS – OUTDOOR – REDUCTION FACTOR - TCCTSST
EA2YALB

DESCRIPTION AND APPLICATION

1 pair Railway ERMTS signalling conexion cable, conductors insulated with solid polyethylene. This cable is protected against external inductions from the catenary with a reduction factor of 0.3, by means of a double metal sheath (CCTSST) with a copper wires screen and two steel tapes in helix. Violet LSZH inner, intermediate and outdoor sheath. Recommended for installation in ducts, trays or in tunnels.
CPR Classification: B2ca - s1a, a1.

CONSTRUCTION

- **Conductors**: Annealed copper. Section: 0,9 and 1,4 mm
- **Insulating**: Solid polyethylene.
- **Cabling element**: 1 pair.
- **Core wrapping**: Dielectric tape longitudinally applied with overlap.
- **Protection sheath**: violet LSZH material.
- **Cable screen**: Copper wire screen.
- **Inner sheath**: violet LSZH material.
- **Armour**: Two steel tapes helically applied.
- **Outer sheath**: UV resistant LSZH material.
- **Marking**: CABLESCOM/ Year/ Lenght (Other type of marking available under request)

ELECTRICAL AND MECHANICAL CHARACTERISTICS (20°C)

		0.9 mm	1.4 mm
Conductor resistance (Ω/km, c.c.)		Average: 27.5±1; Maximum 29.0	Average: 11.2±0.5; Maximum 11.9
Minimum Insulation resistance (MΩxkm, 500 Vcc)		⩾ 15000	
Resistance Unbalance [%]	100x(Rmax-Rmin)/(Rmax+Rmin)	2 %	
Mutual Capacitance [nF/km, 1000 Hz]		Average: 52 ± 2 Maximum: 58	
Capacitance unbalance [pF/460 m, 1000 Hz]	Pair – Pair Pair – Earth	<260 <2625	
Dielectric Strength [Vcc, 3 s]	Conductor – Conductor Conductor – Screen	3000 3500	
Capacitance unbalance (%)		Average ⩽ 4%	
Nominal Attenuation (dB/km)	800 Hz 1500 Hz 3000 Hz 1 MHz	0,74 1,01 1,42 12,8	0,47 0,65 0,92 7,98
Reduction factor (50 Hz)	Induced voltage [V/km] 110-320	< 0,3	
Temperature range		-25 °C / +75 °C	
Bending radius		15 x Ø cable	

DIMENSIONS AND WEIGHTS

Code	Conductor Diameter	Nominal OD [mm]	Nominal weight [kg/km]
EA2YALB90000100N	0,9	16,4	593
EA2YALBA4000100N	1,4	18,6	717

GENERAL CATALOGUE 2024
DRIVING THE FUTURE OF CONNECTIVITY

RAILWAY SIGNALING CABLES

1.1.-RAILWAY SIGNALING CABLES - SPAIN

1.2.-RAILWAY SIGNALING CABLES - FRANCE

1.3.-RAILWAY SIGNALING CABLES - GERMANY

1.4.-RAILWAY SIGNALING CABLES - HUNGARY

GENERAL CATALOGUE 2024
DRIVING THE FUTURE OF CONNECTIVITY

QUADS CABLES

QUAD CABLES FOR RAILWAYS SIGNALLING WITH PVC SHEATH - ZC03.

SNCF STANDARD CT-445 EA5N0M3

DESCRIPTION AND APPLICATION

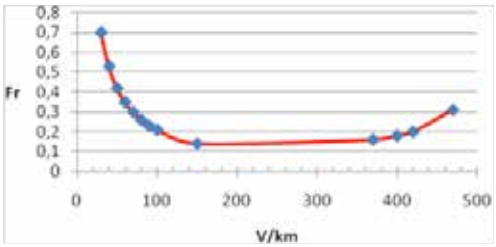
Railway signalling cable of 8 pairs (4 quads). Copper conductor of 1 mm2, insulated with solid coloured polyethylene. Stranded in quads. Shielded with a corrugated copper tape and armoured with two steel tapes helically applied. PVC unleaded outer sheath. This cable is protected against external inductions of the catenaries. It is used to connect the control centre to the track equipment. To be installed in conduit or buried along routes electrified at 25000 volts. Generally according to SNCF CT-445 and EN 50265-2-1

CONSTRUCTION

- **Conductors**: Annealed copper, section 1 mm2.
- **Insulation**: Solid HDPE.
- **Cabling elements**: 4 star quads.
- **Core wrapping**: Longitudinal dielectric tape applied with overlap.
- **Waterproof inner sheath**: Polyethylene.
- **Screen**: Corrugated copper tape longitudinally applied with overlap.
- **Protective layer**: Synthetic material arranged longitudinally with overlap.
- **Armour**: 2 steel tapes applied helically.
- **Outer sheath**: Black unleaded, oil and UV resistant PVC.
- **Sheath marks**: The sheath shall be marked, at a regular intervals, with the following information: CABLESCOM – CABLE TYPE –YEAR –LENGTH MARK

ELECTRICAL CHARACTERISTICS (20°C)

	1 mm² (1.13 mm)
Loop Resistance (Ω/km)	≤18.1
Minimum insulation resistance(MΩxkm, 20°C, 500V)	≥5000
Mutual Capacitance (nF/km, 800 Hz)	40
Dielectric Strength (Vdc, 3min) Conductor - Conductor	<300
Capacitance unbalance (pF/500 m, 1000 Hz)	200
Attenuation (dB/km) 20-45 kHz 45-80 kHz	140 ±10 130 ± 10
REDUCTION FACTOR, Rk	
The Rk shall not exceed the values shown in the graph.	



MECHANICAL AND THERMAL PROPERTIES

Admissible bending Radius	15 x Ø cable
Temperature range	-25º C to +75º C

CABLE DIMENSIONS AND WEIGTHS

EA5N0M5 1.00 mm²		
Quad Num.	Ø Nominal OD (mm)	Cable Weight (kg/km)
4	27.0	1502

GENERAL CATALOGUE 2024
DRIVING THE FUTURE OF CONNECTIVITY

PAIRS CABLES

ZPFU – ARMOURED PAIR CABLES FOR RAILWAY SIGNALLING

EA2M0MS

DESCRIPTION AND APPLICATION

Railway signalling cables from 1 to 28 pairs. Copper conductor of 1 mm2, insulated with solid polyethylene and stranded in pairs. Armoured with two steel tapes applied helically. PVC unleaded outer sheath. This cable is flame retardant and resistant to mineral oils. This cable is used to connect the control centre to the centres of satellite equipment. Installed in conduit or buried along electrified or non-electrified routes to 1500 volts dc. It can also be installed in short lengths along routes electrified at 25 kV ac. Generally according to SNCF CT-445 and EN 50265-2-1.

CONSTRUCTION

- **Conductors:** Annealed copper, section: 1 mm2.
- **Insulation:** Solid high density polyethylene.
- **Cabling element:** Pairs.
- **Lay-up:** In layers Colour code according to SNCF CT-445.
- **Core wrapping:** Dielectric tape longitudinally applied with overlap.
- **Inner sheath:** Polyethylene.
- **Armour:** Two steel tapes helically applied.
- **Outer sheath:** Black unleaded and UV resistant PVC.
- **Markings:** CABLESCOM / year / Length markings(Other type of marking available upon request).

ELECTRICAL AND MECHANICAL CHARACTERISTICS (20 °C) (1 MM²)

Maximum loop resistance (Ω/km)	18.1
Resistance unbalance (%) 100x(Rmax-Rmin)/(Rmin+Rmax)	< 2.5
Minimum insulation resistance (MΩxkm, 20 °C, 500 V)	5000
Maximum mutual capacitance (nF/km, 1000 Hz)	55
Capacitance unbalance (pF/500 m, 1000 Hz) 2 Pair cable Cable > 2 pairs	 300 200
Dielectric strength (Vdc, 3 min) Conductor – Conductor Conductor – Screen	 4500 4500
Temperature range	-25 °C to +75 °C
Minimum bending radius	15 x R cable

TRANSMISSION CHARACTERISTICS (20 °C) (1 MM²)

Maximum attenuation (dB/km) 25 - 45 kHz 48 - 80 kHz	 2.5 3.0
Characteristic impedance (Ω) 2 Pair cables 25 – 45 kHz 45 – 80 kHz Cables > 2 Pairs 45 – 80 kHz 45 – 80 kHz	 140 ± 10 130 ± 10 120 ± 10 115 ± 10

DIMENSIONS AND WEIGHTS

Pair Num.	Nominal OD(mm)	Nominal Weight (Kg/Km)
1	12.0	176
2	13.3	251
4	18.5	405
7	20.0	690
14	26.7	1089
21	30.9	1409
28	34.3	1716

RAILWAY SIGNALLING CABLES, PAIRS, PVC SHEATH, PROTECTED AGAINST INTERFERENCES - ZPAU.

SNCF STANDARD CT-445 EA2M0M2

DESCRIPTION AND APPLICATION

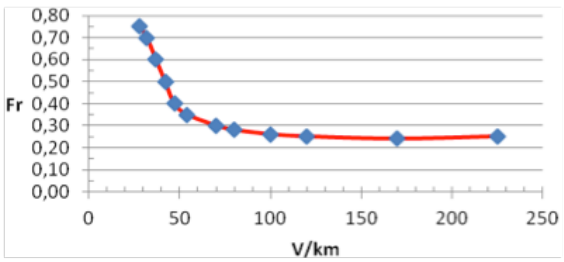
Railway signal cables from 2 to 28 pairs. Annealed copper conductors of 1, 1.5 mm2 or 2.5 mm2 section, insulated in solid PE. Stranded in pairs or quads Shielded with corrugated copper tape and armoured with two steel tapes applied helically. PVC unleaded outer sheath. This cable is flame retardant and resistant to mineral oils. This cable is used to connect the control centre to the centres of satellite equipment. It can also be installed in short lengths along routes electrified at 25 kV ac. Generally according to SNCF CT-445 and EN 60332-1.

CONSTRUCTION

- **Conductors:** Annealed copper solid wire, 1, 1.5 or 2.5 mm2. (1.13 , 1,38 or 1,8 mm diameter)
- **Insulation:** Solid polyethylene.
- **Cabling element:** Stranded into pairs.
- **Core formation:** Stranded in concentric layers, according CT-445.
- **Protective layer:** Waterproof synthetic material arranged longitudinally with overlap.
- **Inner sheath:** PE sheath.
- **Armouring:** Copper tape longitudinally applied. Dielectric tape and two helically applied steel tapes.
- **Outer sheath:** Black unleaded, oil and UV resistant PVC.
- **Sheath marks:** The sheath shall be marked, at a regular intervals, with the following information: CABLESCOM – CABLE TYPE –YEAR –LENGTH MARK

ELECTRICAL CHARACTERISTICS (20°C)

	1 mm² (1.13 mm)	1.5 mm² (1.38 mm)	2.5 mm² (1.8 mm)
Loop Resistance (Ω/km)	≤36.2	≤24.2	≤14.82
Minimum insulation resistance(MΩxkm, 20°C, 500V)		≥5000	
Mutual Capacitance (nF/km, 800 Hz)	≤55	≤55	≤45 (1 pair) ≤55 (2, 4 and 7 pairs)
Dielectric Strength (Vdc, 3min) Conductor - Conductor Conductor - Screen		 4500 4500	
Capacitance unbalance (pF/500 m, 1000 Hz) Pair – Pair Pair – Screen		 <300 <200	
Attenuation (dB/km) 20-45 kHz 45-80 kHz 560 kHz	 <2.5 <3.0	 <2.0 <2.5	 <3.8 (1 pair)
REDUCTION FACTOR, Rk			
The Rk shall not exceed the values shown in the graph.			



MECHANICAL AND THERMAL PROPERTIES

Admissible bending Radius	15 x Ø cable
Temperature range	-25º C to +75º C

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RAILWAY SIGNALLING CABLES, PAIRS, PVC SHEATH, PROTECTED AGAINST INTERFERENCES - ZPAU.

SNCF STANDARD CT-445 EA2M0M2

CABLE DIMENSIONS AND WEIGTHS

EA2M0M2 1.00 mm²		
Pair Num.	Ø Nominal OD (mm)	Cable Weight (kg/km)
1	17.6	560
2	17.6	577
4	21.6	750
7	21.6	907
14	29.0	1297
21	32.4	1646
28	36.8	1929

EA2M0M2 1.50 mm²		
Pair Num.	Ø Nominal OD (mm)	Cable Weight (kg/km)
1	17.9	543
4	25.4	935
7	27.0	1103
14	33.8	1645
28	42.8	2563

EA2M0M2 2.50 mm²		
Pair Num.	Ø Nominal OD (mm)	Cable Weight (kg/km)
1	19.6	657
2	18.6	700
4	27.5	1130

CABLESCOM

SPAIN

A MEMBER OF HENGTONG GROUP

ZUG-S. FLEXIBLE ELECTRICAL CABLES FOR INTERIOR EQUIPMENT OF SIGNALING CIRCUITS.

SNCF CT-455 ZUG

DESCRIPTION AND APPLICATION

Flexible electric cables intended for the interior equipment of signaling circuits, 6 and 12 pairs. Tinned copper conductors, PVC insulated. Cabling in pairs and assembly in concentric layers. Outer sheath in black PVC, without armour.
These cables are flame retardant and mineral oil resistant.

CONSTRUCTION

- **Conductors**: Tinned annealed copper. Nominal Section 0,4 or 1 mm2. Class 5.
- **Insulation**: PVC.
- **Cabling elements**: Pairs.
- **Assemblage**: Marking according to SNCF CT-455. Dielectric tape applied.
- **Outer sheath**: Black unleaded, oil and UV resistant PVC.
- **Marking**: The sheath shall be marked, at a regular intervals, with the following information:
  - ZUG-S NNp x SSmm2 – CT 455 – CABLESCOM – NN – Month/Lot – SNCF RÉSEAU - mmmm
    o other type of marks according to the costumer.

ELECTRICAL PROPERTIES (20ºC)

	0,4 mm² (12/0,2 mm.)	1 mm² (32/0,2 mm.)
Conductor resistance (Ω/km) (Conductor/Cable)	50.9 / 52.5	20.0 / 20.1
Insulation resistance (MΩxkm, 20ºC, 500 V)	100	100
Dielectric Strength (Vac/Vcc, 3 min) Conductor – Conductor	2.500 / 4.000	2.500 / 4.000

MECHANICAL CHARACTERISTICS

Mechanical Characteristics	Test Conditions
Temperature cycling	-25º C à +70º C
Curvature	15 x Rcable

CABLE DIMENSIONS AND WEIGHT

Code	Pairs Num.	Central Section (mm²)	Diam.Nom. Cable (mm)	Nom weight (kg/km)	Max lenght (m)
2014000033-1-1-3-701	1	1	7.6	65	2.000
2014000033-1-1-4-701	3	1	12.2	135	2.000
2014000033-1-1-1-701	6	1	14.0	220	2.500
2014000033-1-1-2-701	12	1	17.1	340	2.000
2014000033-1-2-1-701	28	0.4	15.8	390	2.000

30 PAIR TELECOM CABLE, PE INSULATED, ARMOURED, OUTER PVC SHEATH.

EA221MS

DESCRIPTION AND APPLICATION

110V DC nominal voltage cables for telephone transmission use, made of solid circular copper core conductors of 0.93 mm diameter, insulated with polyethylene, assembled in four central pairs, an electrostatic shield with drain wire, a first concentric layer 10 pairs, a second concentric layer of 16 pairs, an inner protection sheath of polyethylene, two 0.2 mm thickness steel tape laying helically with mutual overlapping, an outer sheath of polyvinyl chloride protection.

CONSTRUCTION

- **Conductors**: Solid, copper conductor. 0.93 mm diameter. Class 1 to EN60228
- **Insulation**: Solid polyethylene, >0.5 mm thickness.
- **Cabling elements**: Pairs
- **Colour code**: See table 1
- **Construction and Cabling**: 4 central pairs with a first layer of polyester tape ≈ 23 µm, a second layer of Al tape 0.04/0.023 mm (with covering percentage not lower than 15%), a drain of tinned copper wire with diameters of 0.5 mm.
  First layer of 10 concentric pairs, a second layer of 16 concentric pairs.
  Core wrap: Two expanded polypropylene tapes (> 0.25 mm each) forming a bedding >0.4 mm thickness, a drain of tinned copper with diameter of 0.5 mm, an Al tape with 0.15 mm thickness plus 0.05 mm polyethylene coating.
- **Inner sheath**: 1.8 mm thickness polyethylene sheath.
- **Armour**: Two galvanized steel tapes, 0.2mm thick. The tapes are applied helically with gap in such a way that the outer tape covers the gap left by the inner one.
- **Outer sheath**: PVC.

COLOUR CODE

1st Layer	White-Green, Blue-Black, Yellow-Black, Brown-Black;
2nd Layer	White-Grey, Blue-Grey, Yellow-Grey, Brown-Grey, Black-Grey, Red-Grey, Green-Grey, White-Black, Blue-Black, Yellow-Black;
3rd Layer	White-Orange, Blue-Orange, Yellow-Orange, Brown-Orange, Black-Orange, Red-Orange, White-Violet, Blue-Violet, Yellow-Violet, Brown-Violet, Black-Violet, Red-Violet, White-Black, Blue-Black, Yellow-Black, Brown-Black.

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30 PAIR TELECOM CABLE, PE INSULATED, ARMOURED, OUTER PVC SHEATH.

EA221MS

ELECTRICAL CHARACTERISTICS (20°C)

	0.93 mm
Conductor resistance (Ω/km)	⩽ 54
Minimum insulation resistance (MΩxkm, 15 °C, 500 V)	5000
Mutual Capacitance (nF/km, 800 Hz)	45 ± 5%
Dielectric Strength (Vdc, 2min) Conductor - Conductor Conductor – Screen Conductor/Screen - Armour	 ⩾ 3000 ⩾ 3000 ⩾ 9000
Capacitance unbalance (pF/500 m, 800 Hz) Cond-Cond (Avg / Max) Cond-Ground (Avg / Max)	 ⩽60 / ⩽300 ⩽300 / ⩽1500
Resistance unbalance	< 2%, 100% of pairs < 1%, 95% of pairs
Operating tension (V)	110

MECHANICAL CHARACTERISTICS

Operating temperature range	From -20 to 60°C
Bending factor	15 * Cable diameter

CABLE DIMENSIONS AND WEIGHT

0.93 mm		
Pairs Num.	Ø Nominal OD (mm)	Cable Weight (kg/km)
30	30.2	1115

GENERAL CATALOGUE 2024
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RAILWAY SIGNALING CABLES

1.1.-RAILWAY SIGNALING CABLES - SPAIN

1.2.-RAILWAY SIGNALING CABLES - FRANCE

1.3.-RAILWAY SIGNALING CABLES - GERMANY

1.4.-RAILWAY SIGNALING CABLES - HUNGARY

GENERAL CATALOGUE 2024
DRIVING THE FUTURE OF CONNECTIVITY

MULTICONDUCTOR CABLES

RAILWAY SIGNALLING CABLES, MULTICORE, PE SHEATH FOR EXTERNAL INSTALLATIONS.
A-2YOF(L)2YV (H115-H145)




DESCRIPTION AND APPLICATION

Cables from 1 to 120 conductors of 0.9, 1.4 and 1.8 mm, polyethylene insulated. Conductors are stranded in layers to form the core which is then protected by a 2YV sheath. They are used as control cables up to 100 Hz signals, especially in rail infrastructures laid in ducts. Generally according to DB AG 416.0116 and DB AG 416.0114.

CONSTRUCTION

- **Conductors**: Annealed cooper solid wire, 0.9, 1.4 and 1.8 mm diameter.
- **Insulation**: Solid polyethylene. (2Y).
- **Cabling element**: Conductors.
- **Core filling**: Flooded with low dielectric factor compound to make the cable waterproof. (OF).
- **Core formation**: Stranded in concentric layers.
- **Moisture barrier**: Aluminium tape bonded to the inner sheath.
- **Outer sheath**: UV resistant black reinforced sheath of polyethylene. (2YV).
- **Sheath marks**: The sheath shall be marked, at regular intervals with the following information.
  - SIGNAL / A-2YOF(L)2YV / Capacitance / Manufacturer / Length marks.
  - Other type of marks according to the costumer.

ELECTRICAL CHARACTERISTICS (20°C)

	0.9 mm	1.4 mm	1.8 mm
Maximum Resistance (Ω/km)	⩽ 28.9	⩽ 11.9	⩽ 7.2
Minimum insulation resistance (MΩxkm, 20°C, 500V)		⩾15000	
Mutual Capacitance (nF/km, 800 Hz)	⩽115	⩽145	⩽145
Dielectric Strength (Vdc, 2min)			
Conductor - Conductor		⩾2500	
Conductor - Screen		⩾2500	
Operating Voltage AS/DC (V)		420/600	

MECHANICAL AND THERMAL PROPERTIES

Admissible bending Radius	20 x Ø cable	
Temperature range	operation	-40º C to +60º C
	installation	-10º C to +60º C

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RAILWAY SIGNALLING CABLES, MULTICORE, PE SHEATH FOR EXTERNAL INSTALLATIONS.

A-2YOF(L)2YV (H115-H145)

DIMENSIONS AND WEIGTHS

A-2YOF(L)2YV n x 1 x 0.9 (H115)		
Conductors Num.	Ø Nominal OD (mm)	Cable Weight (kg/km)
2	9.70	75.54
4	10.50	97.31
7	11.50	128.05
10	13.30	169.52
14	14.10	205.81
20	15.10	259.05
24	16.90	310.52
30	17.70	362.25
40	18.70	443.72
50	21.30	552.42
60	22.30	636.47
80	25.10	822.87
100	26.10	975.74
120	29.60	1190.50

A-2YOF(L)2YV n x 1 x 1.4 (H145)		
Conductors Num.	Ø Nominal OD (mm)	Cable Weight (kg/km)
2	11.10	108.17
4	12.20	151.73
7	13.60	215.18
10	16.10	294.45
14	17.20	372.21
20	18.60	486.24
24	21.10	588.80
30	22.20	700.31
40	23.80	886.44
50	27.40	1111.82
60	28.80	1296.37
80	32.80	1706.69
100	36.70	2115.83
120	38.50	2474.15

A-2YOF(L)2YV n x 1 x 1.4 (H145)		
Conductors Num.	Ø Nominal OD (mm)	Cable Weight (kg/km)
2	12.30	141.36
4	13.60	207.77
7	15.40	306.93
10	18.50	427.66
14	19.80	548.95
20	21.60	730.31
24	24.90	893.73
30	26.20	1070.60
40	28.00	1359.93
50	32.80	1730.21
60	34.60	2027.81
80	39.00	2649.72
100	40.80	3205.71
120	46.50	3900.75

RAILWAY SIGNALLING CABLES, MULTICORE, PE SHEATH FOR EXTERNAL INSTALLATIONS AND PROTECTED AGAINST INTERFERENCES. AJ-2YOF(L)2YDB2Y_H115-H145

DESCRIPTION AND APPLICATION

Cables from 1 to 200 conductors of 0.9, 1.4 and 1.8 mm, polyethylene insulated. Conductors are stranded in layers to form the core which is filled with a low dielectric compound to prevent water penetration and then is protected by an anti-inductive (L)2YDB2Y sheath with reduction factor according to customer's requirements. They are used as control cables up to 100 Hz signals, especially in rail infrastructures, when protection is required against the induction of high voltage lines. For installation in ducts or directly buried. The cable is rodent resistant.
Generally according to DB AG 416.0116 and DB AG 416.0113.

CONSTRUCTION

- **Conductors**: Annealed cooper solid wire, 0.9, 1.4 and 1.8 mm diameter.
- **Insulation**: Solid polyethylene. (2Y).
- **Cabling element**: Conductors.
- **Core filling**: Flooded with low dielectric factor compound to make the cable waterproof. (OF).
- **Core formation**: Stranded in concentric layers.
- **Moisture barrier**: Aluminium tape bonded to the inner sheath.(L).
- **Inner sheath**: PE sheath. (2Y).
- **Screening**: Layer of copper wires (Ø0,9/1,2/1,4/1,8 mm). (D).
- **Armouring**: Two helically applied steel tapes (0,5/0,8 mm thickness). (B).
- **Outer sheath**: UV resistant black polyethylene. (2Y).
- **Sheath marks**: The sheath shall be marked, at regular intervals with the following information:
  - SIGNAL / AJ-2YOF(L)2YDB2Y / Capacitance / Manufacturer / Length marks.
  - Other type of marks according to the costumer.

ELECTRICAL CHARACTERISTICS (20°C)

	0.9 mm	1.4 mm	1.8 mm
Maximum Resistance (Ω/km)	⩽ 28.9	⩽ 11.9	⩽ 7.2
Minimum insulation resistance (MΩxkm, 20°C, 500V)		⩾15000	
Mutual Capacitance (nF/km, 800 Hz)	⩽115	⩽145	⩽145
Dielectric Strength (Vdc, 60s) Conductor - Conductor		3500	
Reduction facor, Rk (16 2/3 Hz)	Rk 400	Rk 500	Rk 600
Induced Voltage (V/km) 75 Induced Voltage (V/km) 100	0.15	0.35	0.55

MECHANICAL AND THERMAL PROPERTIES

Admissible bending Radius	Installation	20 x Ø cable
	Operation	15 x Ø cable
Temperature range	Operation	-40º C to +60º C
	Installation	-10º C to +60º C

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RAILWAY SIGNALLING CABLES, MULTICORE, PE SHEATH FOR EXTERNAL INSTALLATIONS AND PROTECTED AGAINST INTERFERENCES. AJ-2YOF(L)2YDB2Y_H115-H145

DIMENSIONS AND WEIGTHS

AJ-2YOF(L)2YDB2Y n x 1 x 0.9 (H115) Rk 400		
Conductors Num.	Ø Nominal OD (mm)	Cable Weight (kg/km)
2	15,80	620
4	16,60	682
7	17,60	757
10	19,40	861
12	19,70	896
14	20,20	927
20	21,20	1.024
24	23,00	1.160
30	23,80	1.241
40	24,80	1.367
50	27,40	1.578
60	30,20	1.815
80	33,00	2.117
100	34,00	2.317
120	37,10	2.637

AJ-2YOF(L)2YDB2Y n x 1 x 0.9 (H115) Rk 500		
Conductors Num.	Ø Nominal OD (mm)	Cable Weight (kg/km)
2	15,20	492
4	16,00	544
7	17,00	611
10	18,80	706
12	19,10	736
14	19,60	768
20	20,60	857
24	22,40	974
30	23,20	1.056
40	24,20	1.168
50	26,80	1.362
60	28,40	1.518
80	31,20	1.803
100	32,20	1.992
120	35,30	2.295

AJ-2YOF(L)2YDB2Y n x 1 x 0.9 (H115) Rk 600		
Conductors Num.	Ø Nominal OD (mm)	Cable Weight (kg/km)
2	15,20	458
4	16,00	505
7	17,00	565
10	18,80	656
12	19,10	680
14	19,60	712
20	20,60	794
24	22,40	895
30	23,20	966
40	24,20	1.072
50	26,80	1.249
60	27,80	1.362
80	30,80	1.643
100	31,80	1.825
120	35,30	2.142

RAILWAY SIGNALLING CABLES, MULTICORE, PE SHEATH FOR EXTERNAL INSTALLATIONS AND PROTECTED AGAINST INTERFERENCES. AJ-2YOF(L)2YDB2Y_H115-H145

CABLE DIMENSIONS AND WEIGTHS

AJ-2YOF(L)2YDB2Y n x 1 x 1.4 (H145) Rk 400		
Conductors Num.	Ø Nominal OD (mm)	Cable Weight (kg/km)
2	17,20	707
4	18,30	797
7	19,70	924
10	22,20	1.105
12	22,60	1.171
14	23,30	1.229
20	24,70	1.407
24	27,20	1.609
30	28,50	1.766
40	31,30	2.078
50	34,90	2.460
60	36,70	2.728
80	40,30	3.277

AJ-2YOF(L)2YDB2Y n x 1 x 1.4 (H145) Rk 500		
Conductors Num.	Ø Nominal OD (mm)	Cable Weight (kg/km)
2	16,60	570
4	17,70	651
7	19,10	765
10	21,60	928
12	22,00	985
14	22,70	1.043
20	24,10	1.208
24	26,60	1.393
30	27,90	1.545
40	29,50	1.793
50	33,10	2.135
60	34,90	2.397
80	39,10	2.951

AJ-2YOF(L)2YDB2Y n x 1 x 1.4 (H145) Rk 600		
Conductors Num.	Ø Nominal OD (mm)	Cable Weight (kg/km)
2	16,60	530
4	17,70	606
7	19,10	708
10	21,60	860
12	22,00	906
14	22,70	964
20	24,10	1.112
24	26,60	1.280
30	27,70	1.424
40	29,50	1.668
50	33,10	1.999
60	34,50	2.223
80	38,50	2.748

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RAILWAY SIGNALLING CABLES, MULTICORE, PE SHEATH FOR EXTERNAL INSTALLATIONS AND PROTECTED AGAINST INTERFERENCES. AJ-2YOF(L)2YDB2Y_H115-H145

DIMENSIONS AND WEIGTHS

AJ-2YOF(L)2YDB2Y n x 1 x 1.8 (H145) Rk 400		
Conductors Num.	Ø Nominal OD (mm)	Cable Weight (kg/km)
2	18,40	789
4	19,70	917
7	21,50	1.080
10	24,60	1.346
14	25,90	1.519
20	27,90	1.782
24	32,40	2.135
30	33,70	2.366
40	35,50	2.722
50	39,90	3.249
80	46,90	4.512
60	36,70	2.728
80	40,30	3.277

AJ-2YOF(L)2YDB2Y n x 1 x 1.8 (H145) Rk 500		
Conductors Num.	Ø Nominal OD (mm)	Cable Weight (kg/km)
2	17,80	643
4	19,10	758
7	20,90	912
10	24,00	1.147
14	25,30	1.311
20	27,10	1.553
24	30,60	1.838
30	31,90	2.053
40	33,70	2.409
50	38,70	2.935
80	45,70	4.132
60	34,90	2.397
80	39,10	2.951

AJ-2YOF(L)2YDB2Y n x 1 x 1.8 (H145) Rk 600		
Conductors Num.	Ø Nominal OD (mm)	Cable Weight (kg/km)
2	17,80	598
4	19,10	701
7	20,90	849
10	24,00	1.051
14	25,30	1.209
20	27,10	1.440
24	30,60	1.708
30	31,90	1.922
40	33,70	2.261
50	38,50	2.771
80	45,10	3.897
60	34,50	2.223
80	38,50	2.748

RAILWAY SIGNALLING CABLES, MULTICORE, PE SHEATH FOR EXTERNAL INSTALLATIONS WATERBLOCKING AND RODENT RESISTANT. A-2YOF(L)2YB2Y_H115-H145

DESCRIPTION AND APPLICATION

Cables from 1 to 120 conductors of 0.9, 1.4 and 1.8 mm, polyethylene insulated. Conductors are stranded in layers to form the core which is then protected by a (L)2YB2Y anti rodent sheath. They are used as control cables up to 100 Hz signals, especially in rail infrastructures, when protection is required against rodents. For installation in ducts or directly buried.
Generally according to DB AG 416.0116 and DB AG 416.0113.

CONSTRUCTION

- **Conductors**: Annealed cooper solid wire, 0.9, 1.4 and 1.8 mm diameter.
- **Insulation**: Solid polyethylene. (2Y).
- **Cabling element**: Conductors.
- **Core filling**: Flooded with low dielectric factor compound to make the cable waterproof. (OF).
- **Core formation**: Stranded in concentric layers.
- **Moisture barrier**: Aluminium tape bonded to the inner sheath.
- **Inner sheath**: PE sheath. (2Y).
- **Armouring**: One or two helically applied steel tapes. (B).
- **Outer sheath**: UV resistant black polyethylene. (2Y).
- **Sheath marks**: The sheath shall be marked, at regular intervals with the following information:
  - SIGNAL / A-2YOF(L)2YB2Y / Capacitance / Manufacturer / Length marks.
  - Other type of marks according to the costumer.

ELECTRICAL CHARACTERISTICS (20°C)

		0.9 mm	1.4 mm	1.8 mm
Maximum Resistance (Ω/km)		⩽ 28.9	⩽ 11.9	⩽ 7.2
Minimum insulation resistance (MΩxkm, 20°C, 500V)			⩾1500	
Mutual Capacitance (nF/km, 800 Hz)		⩽115	⩽145	⩽145
Dielectric Strength (Vdc, 2min)	Conductor – Conductor Conductor – Screen		⩾2500 ⩾2500	
Operating Voltage AS/DC (V)			420/600	

MECHANICAL AND THERMAL PROPERTIES

Admissible bending Radius	20 x Ø cable	
Temperature range	Operation	-40º C to +60º C
	Installation	-10º C to +60º C

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RAILWAY SIGNALLING CABLES, MULTICORE, PE SHEATH FOR EXTERNAL INSTALLATIONS WATERBLOCKING AND RODENT RESISTANT. A-2YOF(L)2YB2Y_H115-H145

DIMENSIONS AND WEIGHTS

A-2YOF(L)2YB2Y n x 1 x 0.9 (H115)		
Conductors Num.	Ø Nominal OD (mm)	Cable Weight (kg/km)
2	12.00	166.18
4	12.80	195.34
7	13.80	235.34
10	15.60	293.46
14	16.40	337.15
20	17.40	399.65
24	19.20	467.78
30	20.00	526.90
40	21.00	617.63
50	23.60	750.40
60	24.60	843.70
80	27.40	1.056.00
100	28.60	1.226.46
120	32.10	1.474.62

A-2YOF(L)2YB2Y n x 1 x 1.4 (H145)		
Conductors Num.	Ø Nominal OD (mm)	Cable Weight (kg/km)
2	13.40	211.76
4	14.50	265.49
7	15.90	341.90
10	18.40	444.30
14	19.50	532.24
20	20.90	659.23
24	23.40	784.92
30	24.50	906.61
40	26.10	1.107.54
50	29.90	1.374.94
60	31.30	1.572.85
80	35.30	2.021.36
100	39.20	2.467.73
120	41.00	2.843.23

A-2YOF(L)2YB2Y n x 1 x 1.8 (H145)		
Conductors Num.	Ø Nominal OD (mm)	Cable Weight (kg/km)
2	14.60	256.05
4	15.90	334.49
7	17.70	450.31
10	20.80	599.72
14	22.10	733.04
20	23.90	931.06
24	27.20	1.125.01
30	28.70	1.322.27
40	30.50	1.628.77
50	35.30	2.044.87
60	37.10	2.359.66
80	41.50	3.023.57
100	43.70	3.622.16
120	49.00	4.343.84

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QUADS CABLES

RAILWAY SIGNALLING CABLES, QUADS, PE SHEATH FOR EXTERNAL INSTALLATIONS AND RODENT RESISTENT.

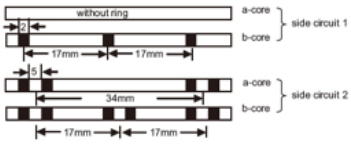
A-2Y(L)2YB2Y_H45

DESCRIPTION AND APPLICATION

Cables from 1 to 40 quads of 0.9 or 1.4 mm, polyethylene insulated. Quads are stranded in layers to form the core which is then protected by a (L)2YB2Y anti rodent sheath. They are used as control cables up to 90 kHz signals, especially in rail infrastructures, when protection is required against rodents. For installation in ducts or directly buried. Generally according to DB AG 416.0116 and DB AG 416.0115.

CONSTRUCTION

- **Conductors**: Annealed copper solid wire, 0.9 or 1.4 mm. diameter.
- **Insulation:** Solid polyethylene. (2Y)
- **Cabling element**: quads and 2 stranded perforated sheathing conductors (≥7 quads) to detect water presence. Identification according to DB AG 416.0116.



- **Core formation**: Stranded in Layers.
- **Screen and moisture barrier**: Aluminium tape. (L)
- **Inner sheath**: PE sheath. (2Y)
- **Armouring**: One or two helically applied steel tapes. (B)
- **Outer sheath**: UV resistant black polyethylene. (2Y)
- **Sheath marks**: The sheath shall be marked, at regular intervals with the following information
  - SIGNAL / AJ-2Y(L)2YB2Y / Capacitance / Manufacturer / Length marks.
  - Other type of marks according to the costumer.

ELECTRICAL CHARACTERISTICS (20°C)

	0.9 mm	1.4 mm
Loop Resistance (Ω/km)	≤ 56.9	≤ 23.4
Minimum insulation resistance (MΩxkm, 20°C, 500V)	≥10000	
Mutual Capacitance (nF/km, 800 Hz)	≤45	
Dielectric Strength (Vdc, 2min) Conductor – Conductor Conductor – Screen	≥2500 ≥2500	
Capacitance unbalance (pF/500 m, 800 Hz) K1 (100% / 50%) K9-12 (100% / 50%)	≤650 / ≤150 ≤500 / ≤150	≤650 ≤500
e1/2 ea1/2	≤1300 ≤1300	
Far-end crosstalk attenuation (dB/km, 90Hz) (100% / 80% values)	≥58/ ≥62	≥33
Attenuation (dB/km, 90Hz)	≤ 3.3	≤ 2.6

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RAILWAY SIGNALLING CABLES, QUADS, PE SHEATH FOR EXTERNAL INSTALLATIONS AND RODENT RESISTENT.
A-2Y(L)2YB2Y_H45

MECHANICAL AND THERMAL PROPERTIES

Admissible bending Radius	un-armoured	7.5 x Ø cable
	armoured	10 x Ø cable
Temperature range	operation	-40° C to +60° C
	installation	-10° C to +60° C

DIMENSIONS AND WEIGHTS

A-2Y(L)2YB2Y n x 4 x 0.9 (H45)		
Quad Num.	Ø Nominal OD (mm)	Cable Weight (kg/km)
1	12,30	177
3	17,30	320
5	19,70	420
7	21,00	506
10	25,50	675
14	27,40	828
20	30,10	1.060
30	36,70	1.492
40	39,20	1.840

A-2Y(L)2YB2Y n x 4 x 1.4 (H45)		
Quad Num.	Ø Nominal OD (mm)	Cable Weight (kg/km)
1	14,20	249
3	21,50	510
5	24,90	707
7	27,00	892
10	33,90	1.241
14	36,50	1.570
20	40,20	2.060
30	49,50	2.953
40	53,20	3.729

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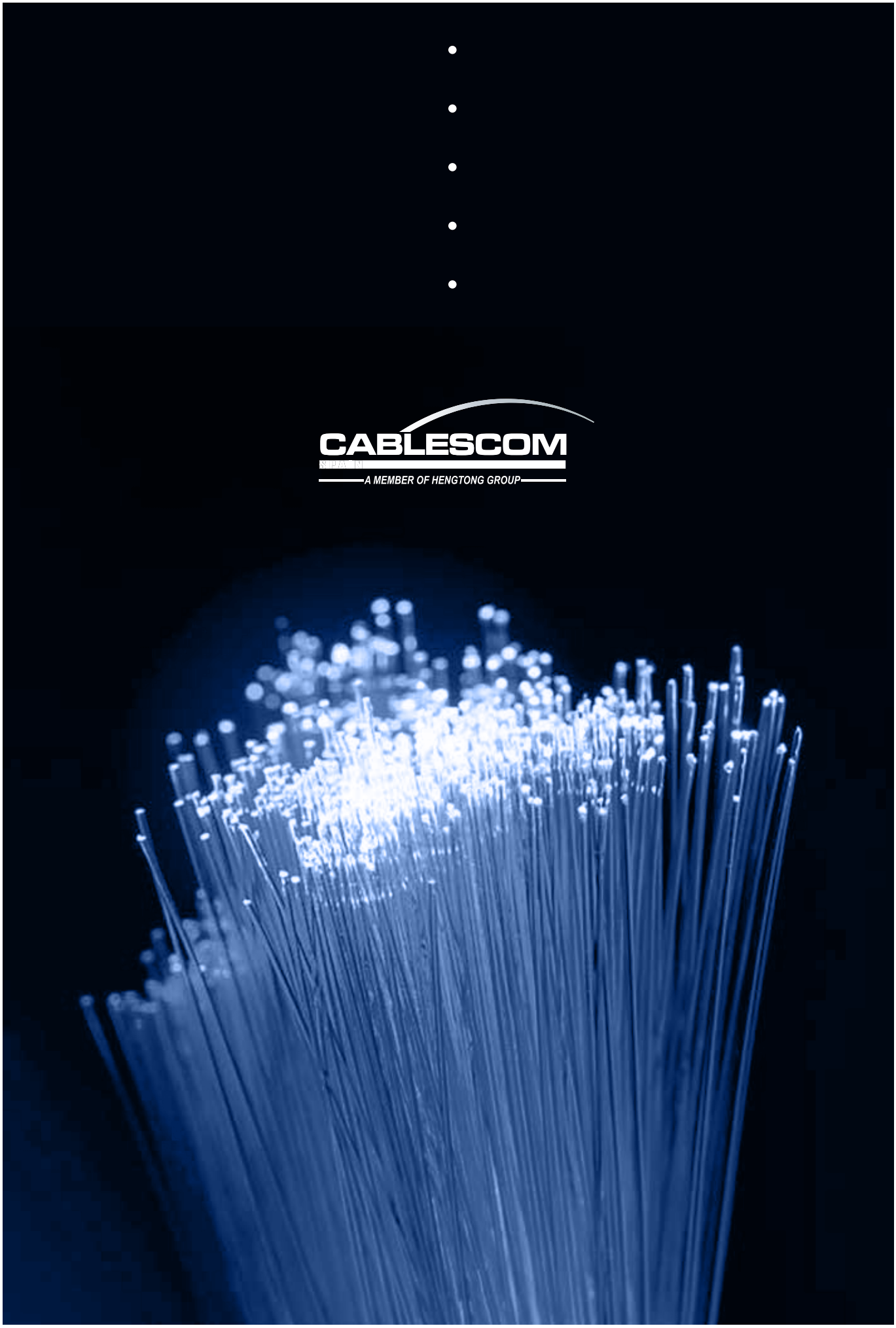


RAILWAY SIGNALLING CABLES, QUADS, PE SHEATH FOR EXTERNAL INSTALLATIONS.

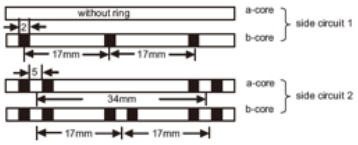
A-2Y(L)2YV_H45

DESCRIPTION AND APPLICATION

Cables from 1 to 40 quads of 0.9 or 1.4 mm, polyethylene insulated. Quads are stranded in layers to form the core which is protected by a 2YV sheath. They are used as control cables up to 90 kHz signals, especially in rail infrastructures laid in ducts.
Generally according to DB AG 416.0116 and DB AG 416.0115.

CONSTRUCTION

- **Conductors**: Annealed copper solid wire, 0.9 or 1.4 mm. diameter.
- **Insulation**: Solid polyethylene. (2Y).
- **Cabling element**: quads and 2 stranded perforated sheathing conductors (≥7 quads) to detect water presence. Identification according to DB AG 416.0116.



- **Core formation**: Stranded in Layers.
- **Screen and moisture barrier**: Aluminium tape. (L).
- **Outer sheath**: UV resistant black reinforced sheath of polyethylene. (2YV).
- **Sheath marks**: The sheath shall be marked, at regular intervals with the following information:
  - SIGNAL / A-2Y(L)2YV / Capacitance / Manufacturer / Length marks.
  - Other type of marks according to the costumer.

ELECTRICAL CHARACTERISTICS (20°C)

		0.9 mm	1.4 mm
Loop Resistance (Ω/km)		≤ 56.9	≤ 23.4
Minimum insulation resistance (MΩxkm, 20°C, 500V)		≥10000	
Mutual Capacitance (nF/km, 800 Hz)		≤45	
Dielectric Strength (Vdc, 2min)	Conductor – Conductor Conductor – Screen	≥2500 ≥2500	
Capacitance unbalance (pF/500 m, 800 Hz)	K1 (100% / 50%) K9-12 (100% / 50%)	≤650 / ≤150 ≤500 / ≤150	≤650 ≤500
	e1/2 ea1/2	≤1300 ≤1300	
Far-end crosstalk attenuation (dB/km, 90Hz) (100% / 80% values)		≥58/ ≥62	≥33
Attenuation (dB/km, 90Hz)		≤ 3.3	≤ 2.6

DIMENSIONS AND WEIGHTS

A-2Y(L)2YV n x 4 x 0.9 (H45)		
Quad Num.	Ø Nominal OD (mm)	Cable Weight (kg/km)
1	10.00	90
3	15.00	190
5	17.40	270
7	18.70	345
10	23.20	475
14	25.10	611
20	27.60	815
40	36.70	1.515

A-2Y(L)2YV n x 4 x 1.4 (H45)		
Quad Num.	Ø Nominal OD (mm)	Cable Weight (kg/km)
1	11.90	145
3	19.20	345
5	22.60	512
7	24.70	680
10	31.40	961
14	34.00	1.267

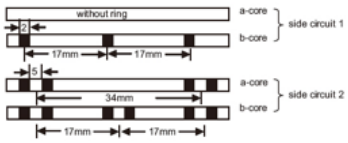
RAILWAY SIGNALLING CABLES, QUADS, PE SHEATH FOR EXTERNAL INSTALLATIONS AND PROTECTED AGAINST INTERFERENCES. AJ-2Y(L)2YDB2Y_H45

DESCRIPTION AND APPLICATION

Cables from 1 to 40 quads of 0.9 or 1.4 mm, polyethylene insulated. Quads are stranded in layers to form the core (dry core) which is then protected by an anti inductive (L)2YBD2Y sheath with reduction factor according to customer's requirements. They are used as control cables up to 90 kHz signals, especially in rail infrastructures, when protection is required against the induction of high voltage lines. For installation in ducts or directly buried. The cable is rodent resistant.
Generally according to DB AG 416.0116 and DB AG 416.0115.

CONSTRUCTION

- **Conductors**: Annealed copper solid wire, 0.9 or 1.4 mm. diameter.
- **Insulation**: Solid polyethylene. (2Y)
- **Cabling element**: quads and 2 stranded perforated sheathing conductors (≥7 quads) to detect water presence. Identification according to DB AG 416.0116.



- **Core formation**: Stranded in Layers.
- **Screen and moisture barrier**: Aluminium tape. (L).
- **Inner sheath**: PE sheath. (2Y)
- **Screening**: Layer of copper wires (Ø0,9/1,2/1,4/1,8 mm). (D).
- **Armouring**: Two helically applied steel tapes (0,5/0,8 mm thickness). (B).
- **Outer sheath**: UV resistant black polyethylene. (2Y)
- **Sheath marks**: The sheath shall be marked, at regular intervals with the following information:
  - SIGNAL / AJ-2Y(L)2YDB2Y / Capacitance / Manufacturer / Length marks.
  - Other type of marks according to the costumer.

ELECTRICAL CHARACTERISTICS (20°C)

		0.9 mm	1.4 mm
Loop Resistance (Ω/km)		≤ 56.9	≤ 23.4
Minimum insulation resistance (MΩxkm, 20°C, 500V)		≥10000	
Mutual Capacitance (nF/km, 800 Hz)		≤45	
Dielectric Strength (Vdc, 2min)	Conductor – Conductor Conductor – Screen	≥2500 ≥2500	
Capacitance unbalance (pF/500 m, 800 Hz)	K1 (100% / 50%) K9-12 (100% / 50%) $e^{1/2}$ $e^{a1/2}$	≤650 / ≤150 ≤500 / ≤150 ≤1300 ≤1300	≤650 ≤500
Far-end crosstalk attenuation (dB/km, 90Hz) (100% / 80% values)		≥58/ ≥62	≥33
Attenuation (dB/km, 90Hz)		≤ 3.3	≤ 2.6

REDUCTION FACTOR, Rk (16 2/3 Hz)	R_k 400	R_k 500	R_k 600
Induced Voltage (V/km) 75 Induced Voltage (V/km) 100	0.15	0.35	0.55

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RAILWAY SIGNALLING CABLES, QUADS, PE SHEATH FOR EXTERNAL INSTALLATIONS AND PROTECTED AGAINST INTERFERENCES. AJ-2Y(L)2YDB2Y_H45

MECHANICAL AND THERMAL PROPERTIES

Admissible bending Radius	un-armoured	7.5 x Ø cable
	armoured	10 x Ø cable
Temperature range	operation	-40° C to +60° C
	installation	-10° C to +60° C

DIMENSIONS AND WEIGHTS

AJ-2Y(L)2YDB2Y n x 4 x 0.9 S (H45) Rk 400		
Quad Num.	Ø Nominal OD (mm)	Cable Weight (kg/km)
1	16.1	642
3	21.1	953
5	23.5	1131
7	24.8	1268
10	30.7	1652
14	33.0	1906
20	35.5	2193
40	44.6	3273

AJ-2Y(L)2YDB2Y n x 4 x 1.4 S (H45) Rk 400		
Quad Num.	Ø Nominal OD (mm)	Cable Weight (kg/km)
1	18.3	795
3	25.3	1280
5	30.1	1675
7	32.2	1916
10	38.5	2446
14	41.5	2890

AJ-2Y(L)2YDB2Y n x 4 x 0.9 S (H45) Rk 500		
Quad Num.	Ø Nominal OD (mm)	Cable Weight (kg/km)
1	15.5	514
3	20.5	785
5	22.9	945
7	24.2	1069
10	28.9	1356
14	31.2	1592
20	33.7	1880
40	43.4	2918

AJ-2Y(L)2YDB2Y n x 4 x 1.4 S (H45) Rk 500		
Quad Num.	Ø Nominal OD (mm)	Cable Weight (kg/km)
1	17.7	649
3	24.7	1080
5	28.3	1378
7	30.4	1619
10	37.3	2123
14	40.3	2551

AJ-2Y(L)2YDB2Y n x 4 x 0.9 S (H45) Rk 600		
Quad Num.	Ø Nominal OD (mm)	Cable Weight (kg/km)
1	15.5	480
3	20.5	723
5	22.9	866
7	24.2	972
10	28.9	1237
14	30.8	1431
20	33.3	1706
30	39.9	2269

AJ-2Y(L)2YDB2Y n x 4 x 1.4 S (H45) Rk 600		
Quad Num.	Ø Nominal OD (mm)	Cable Weight (kg/km)
1	17.7	604
3	24.7	984
5	28.1	1251
7	30.4	1489
10	37.1	1962
14	39.7	2344

GENERAL CATALOGUE 2024
DRIVING THE FUTURE OF CONNECTIVITY

RAILWAY SIGNALING CABLES

1.1.-RAILWAY SIGNALING CABLES - SPAIN

1.2.-RAILWAY SIGNALING CABLES - FRANCE

1.3.-RAILWAY SIGNALING CABLES - GERMANY

1.4.-RAILWAY SIGNALING CABLES - HUNGARY

GENERAL CATALOGUE 2024
DRIVING THE FUTURE OF CONNECTIVITY

MULTICONDUCTOR CABLES

RAILWAY SIGNALLING CABLES, CONDUCTORS, PROTECTED AGAINST INTERFERENCES AND ARMOURED - BRQA.
EA4H1HJ

DESCRIPTION AND APPLICATION

Cables from 2 to 91 copper conductors with diameter 1.0mm, 1.5mm or 2.5mm and polyethylene insulated, stranded in layers, with a special designed sheath to protect the cable for external inductive interferences. To be installed in ducts or direct buried.
The recommended application is for railway signalling and control.
Generally according to MÁV technical specifications: P-12440_P3196_P-682_P6014.

CONSTRUCTION

- **Conductors**: Annealed copper; Ø1.0mm, Ø1.5 mm or Ø2.5 mm nominal diameter.
- **Insulation**: Solid PE.
- **Core**: Conductors.
- **Core wrapping**: Plastic tape with overlap.
- **Screen**: Copolymer coated aluminium tape longitudinally applied with overlap and bonded to the inner sheath.
- **Inner sheath**: Black polyethylene sheath.
- **Armouring**: Aluminium tape + double steel tape.
- **Outer sheath**: Black UV resistant PE sheath.
- **Marking**: The sheath shall be marked at regular intervals with the following information: Cablescom / MÁV ZRt. / BRQA n x Ø / year / Length markings / Production number / CE.

COLOUR CODE

	Conductor 1	Conductor 2	Rest
In every layerCable)	Red	Blue	Nature or black

ELECTRICAL & DIMENSIONAL CHARACTERISTICS

	Ø1.0 mm	Ø1.5 mm	Ø2.5 mm
Maximum conductor resistance [Ω/km]	23.39	10.03	3.9
Minimum insulation resistance (500V, 1 min) [GΩxkm] Core conductor – Screen: Screen - Armouring:	 10 5	 10 5	 10 5
Dielectric strength, rms value (50Hz) [Vac] Conductor – Conductor & Conductor – Screen, 2 min: Screen – Armouring, 10 min:	 2000 3000	 2000 3000	 2000 3000
Reduction factor, rk (50Hz, 10-250V) 2 – 14 conductors 21 – 37 conductors 48 – 91 conductors	 rk ≤ 0.7 rk ≤ 0.6 rk ≤ 0.5	 rk ≤ 0.7 rk ≤ 0.6 rk ≤ 0.5	 rk ≤ 0.7 rk ≤ 0.6 rk ≤ 0.6

Cable type	Nominal diameter [mm]	Nominal weight [kg/km]	Cable type	Nominal diameter [mm]	Nominal weight [kg/km]
2x1x1.5	18.6	530	2x1x1.5	16.8	450
4x1x1.5	19.7	615	4x1x1.5	17.7	500
7x1x1.5	21.3	730	7x1x1.5	18.9	575
10x1x1.5	22.8	845	10x1x1.5	20.1	640
14x1x1.5	24.8	990	14x1x1.5	21.4	725
21x1x1.5	27.3	1220	21x1x1.5	23.3	860
30x1x1.5	29.8	1500	30x1x1.5	25.8	1040
37x1x1.5	31.8	1700	37x1x1.5	27.2	1160
48x1x1.5	34.6	2025	48x1x1.5	29.2	1340
61x1x1.5	37.2	2400	61x1x1.5	31.4	1550
75x1x1.5	39.6	2750	75x1x1.5	33.4	1750
91x1x1.5	42.2	3150	91x1x1.5	35.8	2000
30x1x2.5	40.0	2900	30x1x2.5	46.5	4000

GENERAL CATALOGUE 2024
DRIVING THE FUTURE OF CONNECTIVITY

QUADS CABLES

RAILWAY TELEPHONE CABLES, QUADS, PROTECTED AGAINST INTERFERENCES - HVRQ.

AJ-02YSF(L)2YD2Y NX4X0.8 EA6H0PF

DESCRIPTION AND APPLICATION

Cables from 1 to 50 star quads, conductors with diameter 0.8mm and foam skin-PE-insulated, stranded into 5-quad units to build the core, which is jelly filled.
The filled cable core is then protected with a double PE sheath with a copper wire screen between them. To be installed in ducts or direct buried.
The recommended application is for railway telecommunication with high electromagnetic inductions. Generally according to MÁV Technical Specifications: P-2518_2002.

CONSTRUCTION

- **Conductors**: Annealed copper; 0.8mm nominal diameter.
- **Insulation**: Foam skin PE.
- **Stranded element**: Star quads.
- **Core**: From 1 to 50 quads in 5-quad units.
- **Filling compound**: Cable core filled.
- **Core wrapping**: Double impregnated longitudinal paper tape with overlap.
- **Aluminium screen**: Copolymer coated aluminium tape longitudinally applied with overlap and bonded to the inner sheath.
- **Inner sheath**: Black polyethylene.
- **Main screen**: Impregnated paper tape + copper wire screen + polypropylene tape.
- **Outer sheath**: Black UV resistant PE sheath.
- **Marking**: The sheath shall be marked at regular intervals with the following information:
  Cablescom / MÁV ZRt. / HvrQ / telephone symbol / year / Length markings / Production number / CE.

QUAD COLOR CODE

	Conductor 1	Conductor 2	Conductor 3	Conductor 4
Quad 1	Red	White	Black	Grey
Quad 2	Green	White	Black	Grey
Quad 3	Yellow	White	Black	Grey
Quad 4	Blue	White	Black	Grey
Quad 5	Brown	White	Black	Grey

STRAND COLOR CODE

	1x4x0.8	5x4x0.8	10x4x0.8	Others
Clockwise direction	No	No	Red (1st), White (2nd)	Red (1st), Green (2nd), White (rest)

ELECTRICAL & DIMENSIONAL CHARACTERISTICS

Maximum conductor resistance (loop) [Ω/km]	73,2
Minimum insulation resistance [GΩxkm]	5
Maximum mutual capacitance [nF/km, 800 Hz]	42
Dielectric strength, rms value [50Hz, 2 min] Conductor – Conductor / Conductor – Screen:	500 / 2000
Maximum capacitance unbalance [pF/300m, 800 Hz] K1 (100% / 98% of the values): K8..12 (100% / 98% of the values):	 800/400 300/100
Maximum earth/pair capacitance unbalance [pF/300m; e1, e2; 100%]	800
Reduction factor, rk (50Hz) 1x4x0.8 cable 5x4x0.8 cable Others	 rk ≤ 0.8 rk ≤ 0.6 rk ≤ 0.5

Cable type	Nominal diameter [mm]	Nominal weight [kg/km]
1x4x0.8	18.0	375
5x4x0.8	24.7	750
10x4x0.8	27.8	1000
15x4x0.8	30.7	1200
25x4x0.8	36.2	1600
50x4x0.8	46.8	2600

PLASTIC COATED QUAD CABLES FOR RAILWAYS (MÁV).

AJ-02YSOF(L)2YDB2Y NX4X1,2 [C5, B8 & B9]

EA6H0LJ

DESCRIPTION AND APPLICATION

Cables with 7, 12 and 19 star quads, Ø1,2mm foam-skin PE-insulated conductors and stranded in layers to build the core, which is jelly filled.
The cable core is then protected with a double PE sheath. To protect these cables against humidity, electromagnetic interferences and mechanical efforts, they have an aluminium shield, a copper wire screen and a galvanized steel armour. Paper and plastic tapes complete the cable formation.
To be installed in ducts or direct buried.
The recommended application is for installations or maintenance in telecommunication, distribution, power-control & instrumental railway networks.
According to MÁV P-2518/2002 technical specification.

CONSTRUCTION

- **Conductors**: Annealed copper; 1,2mm nominal diameter.
- **Insulation**: Foam-skin PE.
- **Stranded element**: Star quads.
- **Core**: 7, 12 and 19 quads in layers.
- **Filling compound**: Cable core jelly filled.
- **Core wrapping**: Impregnated longitudinal paper or plastic tape with overlap in one or more layers.
- **Aluminium shield**: Copolymer coated aluminium tape longitudinally applied with overlap.
- **Inner sheath**: Black polyethylene.
- **Copper wire screen**: One or more impregnated paper overlapped tapes + copper wire screen.
- **Steel armour**: Double overlapped plastic tape + double full galvanized steel tape.
- **Outer sheath**: Black UV resistant PE sheath.
- **Marking**: The sheath shall be marked at regular intervals with the following information:
  Cablescom / MÁV ZRt. / [C5, B8 or B9] / telephone symbol / year / Production number / CE / Length markings.

QUAD AND STRANDS COLOR CODE

	Conductor 1	Conductor 2	Conductor 3	Conductor 4
Quads	Yellow	Red	Green	Blue

In every layer, Clockwise direction	Starter quad	Direction indicator quad	Further quads
Strands:	Black	Yellow	Red and green alternately

ELECTRICAL & DIMENSIONAL CHARACTERISTICS

Maximum conductor resistance (loop) [Ω/km]	31,5												
Maximum resistance unbalance [%]	1												
Minimum insulation resistance [GΩxkm]	10												
Mutual capacitance [nF/km, 800 Hz]	35 [-10%, +5]												
Dielectric strength, rms value [Vdc, 2 min] Conductor – Conductor / Conductor – Screen: Aluminium tape – Copper screen:	 2800 5600												
Maximum capacitance unbalance [pF/425m, 800 Hz] K1 (individual / average): K9-12:	 210/70 210												
Maximum earth/pair capacitance unbalance [pF/425m; e1-2; 100%/95%]	700/550												
Reduction factor, rk (50Hz) V/km:	10	20	30	50	70	100	150	200	250	300	400	500
r_k (C5 & B8):	0,15	0,13	0,12	0,10	0,09	0,08	0,06	0,05	0,05	0,06	0,06	0,07
r_k (B9):	0,11	0,10	0,09	0,07	0,06	0,05	0,04	0,038	0,036	0,036	0,04	0,05

Cable type	Nom. diameter [mm]	Nom. weight [kg/km]	Length per drum
7x4x1.2 (C5)	39,8	2800	500 m.
12x4x1.2 (B8)	45,1	3300	500 m.
19x4x1.2 (B9)	50,6	4200	500 m.

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GENERAL CATALOGUE 2024
DRIVING THE FUTURE OF CONNECTIVITY

OPTICAL FIBER CABLES

2.1.-MICROMODULE CABLES

2.2.-LOOSE TUBE CABLES

2.3.-CENTRAL TUBE CABLES

2.4.-MICROCABLES TUBE CABLES

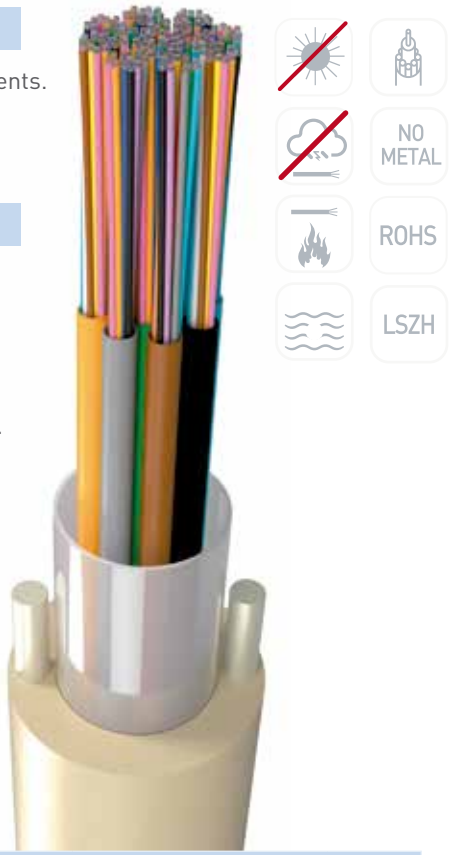
INDOOR - LSZH SHEATH

MICROMODULE STRUCTURE FIBRE-OPTIC CABLES.

EE8WCW2

DESCRIPTION AND APPLICATION

Indoor ultra-compact optical fibre cables with LSZH sheath and fibreglass reinforcements.
Designed for indoor use and for all types of communication networks.
Class Dca s2 d2 a1 according to CPR.



CONSTRUCTION

1. Micromodules: Easy strippable tube with 6 or 12 fibres.
2. Water-blocking yarns and/or tapes.
3. Fibreglass reinforcement elements embedded in the outer sheath.
4. Outer thermoplastic LSZH material sheath (Ivory or Black).
   Markings:
   CABLESCOM / year / FO Number / Type of fibre / Type of sheath / Length markings.

Colour code scheme: See Annexes – Colour code Table.
Optical fibre characteristics: See Annexes – Optical fibre characteristics.

MICROMODULE COLOUR CODE

Cable Mod6	Cable Mod12	TUBE											
		1	2	3	4	5	6	7	8	9	10	11	12
6	12	RED											
12	24	RED	BLUE										
18	36	RED	BLUE	GREEN									
24	48	RED	BLUE	GREEN	YELLOW								
36	72	RED	BLUE	GREEN	YELLOW	VIOLET	WHITE						
48	96	RED	BLUE	GREEN	YELLOW	VIOLET	WHITE	ORANGE	GREY				
60	120	RED	BLUE	GREEN	YELLOW	VIOLET	WHITE	ORANGE	GREY	BROWN	BLACK		
72	144	RED	BLUE	GREEN	YELLOW	VIOLET	WHITE	ORANGE	GREY	BROWN	BLACK	TURQUOISE	PINK
144	288	RED*	BLUE*	GREEN*	YELLOW*	VIOLET*	WHITE*	ORANGE*	GREY*	BROWN*	GREEN LIGHT *	TURQUOISE *	PINK*
		RED**	BLUE**	GREEN**	YELLOW**	VIOLET**	WHITE**	ORANGE**	GREY **	BROWN**	GREEN LIGHT **	TURQUOISE **	PINK**

Note: In 288 fibre cables the micromodules from 1 to 12 will be marked with a ring and the micromodules from 13 to 24 will be marked with 2 rings.

TABLE 2: FIBRE COLOURS

Fibre	1	2	3	4	5	6	7	8	9	10	11	12
Colour	RED	BLUE	GREEN	YELLOW	VIOLET	WHITE	ORANGE	GREY	BROWN	BLACK	TURQUOISE	PINK

CPR

This cable family has been certified according to CPR as **Dca s2 d2 a1**.

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INDOOR - LSZH SHEATH

MICROMODULE STRUCTURE FIBRE-OPTIC CABLES.

EE8WCW2

PRODUCT INFORMATION

MODULARITÉ 6 FO / TUBE									
FIBRE Num.	6	12	18	24	36	48	72	96	144
MODULE Num.	1	2	3	4	6	8	12	16	24
NOMINALWEIGHT (kg/km)	43	54	62	71	77	85	109	128	156
NOMINAL OD (mm)	6.1	6.8	7.5	8.1	8.5	9.0	10.5	11.8	13.0
Installation Tensile Strength - ITS (N) UNE-EN 60794-1-2, Met. E1	580	650	700	1300	1300	1350	1630	1660	2100
	Δεf<0.5%, Δa reversible , up to 1 x cable weight								
Maximum Operation Tension - (N) UNE-EN 60794-1-2, Met. E1	230	240	250	460	460	460	650	660	950
	Δεf<0.2%, Δa < 0.05 dB								
IMPACT RESISTANCE UNE-EN 60794-1-2, Met. E4	5 J, 300 mm, Tª-20 ºC, Δa reversible								
CURVATURE UNE-EN 60794-1-2, Met. 11	D=20 x Câble OD, 10 cycles, Δa<0.1 dB								
CRUSH RESISTANCE UNE-EN 60794-1-2, Met. E3	1000 N, 1 min, Δa reversible								
OPERATING TEMPERATURE UNE-EN 60794-1-2, Met. F1	-5ºC / 60ºC								
WATER PENETRATION UNE-EN 60794-1-2, Met. F5C	LP water ⩽ 3 m (24 hours) (Cable core)								
PRODUCT CODE G.652D	EE82CJ2 00000600N	EE82CJ2 00001200N	EE82CJ2 00001800N	EE82CK2 00002400N	EE82CK2 00003600N	EE82CK2 00004800N	EE82CK2 00007200N	EE82CK2 00009600N	EE82CK2 00014400N
PRODUCT CODE G.657A	EE85CJ2 00000600N	EE85CJ2 00001200N	EE85CJ2 00001800N	EE85CK2 00002400N	EE85CK2 00003600N	EE85CK2 00004800N	EE85CK2 00007200N	EE85CK2 00009600N	EE85CK2 00014400N

MODULARITY 12 FO / TUBE											
FIBRE Num.	12	24	36	48	72	96	120	144	192	216	288
MODULE Num.	1	2	3	4	6	8	10	12	16	16	18
NOMINALWEIGHT (kg/km)	44	62	71	77	85	98	112	129	158	162	179
NOMINAL OD (mm)	6.1	7.5	8.1	8.5	9.0	9.8	10.5	11.8	13.0	13.0	14.0
Installation Tensile Strength - ITS (N) UNE-EN 60794-1-2, Met. E1	580	610	1150	1180	1190	1200	1630	1635	2680	2700	2750
	Δεf<0.5%, Δa reversible , up to 1 x cable weight										
Maximum Operation Tension - (N) UNE-EN 60794-1-2, Met. E1	230	250	450	470	470	480	650	660	1050	1070	1100
	Δεf<0.2%, Δa < 0.05 dB										
IMPACT RESISTANCE UNE-EN 60794-1-2, Met. E4	5 J, 300 mm, Tª-20 ºC, Δa reversible										
CURVATURE UNE-EN 60794-1-2, Met. 11	D=20 x Câble OD, 10 cycles, Δa<0.1 dB										
CRUSH RESISTANCE UNE-EN 60794-1-2, Met. E3	1000 N, 1 min, Δa reversible										
OPERATING TEMPERATURE UNE-EN 60794-1-2, Met. F1	-5ºC / 60ºC										
WATER PENETRATION UNE-EN 60794-1-2, Met. F5C	LP water ⩽ 3 m (24 hours) (Cable core)										
PRODUCT CODE G.652D	EE83CJ2 00001200N	EE83CJ2 00002400N	EE83CK2 00003600N	EE83CK2 00004800N	EE83CK2 00007200N	EE83CK2 00009600N	EE83CK2 00012000N	EE83CK2 00014400N	EE83CK2 00019200N	EE83CK2 00021600N	EE83CK2 00028800N
PRODUCT CODE G.657A2	EE86CJ2 00001200N	EE86CJ2 00002400N	EE86CK2 00003600N	EE86CK2 00004800N	EE86CK2 00007200N	EE86CK2 00009600N	EE86CK2 00012000N	EE86CK2 00014400N	EE86CK2 00019200N	EE86CK2 00021600N	EE86CK2 00028800N

OUTDOOR – DUCT

HIGH CAPACITY DIELECTRIC MICROMODULE FIBRE-OPTIC CABLES.

EE8WBG5

REFERENCE STANDARDS

EN 60794-1-2
XPC 93-850-3-25 – Nov 2019
EN 50289-4-17 (UV Resistance)

DESCRIPTION AND APPLICATION

Outdoor compact dielectric fibre-optic cables with polyethylene sheath and fibre-glass reinforcements. Protected against water ingress. Designed for duct installation (by blowing or pulling). High fibre-capacity (up to 864F).

CONSTRUCTION

1. Micromodules: Easy-strippable jelly-filled tube with 12 fibres, according to XP C93-850-1-1.
2. Core: SZ-stranded micro modules, without any central strength element.
3. Longitudinal water tightness: WB yarns and/or tapes to avoid water propagation.
4. Strength elements: reinforcement elements embedded in the outer sheath.
5. Outer jacket: Black UV-resistant high-density polyethylene (HDPE).
   Sheath marking:
   - Year of manufacturing / CABLESCOM / Cable type / Number of fibres / Length markings.
   - Other sheath markings available upon request.

Colour code: See tables below.
Optical fibre characteristics: See Annexes – Optical-fibre characteristics.

MICROMODULE COLOUR CODE

Cable	TUBE											
	1	2	3	4	5	6	7	8	9	10	11	12
432	RED*	BLUE*	GREEN*	YELLOW*	VIOLET*	WHITE*	ORANGE*	GREY*	BROWN*	GREEN LIGHT*	TURQUOISE*	PINK*
	RED**	BLUE**	GREEN**	YELLOW**	VIOLET**	WHITE**	ORANGE**	GREY**	BROWN**	GREEN LIGHT**	TURQUOISE**	PINK**
	RED***	BLUE***	GREEN***	YELLOW***	VIOLET***	WHITE***	ORANGE***	GREY***	BROWN***	GREEN LIGHT***	TURQUOISE***	PINK***
576	RED*	BLUE*	GREEN*	YELLOW*	VIOLET*	WHITE*	ORANGE*	GREY*	BROWN*	GREEN LIGHT*	TURQUOISE*	PINK*
	RED**	BLUE**	GREEN**	YELLOW**	VIOLET**	WHITE**	ORANGE**	GREY**	BROWN**	GREEN LIGHT**	TURQUOISE**	PINK**
	RED***	BLUE***	GREEN***	YELLOW***	VIOLET***	WHITE***	ORANGE***	GREY***	BROWN***	GREEN LIGHT***	TURQUOISE***	PINK***
	RED****	BLUE****	GREEN****	YELOW****	VIOLET****	WHITE****	ORANGE****	GREY****	BROWN****	GREEN LIGHT****	TURQUOISE****	PINK****
720(*)	RED*	BLUE*	GREEN*	YELLOW*	VIOLET*	WHITE*	ORANGE*	GREY*	BROWN*	GREEN LIGHT*	TURQUOISE*	PINK*
	RED**	BLUE**	GREEN**	YELLOW**	VIOLET**	WHITE**	ORANGE**	GREY**	BROWN**	GREEN LIGHT**	TURQUOISE**	PINK**
	RED***	BLUE***	GREEN***	YELLOW***	VIOLET***	WHITE***	ORANGE***	GREY***	BROWN***	GREEN LIGHT***	TURQUOISE***	PINK***
	RED****	BLUE****	GREEN****	YELLOW****	VIOLET****	WHITE***	ORANGE****	GREY****	BROWN****	GREEN LIGHT****	TURQUOISE****	PINK****
	RED I	BLUE I	GREEN I	YELLOW I	VIOLET I	WHITE I	ORANGE I	GREY I	BROWN I	GREEN LIGHT I	TURQUOISE I	PINK I
864(*)	RED*	BLUE*	GREEN*	YELLOW*	VIOLET *	WHITE*	ORANGE*	GREY*	BROWN*	GREEN LIGHT*	TURQUOISE*	PINK*
	RED**	BLUE**	GREEN**	YELLOW**	VIOLET **	WHITE**	ORANGE**	GREY**	BROWN**	GREEN LIGHT**	TURQUOISE**	PINK**
	RED***	BLUE***	GREEN***	YELLOW***	VIOLET***	WHITE***	ORANGE***	GREY***	BROWN****	GREEN LIGHT***	TURQUOISE***	PINK**

TABLE 2: FIBRE COLOUR CODE

Fibre	1	2	3	4	5	6	7	8	9	10	11	12
Colour	RED	BLUE	GREEN	YELLOW	VIOLET	WHITE	ORANGE	GREY	BROWN	BLACK	TURQUOISE	PINK

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OUTDOOR – DUCT

HIGH CAPACITY DIELECTRIC MICROMODULE FIBRE-OPTIC CABLES.

EE8WBG5

PRODUCT INFORMATION

MODULARITY 12 FO / TUBE				
FIBRE Num.	432	576	720	864
MODULE Num.	36	48	60	72
NOMINAL WEIGHT (kg/km)	171	210	240	272
NOMINAL OD (mm)	15,6	18,0	19,2	20,5
Installation Tensile Strength - Tm (N)	3400	3900	4300	4800
Ratio vs Weight EN 60794-1-2, Met. E1	2.0	1.9	1.8	1.8
	Δεf<0.5%, ΔLcable<0.6%, Δα < 0,5 dB and reversible			
	Δεf<0.2%, Δα < 0.05 dB			
IMPACT RESISTANCE UNE-EN 60794-1-2, Met. E4	5 J r = 10 mm, Tº 20ºC/-15ºC, Δα reversible			
CURVATURE UNE-EN 60794-1-2, Met. 11	D = 15 x Diameter 5 cycles U-bend, Δα<0.1 dB			
CRUSH RESISTANCE UNE-EN 60794-1-2, Met. E3	2.000 N, Δα < 0.1 dB and reversible, 15 min 2500 N, Δα reversible			
OPERATING TEMPERATURE UNE-EN 60794-1-2, Met. F1	Δα < 0.1 dB/km between -30ºC / +60ºC Δα reversible between -40ºC / +70ºC			
WATER PENETRATION UNE-EN 60794-1-2, Met. F5C	LPeau ⩽ 3 m (168 hours) (Cable core)			
PRODUCT CODE G.652D	EE83BG500043200N	EE83BG500057600N	EE83BG500072000N	EE83BG500086400N
PRODUCT CODE G.657A2	EE86BG500043200N	EE86BG500057600N	EE86BG500072000N	EE86BG500086400N
Ovalling (%)	<5			
Sheath Thickness avg/mini	2,3/1,5	2,6/1,8	2,6/1,8	2,6/1,8
Friction in duct (¾, 50mm, 1m)	< 0,35			

OPTICAL FIBRE CHARACTERISTICS

Optical Fibres compliant with ITU-T G.657 A2 and G.652D recommendations. Fibre optic specifications of cabled fibre below:

- Attenuation coefficient: (EN 60794-3-11) — Maximum at 1310nm: **0.36 dB/km**. Typical (90% of fibres) / Maximum at 1550nm: **0.22 / 0.23 dB/km.** Typical (90% of fibres) / Maximum at 1625nm: **0.24 / 0.26 dB/km.**
- PMD — Individual **⩽ 0.20 ps/km$^{1/2}$**.
- Cut-off wavelength — (λcc) **⩽ 1260nm.**

OUTDOOR – ADSS 100

MICROMODULE STRUCTURE FIBRE-OPTIC CABLES.

EE83UG8

REFERENCE STANDARDS

EN IEC 60794-1-2
XPC 93-850-3-25 – Nov 2019
EN 50290-2-24 (UV Resistance)

DESCRIPTION AND APPLICATION

Outdoor compact fiber-optic cables with polyethylene sheath and fiberglass reinforcements. Designed for duct installation (by blowing or pulling) or aerial self-supported overhead lines. Cables designed for all types of communication networks.

CONSTRUCTION

1. Modules: Easy strippable jelly filled tube with 12 fibers.
2. Core: SZ stranded modules, without any central strength element. Aramid yarns included in the cable core.
3. Longitudinal water tightness: WB yarns and/or tapes to avoid water propagation.
4. Strength elements: Reinforcement elements embedded in the outer sheath.
5. Outer jacket: High-density polyethylene (HDPE), UV resistant.
   Sheath marking:
   - CABLESCOM /Year – Month / Number and type of fiber - FO / ADSS / Length markings (in feet).
   - Other sheath markings available upon request.

TABLE 1: MODULE COLOR CODE

Fiber count	MODULE											
	1	2	3	4	5	6	7	8	9	10	11	12
12	BLUE											
24	BLUE	ORANGE										
36	BLUE	ORANGE	GREEN									
48	BLUE	ORANGE	GREEN	BROWN								
60	BLUE	ORANGE	GREEN	BROWN	GREY							
72	BLUE	ORANGE	GREEN	BROWN	GREY	WHITE						
96	BLUE	ORANGE	GREEN	BROWN	GREY	WHITE	RED	BLACK				
144	BLUE	ORANGE	GREEN	BROWN	GREY	WHITE	RED	BLACK	YELLOW	VIOLET	PINK	AQUA
288	BLUE	ORANGE	GREEN	BROWN	GREY	WHITE	RED	BLACK	YELLOW	VIOLET	PINK	AQUA
	BLUE I	ORANGE I	GREEN I	BROWN I	GREY I	WHITE I	RED I	BLACK I	YELLOW I	VIOLET I	PINK I	AQUA I
432	BLUE	ORANGE	GREEN	BROWN	GREY	WHITE	RED	BLACK	YELLOW	VIOLET	PINK	AQUA
	BLUE I	ORANGE I	GREEN I	BROWN I	GREY I	WHITE I	RED I	BLACK I	YELLOW I	VIOLET I	PINK I	AQUA I
	BLUE I I	ORANGE I I	GREEN I I	BROWN I I	GREY I I	WHITE I I	RED I I	BLACK I I	YELLOW I I	VIOLET I I	PINK I I	AQUA I I

Note: In 288-fiber cable, the modules 13-24 will be marked with a black ring, except module 20 that will be marked with a white ring
In 432-fiber cable, the modules 13-24 will be marked with a black ring and 25-36 with two black rings, except modules 20&32 that will marked with one and two white rings.

TABLE 2: FIBRE COLOUR CODE

Fibre	1	2	3	4	5	6	7	8	9	10	11	12
Colour	BLUE	ORANGE	GREEN	BROWN	GREY	WHITE	RED	BLACK	YELLOW	VIOLET	PINK	AQUA

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OUTDOOR – ADSS 100

MICROMODULE STRUCTURE FIBRE-OPTIC CABLES.

EE83UG8

PRODUCT INFORMATION

MODULARITY 12 FO / TUBE											
FIBRE Num.	12	24	36	48	60	72	96	144		288	2.5/1.6
MODULE Num.	1	2	3	4	5	6	8	12		24	36 (*)
NOMINALWEIGHT (kg/km)	58	63	69	73	78	82	92	115		158	195
NOMINAL OD (mm)	8.5	9.0	9.5	9.8	10.2	10.5	11.3	13.0		15.6	17.5
Installation Tensile Strength - ITS (N) Ratio vs Weight UNE-EN 60794-1-2, Met. E1	3300 5.7	3350 5.3	3400 4.9	3450 4.7	3460 4.4	3530 4.3	3850 4.1	4600 4.0		5560 3.5	6200 3.1
	Δεf<0.5%, ΔL cable<0.6%, Δα < 0.5 dB and reversible										
Maximum Operation Tension - MOT (N) Ratio vs Weight UNE-EN 60794-1-2, Met. E1	2000 3.4	2060 3.2	2120 3.0	2160 2.8	2200 2.8	2250 2.6	2380 2.5	2780 2.4		3370 2.1	3700 1.9
	Δεf<0.3%, ΔL cable<0.5%, Δα < 0,5 dB and reversible										
Maximum Operation Tension - Tl (N) EN IEC 60794-1-2, Met. E1	700	720	740	750	760	770	830	1000		1210	1450
	Δεf<0.1%. and reversible										
Effective cross section (mm2)	10.8	11.4	12.0	12.6	13.2	13.8	15.4	19.9		27.9	35.4
Coef. of Thermal expansion (1E-6/ºC)	9.67	10.08	10.47	10.66	10.94	11.11	10.96	11.66		11.51	11.40
Elasticity Modulus (daN/mm²)	6005	5779	5576	5385	5215	5058	4932	4551		3938	3509
IMPACT RESISTANCE EN IEC 60794-1-2, Met. E4	5 J r = 300 mm, Tº 20°C, Δα reversible										
CURVATURE EN IEC 60794-1-2, Met. 11B	D = 15 x Diameter 5 cycles U-bend, Δα<0.1 dB										
CRUSH RESISTANCE EN IEC 60794-1-2, Met. E3	2000 N, Δα < 0.1 dB and reversible, 15 min 3000 N, Δα reversible										
OPERATING TEMPERATURE EN IEC 60794-1-2, Met. F1	40°C / +70°C Δα < 0.1 dB/km et reversible										
WATER PENETRATION EN 60794-1-2, Met. F5C	LPwater ≤ 3 m (168 hours) (Cable core)										
PRODUCT CODE G.652D	EE83UG8 0000120EN	EE83UG8 000240EN	E83UG8 000036FEN	E83UG8 000048FEN	EE83UG8 000060FEN	E83UG8 000072FEN	EE83UG8 000096FEN	EE83UG8 000144FEN	EE83UG8 000192FEN	EE83UG8 000288FEN	EE83UG8 0004320EN
PRODUCT CODE G.657A2	EE86UG8 0000120EN	EE86UG8 0000240EN	EE86UG8 000036FEN	EE86UG8 000048FEN	EE86UG8 000060FEN	EE86UG8 000072FEN	EE86UG8 000096FEN	EE86UG8 000144FEN	EE86UG8 000192FE	EE86UG8 000288FEN	EE86UG8 0004320EN
Ovalling (%)	<5										
Sheath Thickness avg/mini	2.3/1.4							2.5/1.6			
Friction in duct (¾, 50mm, 1m)	<0.35										

OPTICAL FIBRE CHARACTERISTICS

Optical Fibers compliant with ITU-T G.657 A2 and G.652D recommendations. Fiber optic specifications of cabled fiber below:

- Attenuation coefficient: (EN 60794-3-11) — Maximum at 1310nm: **0.36 dB/km**. Typical (90% of fibres) / Maximum at 1550nm: **0.22 / 0.23 dB/km.**
- PMD — Individual **≤ 0.20 ps/km$^{1/2}$**.
- Cut-off wavelength — (λcc) **≤ 1260nm.**

AERIAL INSTALLATION

- Installation conditions: Sag: 1.0% (*) / Temperature 15°C.
  - Maximum span: 100 m. in NESC Light.
  - Maximum span: 70 m. in NESC Medium (no extra load).
  - Maximum span: 50 m. in NESC Heavy (no extra load).
- Maximum space potential recommendation: 4kV.
- Installation tables attached.

(*) Typical value: 1.5%.

INDOOR RISER - LSZH SHEATH

MICROMODULE STRUCTURE FIBRE-OPTIC CABLES.

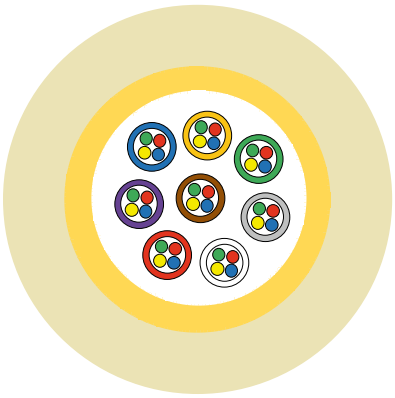
INDOOR RISER

DESCRIPTION AND APPLICATION

Indoor ultra-compact optical-fibre cables with LSZH sheath and aramid yarns for traction resistant. These cables are designed for installations in buildings canalizations.

CONSTRUCTION

1. Micromodules: Easy strippable tube with 4 or 8 fibres.
2. Aramid yarns for tensile reinforcement.
3. Outer thermoplastic ivory coloured LSZH material sheath.
   Markings:
   - CABLESCOM / year / FO Number / Type of fibre / Type of sheath / Length markings.



NO METAL

LSZH

ROHS

PRODUCT INFORMATION

Code	Fibres Num.	Diameter (mm)	Nominal weight (kg/km)
EE6402L00001602WN	16	7.6	45
EE6402L0000240WN	24	7.6	45
EE6402L0000320WN	32	7.6	47
EE6402L0000480WN	48	7.6	49

Mechanical characteristics	Standard	Test conditions
Tensile strength	UNE-EN 60794-1-2, Met.E1	1000 N
Crush resistance (Δα < 0.05 dB)	UNE-EN 60794-1-2, Met.E3	1500 N
Impact resistance (Δα < 0.05 dB)	UNE-EN 60794-1-2, Met.E4	5 J, r = 300 mm
Curvature (Δα ≤ 0.1 dB)	UNE-EN 60794-1-2, Met.E11	R = 10 x Ø cable
Temperature cycling (Δα operation ≤ 0.1 dB/km)	UNE-EN 60794-1-2, Met.F1	-5ºC / +60ºC
Flame propagation	UNE-EN 60332-1	
Smoke acidity of combustion gases	UNE-EN 60754-2	
Smoke density	UNE-EN 61034-2	Transmittance > 50 %

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GENERAL CATALOGUE 2024
DRIVING THE FUTURE OF CONNECTIVITY

OPTICAL FIBER CABLES

2.1.-MICROMODULE CABLES

2.2.-LOOSE TUBE CABLES

2.3.-CENTRAL TUBE CABLES

2.4.-MICROCABLES TUBE CABLES

OUTDOOR – KP SHEATH
MULTITUBE FIBRE-OPTIC CABLES.
EE6122N

DESCRIPTION AND APPLICATION

Loose tube single mode optical fibre cable, totally dielectric up to 512 fibres. The tubes are filled with a thixotropic filling compound. Water blocking between the tubes is achieved by swellable dry elements. The core is protected by a polyethylene sheath, KP type. Suitable for installation in ducts.

CONSTRUCTION

1. Loose Tubes: PBT loose tubes filled up to 8 optical fibres with thixotropic compound and containing single mode optical. Colour coding of tubes and fibres according to tables 1 and 2.
2. Optical fibres: single mode optical fibres according to ITU-T G.652 D.
3. Central Element: Fibre-glass reinforced plastic central element.
4. Core formation: Loose tubes stranded in SZ. Swellable yarns and tapes to avoid water penetration and make the cable waterproof.
5. Mechanical reinforcement: Aramid yarns as traction resistant.
6. Outer jacket: Black polyethylene sheath.
   Sheath marking: The cables will be marked with the following information
   - CABLESCOM / Year / Fibre Num / Fibre Type / Sheath Type / Length markings,
   - Other marks are available on request,

LOOSE TUBES COLOUR CODE

	# Fibre	Fibres in Cable										
		16	24	32	48	64	96	128	144	192	256	512
1st Layer	1	WHITE	WHITE	WHITE	WHITE	WHITE	WHITE	WHITE	WHITE	WHITE	WHITE	WHITE
	2	RED	WHITE	WHITE	WHITE	WHITE	WHITE	RED	WHITE	WHITE	RED	RED
	3	BLACK	RED	RED	RED	RED	WHITE	BLACK	RED	WHITE	BLACK	BLACK
	4	BLUE	RED	RED	RED	RED	RED	BLUE	RED	RED	BLUE	BLUE
	5	GREEN	BLUE	BLUE	BLUE	BLUE	RED	GREEN	BLUE	RED	GREEN	GREEN
	6	BLACK	BLUE	BLUE	BLUE	BLUE	RED	BLACK	BLUE	RED	BLACK	BLACK
	7			GREEN		GREEN	BLUE			BLUE		
	8			GREEN		GREEN	BLUE			BLUE		
	9						BLUE			BLUE		
	10						GREEN			GREEN		
	11						GREEN			GREEN		
	12						GREEN			GREEN		
2nd Layer	1							WHITE	WHITE		WHITE	WHITE
	2							WHITE	WHITE		WHITE	WHITE
	3							WHITE	WHITE		WHITE	WHITE
	4							RED	RED		RED	RED
	5							RED	RED		RED	RED
	6							RED	RED		RED	RED
	7							BLUE	BLUE		BLUE	BLUE
	8							BLUE	BLUE		BLUE	BLUE
	9							BLUE	BLUE		BLUE	BLUE
	10							GREEN	GREEN		GREEN	GREEN
	11							GREEN	GREEN		GREEN	GREEN
	12							GREEN	GREEN		GREEN	GREEN
	Fibres per tube	4	4	4	8	8	8	8	8	16	16	32

Note: The black tubes are passive elements (no fibre).

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OUTDOOR – KP SHEATH
MULTITUBE FIBRE-OPTIC CABLES.
EE6122N

OPTICAL FIBRE CHARACTERISTICS

The parameters of the optical fibres used in these cables meet the ITU-T recommendation G 652D.
See our fibre product sheet for the characteristics of the fibre.

Optical transmission characteristics of cabled fibre:

Attenuation coefficient:

Average/Maximum at 1310 nm: 0.36/0.37 dB/km

Average/Maximum at 1550 nm: 0.22/0.24 dB/km

PMD link ≤ 0.20 ps/km1/2

PMD Q ≤ 0.10 ps/km1/2

Cut-off wavelength λcc) ≤ 1260nm

OPTICAL FIBRES COLOUR CODE (FROM 8 TO 256 FO)

Fibre	1	2	3	4	5	6	7	8	9	10	11	12
Colour	GREEN	RED	BLUE	YELLOW	GREY	VIOLET	BROWN	ORANGE	WHITE	BLACK	PINK	TURQUOISE
Abrev.	Gr	Rd	Bl	Ye	Gy	Vi	Br	Or	Wh	Bl	Tq	Rs

Fibre	13	14	15	16
Colour	WHITE*	YELLOW*	ORANGE*	PINK*
Abrev.	W	Ye	Or	P

(*): Fibres from 13 to 16 are marked with black rings separated up to 50 mm apart.

OPTICAL FIBRES COLOUR CODE (FROM 8 TO 256 FO)

Fibre	1	2	3	4	5	6	7	8
Colour	GREEN	RED	BLUE	YELLOW	GREY	VIOLET	BROWN	ORANGE
Fibre	9	10	11	12	13	14	15	16
Colour	GREEN*	RED*	BLUE*	YELLOW*	GREY *	VIOLET*	WHITE*	ORANGE *
Fibre	17	18	19	20	21	22	23	24
Colour	GREEN**	RED**	BLUE**	YELLOW**	GREY **	VIOLET**	WHITE**	ORANGE **
Fibre	25	26	27	28	29	30	31	32
Colour	GREEN***	RED***	BLUE***	YELLOW***	GREY ***	VIOLET***	WHITE***	ORANGE ***

(*): Fibres from 9 to 16 are marked with a black ring approximately every 50 mm.
(**): Fibres from 17 to 24 are marked with a double black ring approximately every 50 mm.
(* * *): Fibres from 25 to 32 are marked with a triple black ring approximately every 50 mm.

PRODUCT INFORMATION

Code	Num. Fibres	Nominal weight (mm)	Nominal OD (kg/km)
EE6122N000016WWN	16	92	11.2
EE6122N000024WWN	24	94	11.2
EE6122N000032WWN	32	96	11.2
EE6122N000048WWN	48	97	11.2
EE6122N000064WWN	64	114	12.3
EE6122N000128WWN	128	179	15.8
EE6122N000256WWN	256	214	17.3
EE6122N000512WWN	512	282	19.7

Mechanical characteristics	Standard	Test conditions
Tensile strength (Δεf=0.05%, α≤0.05 dB)	EN 187000 Met. 501	3500 N
Impact resistance (Δα≤0.05 dB)	EN 187000 Met. 505	5 J, 10 mm
Curvature (Δα≤0.05 dB)	EN 187000 Met. 513	R=15 x Ø cable; r ≥ 250 mm
Temperature cycling (operation, Δα≤0.05 dB)	EN 187000 Met. 601	-25ºC / 70ºC
Water penetration	EN 187000 Met. 605B	LPwater ≤ 1 m (14 days)
Crush resistance (Δα≤0.05 dB)	EN 187000 Met. 504	2000 N

ADSS - KP SHEATH

ADSS MULTITUBE FIBRE-OPTIC CABLE.

KP ADSS

DESCRIPTION AND APPLICATION

Fibre-optic ADSS cable with dielectric reinforcement elements and high density polyethylene sheath. This cable is designed for aerial self-supported installations in poles along with overhead, telecommunication or high voltage transmission lines.

CONSTRUCTION

1. Jelly-filled PBT loose tubes.
2. Optical fibres.
3. Dielectric fibreglass-reinforced central element.
4. Water-blocking yarns and/or tapes.
5. Aramid yarns for traction reinforcement.
6. Outer High Density polyethylene sheath. Markings:
   - CABLESCOM / Year / Number of fibres / Type of fibre / Type of sheath / Length markings.

PRODUCT INFORMATION

Fibres num.	24	48	96	144	192	288
1st layer tubes num.	2	4	8	12	4	9
1st layer passive elements num.	4	2	0	0	2	0
2nd layer tubes num.	-	-	-	-	12	15
2nd layer passive elements num.	-	-	-	-	0	0

Mechanical characteristics	Standard	Test conditions
MAT (Δεf<0.50%, Δα<0.05 dB)	UNE-EN 60794-1-2, Met. E1	See table
MOT (Δεf<0.20%, Δα<0.05 dB)	UNE-EN 60794-1-2, Met. E1	See table
Impact resistance(Δα<0.05 dB)	UNE-EN 60794-1-2, Met. E4	5 J, r = 300 mm
Curvature (Δα < 0.05 dB)	UNE-EN 60794-1, Met E11	r = 15 x Ø cable
Operating temperature (Δα<0.05 dB)	UNE-EN 60794-1-2, Met. F1	-40ºC / +70ºC
Water penetration	UNE-EN 60794-1-2, Met.F5C	3m cable, 1m water column, 24 hours
Crush resistance (Δα<0.05 dB)	UNE-EN 60794-1-2, Met. E3	2500 N/cm

Cable data	Cable OD (mm)	Weight (kg/km)	Max Span (m)	Initial SAG	MAT (N)	MOT (N)
24 FO	10.7	83	80	1.5 %	3300	1900
48 FO	10.7	85	80	1.5 %	3300	1900
96 FO	13.1	128	80	1.5 %	5200	2750
144 FO	17.5	233	100	1.5 %	8700	5200
192 FO	17.5	224	100	1.5 %	8700	4900
288 FO	17.5	231	100	1.5 %	9000	5000

Fibres colour code: Green – Red – Blue – Yellow – Grey – Violet – Brown – Orange – White – Black – Pink - Turquoise.
Tubes colour code: White – Red – Blue – Green – Black (Passive).
See colour code scheme according to cable configurations in Annexes – Colour code Table.
Optical fibre characteristics: See Annexes – Optical fibre characteristics.
Conditions for ADSS installation: See Annexes – Conditions for ADSS installation.

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SHOTGUN-RESISTANT ADSS - PKCP SHEATH

SHOTGUN-RESISTANT ADSS MULTITUBE FIBRE-OPTIC CABLES.

PKCP

DESCRIPTION AND APPLICATION

Double PE sheathed fibre-optic cables with aramid yarns and tapes to make the cable resistant against shootings. This cable is recommended for self-supporting aerial installation with maximum spans of 80 m, in areas with risk of being hit by buckshot.

CONSTRUCTION

1. Loose tubes of PBT and thixotropic compound on the inside.
2. Optical fibres.
3. Reinforced central element of dielectric fibreglass.
4. Water-blocking yarns and/or tapes.
5. Inner polyethylene sheath.
6. Aramid yarns for strength reinforcing element.
7. Two woven aramid fabric tapes helically applied.
8. Outer polyethylene sheath. Markings:
   - CABLESCOM / Year / Number of fibres / Type of fibre / Type of sheath / Length markings.

PRODUCT INFORMATION

Fibres Num.	Nominal weight (kg/km)	Nominal OD (mm)
8	220	17.0
16	220	17.0
24	220	17.0
32	220	17.0
48	220	17.0
64	260	19.0

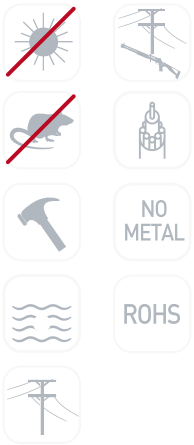
Mechanical characteristics	Standard	Test conditions
MAT (Δεf<0.33%, Δα reversible)	UNE-EN 60794-1-2, Met. E1	7000 N
MOT (Δεf=0.00%, Δα<0.05 dB)	UNE-EN 60794-1-2, Met. E1	4000 N (Up to 48 fo) 4300 N (64 fo cable)
4300 N (64 fo cable)	UNE-EN 60794-1-2, Met. E4	5 J, r = 300 mm
Impact resistance(Δα<0.05 dB)	UNE-EN 60794-1-2, Met. F1	-20ºC / +60ºC
Operating temperature (Δα<0.05 dB)	UNE-EN 60794-1-2, Met.F5B	LPwater ≤ 3 m (24 hours)
Water penetration	UNE-EN 60794-1-2, Met. E3	2000N
Crush resistance (Δα<0.05 dB)	UNE-EN 60794-1-2, Met. E27	±180º, 25 N, 20 cycles
Torsion tes (Δα<0.05 dB)	UNE-EN 60794-1-2, Met. E11	r =15d mm (r ≥ 250 mm)
Static bending (Δα<0.05 dB)	UNE-EN 60794-1-2, Met. E6	r =15d mm, 100 cycles
Repeated bending (Δα<0.05 dB)	UNE-EN 60794-1-2, Met. 13A	Distance 20 m ammunition: numbers 7

Fibre colour code: Green – Red – Blue – Yellow – Grey – Violet – Brown – Orange – White – Black – Pink - Turquoise.
Tube colour code: White – Red – Blue – Green – Black (Passive).
See colour code scheme according to cable configurations in Annexes – Colour code Table.
Optical fibre characteristics: See Annexes – Optical fibre characteristics.

DIELECTRIC SELF-SUPPORTED CABLE (ADSS MT-BT)
ENDESA DISTRIBUTION.
EE4939A

DESCRIPTION AND APPLICATION

Fibre optic ADSS Cable for aerial self-supported installations totally dielectric, constituted by a single loose tube.It has fibre glass reinforcement and HDPE Outer sheath.
It is recommended for aerial installations. This cable can be use for aerial lines or can also be installed in ducts, burried or on trays, due to its outer sheath UV resistance and its mechanical reinforcements.



CONSTRUCTION

1. Loose tubes of PBT and thixotropic compound on the inside.
2. Optical fibres according to ITU-T G.652.D and ITU-T G.655.
3. Reinforced central element of dielectric fibreglass.
4. Inner polyethylene sheath.
5. Self-inflating ribbon and/or tapes.
6. Fiber glass reinforcement helically applied.
7. Anti-tracking Thermoplastic Anti-tracking outer sheath UV resistant.
8. Ripcord.

Markings:
CABLESCOM / EE4939A00004800N / ADSS MT-BT / 36+12 / G652D+G655 / YEAR / CPR / LENGHT.
CABLESCOM / EE4929A00004800N / ADSS MT-BT / 48 / G652D / YEAR / CPR / LENGHT.

FIBRE OPTIC CHARACTERISTICS

G.652D MONOMODE FIBRE OPTIC G.652D CHARACTERISTICS			
PARAMETRE	VALUES	UNITS	STANDARD
Typ./Max. Atenuation coefficient at 1310 nm	0,34 / 0,36	dB/km	UNE-EN 188000-303
Typ./Max. Atenuation coefficient at 1383 nm	0,29 / 0,33	dB/km	
Typ./Max. Atenuation coefficient at 1550 nm	0,21 / 0,22	dB/km	IEC 60793-1-40
Typ./Max. Atenuation coefficient at 1625 nm	0,22 / 0,26	dB/km	
Polarization Mode Dispersion (PMD)	≤ 0,2	ps/√km	IEC 60793-1-48
Link Design Value. (PMDQ)	≤ 0,1	ps/√km	
Cut-off wavelenght	λcc < 1260	nm	UNE-EN 188000-313 IEC 60793-1-44

G.655 MONOMODE FIBRE OPTIC G.652D CHARACTERISTICS			
PARAMETRE	VALUES	UNITS	STANDARD
Typ./Max. Atenuation coefficient at 1310 nm	0,36 / 0,42	dB/km	UNE-EN 188000-303
Typ./Max. Atenuation coefficient at 1383 nm	0,36 / 0,42	dB/km	
Typ./Max. Atenuation coefficient at 1550 nm	0,21 / 0,25	dB/km	IEC 60793-1-40
Typ./Max. Atenuation coefficient at 1625 nm	0,22 / 0,27	dB/km	
Polarization Mode Dispersion (PMD)	≤ 0,2	ps/√km	IEC 60793-1-48
Link Design Value. (PMDQ)	≤ 0,1	ps/√km	
Cut-off wavelenght	λcc < 1450	nm	UNE-EN 188000-313 IEC 60793-1-44

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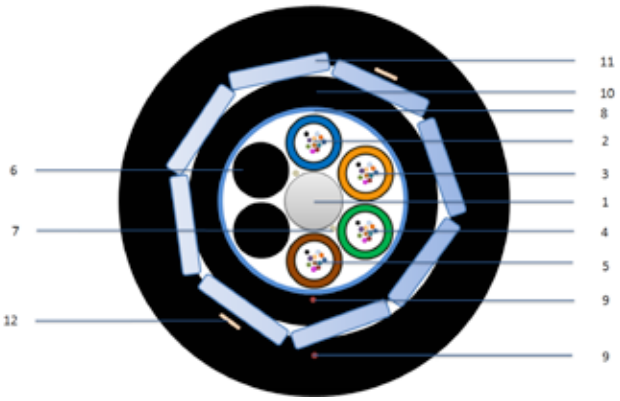
DIELECTRIC SELF-SUPPORTED CABLE (ADSS MT-BT)
ENDESA DISTRIBUTION.
EE4939A

DETAIL CONSTRUCTION AND CABLE ADSS MT-BT 36+12 FO BOM

Cable Element		Material	Commercial Name /Supplier	Requirement		
1	Central Element	Central Element 2,50 mm	FRP ROD (ERHARDT-AKSH)/ (GOTEX)	2,5 mm		
Cable Element		Material	Commercial Name /Supplier	Requirement		
				Outer Diameter	Inner Diameter	Thickness
2	Blue Tube	Poliamyde 12	POLIAMIDA 12 AECNO TL (ARKEMA)	2,4 ± 0,1 mm	1,7 ± 0,1 mm	0,3 ± 0,05 mm
		Colouring polyamide (Bl)	DELTAPLAST PAE (DELTA TECNIC)			
		Filler Compound FO Tube	ITCOGEL T250 (ITCO)			
	Fibre Optic	Monomode Standard G652D	Optical Fiber Monomode G.652.D (HENGTONG)			
3	Orange Tube	Poliamyde 12	POLIAMIDA 12 AECNO TL (ARKEMA)	2,4 ± 0,1 mm	1,7 ± 0,1 mm	0,3 ± 0,05 mm
		Colouring polyamide (Or)	DELTAPLAST PAE (DELTA TECNIC)			
		Filler Compound FO Tube	ITCOGEL T250 (ITCO)			
	Fibre Optic	Monomode Standard G652D	Optical Fiber Monomode G.652.D (HENGTONG)			
4	Green Tube	Poliamyde 12	POLIAMIDA 12 AECNO TL (ARKEMA)	2,4 ± 0,1 mm	1,7 ± 0,1 mm	0,3 ± 0,05 mm
		Colouring polyamide (Gr)	DELTAPLAST PAE (DELTA TECNIC)			
		Filler Compound FO Tube	ITCOGEL T250 (ITCO)			
	Fibre Optic	Monomode Standard G652D	Optical Fiber Monomode G.652.D (HENGTONG)			
5	Brown Tube	Poliamyde 12	POLIAMIDA 12 AECNO TL (ARKEMA)	2,4 ± 0,1 mm	1,7 ± 0,1 mm	0,3 ± 0,05 mm
		Colouring polyamide (Br)	DELTAPLAST PAE (DELTA TECNIC)			
		Filler Compound FO Tube	ITCOGEL T250 (ITCO)			
	Fibre Optic	Dispersion-shifted Monomode G.655	Optical fiber TrueWave® RS G.655 (OFS)			
Cable Element		Material	Commercial Name /Supplier	Requirement		
6	Filler Compound	Black Copolymer PE	ALCUDIA 2202-CN (REPSOL)	2,4 ± 0,1 mm		
Cable Element		Material	Commercial Name /Supplier	Requirement		
7	Water Blocking Elements	Water Blocking Yarns	WBC 1000 K (PROMOCOR)/(TEXTILES LA CAVADA)	2 units: one longitudinal and one helical		
8	Water Blocking Elements	Water blocking PE tape	DSN1085 (PROMOCOR)/CDZD-20 (ERHARDT)	Thickness : 0,2 mm		
Cable Element		Material	Commercial Name /Supplier	Requirement		
9	Ripcords	Ripcord Nylon 2115 dtx	Torzal nylon 2115 dtex (PROMOCOR) /(TEXTILES LA CAVADA)	2.115 dtex (1 in inner sheath and 1 in outer sheath)		
Cable Element		Material	Commercial Name /Supplier	Requirement		
10	Inner sheath	Black HDPE sheath	Borstar HE6067 (BOREALIS)	Nominal Thickness		
				0,85 mm		
	Inner sheath			Nominal Diameter		
				9,0 mm		
Cable Element		Material	Commercial Name /Supplier	Requirement		
				Units	Width	Thickness
11	Mechanical reinforcement	Flat Support Elements 4,0 X 1,0 mm	LLF/F 400C (Neptco JV LLC) / SIV 400X100 (DEXTEN)	8	4 mm	1 mm
				Units	Dtex/unit	
12	Mechanical reinforcement	Aramid Yarns (H.M.) 3200 DTEX D	Twaron® 2200 (TEIJIN)	2	3200	
Cable Element		Material	Commercial Name /Supplier	Requirement		
13	Outer Sheath	Black HDPE sheath	Borstar HE6081 (BOREALIS)	Min. Thickness		
				1,6 mm		
Final cable Dimensions				Nominales values		
Cable Diameter				15,4 mm		
Weight				222,6 Kg		

DIELECTRIC SELF-SUPPORTED CABLE (ADSS MT-BT)
ENDESA DISTRIBUTION.
EE4939A



Tube Num.	Cable Fibre Num.		
	36+12** , 48	96	144
1	BLUE	BLUE	BLUE
2	ORANGE	ORANGE	ORANGE
3	GREEN	GREEN	GREEN
4	BROWN	BROWN	BROWN
5	BLACK	GREY	GREY
6	BLACK	WHITE	WHITE
7		RED	
8		BLACK	
Fibres/tube	12	12	24
Active Tubes	4	8	6
Passive Tubes	2	0	0

Note: Black color tubes are padding passive elements (without optic fibres)
**G655 fibre will be always placed in the last tube.

OPTICAL FIBRES COLOUR CODE

12 fibres per Tube Cable

Fibre	1	2	3	4	5	6	7	8	9	10	11	12
Colour	BLUE	ORANGE	GREEN	BROWN	GREY	WHITE	RED	BLACK	YELLOW	VIOLET	PINK	TURQUOISE
Abrev.	Bl	Or	Gr	Br	Gy	Wh	Rd	Bl	Ye	Vi	Pi	Tu

24 fibres per Tube Cable

Fibre	1	2	3	4	5	6	7	8	9	10	11	12
Colour	BLUE*	ORANGE*	GREEN*	BROWN *	GREY*	WHITE*	RED*	BLACK*	YELLOW*	VIOLET*	PINK*	TURQUOISE*
Abrev.	Bl(*)	Or(*)	Gr(*)	Br(*)	Gr(*)	Wh(*)	Rd(*)	Nt(*)	Ye(*)	Vi(*)	Pi(*)	Tu(*)
Fibre	13	14	15	16	17	18	19	20	21	22	23	24
Colour	BLUE**	ORANGE**	GREEN**	BROWN **	GREY* *	WHITE**	RED**	BLACK**	YELLOW**	VIOLET**	PINK**	TURQUOISE**
Abrev.	Bl(**)	Or(**)	Gr(**)	Br(**)	Gr(**)	Wh(**)	Rd(**)	Nt(**)	Ye(**)	Vi(**)	Pi(**)	Tu(**)

(*): Fibres from 1toa 12 will be marked with a black ring (**): Fibres from 13 to 24 will be marked with 2 black rings.

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DIELECTRIC SELF-SUPPORTED CABLE (ADSS MT-BT)
ENDESA DISTRIBUTION.
EE4939A

PRODUCT INFORMATION

Fibre Num.	Cablescom Code	Nominal Weight (kg/km)	Ø Nominal Cable (mm)	Thermal expansión coef. (α (/º)	Effective Resistant Section (Sef (mm2))	Tensile modulus related to this resistant section. (E/ExS)
36+12	EE4939A00004800N	223	15.4	$7{,}8x10^{-6}$	8,52	75810 (Mpa - N/mm2) 646 (kN)
48	EE4929A00004800N	223	15.4			

Mechanical characteristics	Standard	Test conditions
Tensile strength (Δα<0.2%)	UNE-EN 60794-1-2, Met. E1A	10000 N
Cable breaking load		20000 N
Crush resistance (Δα<0.05 dB)	UNE-EN 60794-1-2, Met. E3	1.1 kN / 50 mm
Impact resistance (Δα<0.05 dB)	UNE-EN 60794-1-2, Met. E4	10 J, 300 mm
Repeated bending	UNE-EN 60794-1-2, Met. E6	5 kg / 50 cycles
Torsion	UNE-EN 60794-1-2, Met. E7	180°, 2m, no damage
Vibrations	UNE-EN 60794-1-21:2015	40% MAT, 107 cycles, 60 Hz
Shotgun Resistance	UNE-EN 60794-1-2,Met.13A	Calibre 12, ammunition 7 y 34 gr
Material Drip	UNE-EN 60794-1-2, Met.14	
Water Penetration	UNE-EN 60794-1-22,Met.F5B	Lpagua<1m (8h)
Temperature cycling (Δα<0.05 dB)	UNE-EN 60794-1-2,Met.F1	-20°C / 70°C
Ageing	UNE-EN 60794-1-22,Met.F9	100°C, 168h
UV Radiation Resistance	UNE-EN 60794-1-22,Met.F14	4000h
Tracking Resistance	UNE-EN 60794-4-20 Anex C, C1	<30%

AERIAL CABLE (72 FIBRES)
EE6M0CA

STANDARDS

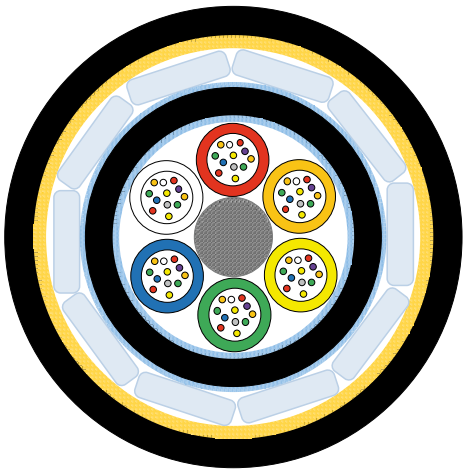
S68 câbles FO-R, version 26, date 2019_05_17

DESCRIPTION AND APPLICATION

Outdoor fibre optic cable made up of 72 fibres. The cable is totally dielectric, waterproof and with «Loose tube» structure, then is protected by a double polyethylene sheath, armoured with reinforcing flat fibre-glass dielectric elements as traction resistant elements.
Cable designed for telecommunication connections in medium or long-distance. This cable is available with two types of optic fibres: single-mode according to ITU-T G 652D or multimode 50/125 OM3.

CONSTRUCTION

- **Central element**: Fiber-glass reinforced plastic central element.
- **Tubes**: PBTP «Loose tubes» filled with thixotropic compound. Modules-Tubes with 12 fibres optics in accordance with Table 1.
- **Formation**: Loose tubes stranded in SZ around central element.
- **Water blocking elements**: Sweallable yarns and tapes to avoid water penetration and to make the cable longitudinally waterproof.
- **Inner sheath**: High density polyethylene (HDPE), black colour.
- **Mechanical reinforcement**: layer of flat fibre-glass reinforcing elements arranged helically and one layer of aramid yarns.
- **Outer sheath**: High density black polyethylene (HDPE), UV resistant.
- **Sheath marking**: The cable sheath will be marked with the following information:
  - INFRABEL – OPTICAL FIBER S / Manufacturing year / 72*Fibre type (G652.D) / Length markings – CABLESCOM – Manufacturing order.
  - Other sheath marks available upon request.



OPTICAL FIBRE CHARACTERISTICS

Single-mode Optical fibres are according to ITU-T G.652D recommendations and EN 60793-2 - Class B 50 B 1.3.
See our fibre product sheet for the characteristics of the fibre.

Optical transmission characteristics of cabled fibre:
Attenuation coefficient:
Average / Maximum at 1310 nm: 0,36/0,345 dB/km
Average / Maximum at 1550 nm: 0,23/0,215 dB/km
Average / Maximum at 1625 nm: 0,23/0,215 dB/km
PMD ≤ 0,20 ps/km1/2

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AERIAL CABLE (72 FIBRES)
EE6M0CA

TABLE 1: COLOUR CODE

Tube 0 : Red	
Fibre 1	RED + 3 RINGS
Fibre 2	ORANGE
Fibre 3	YELLOW
Fibre 4	GREEN
Fibre 5	BLUE
Fibre 6	VIOLET
Fibre 7	GREY
Fibre 8	WHITE
Fibre 9	RED + 1 RING
Fibre 10	ORANGE + 1 RING
Fibre 11	YELLOW + 1 RING
Fibre 12	GREEN + 1 RING
Fibres per Tube	12

Tube 1 : Orange	
Fibre 1	RED
Fibre 2	ORANGE + 3 RINGS
Fibre 3	YELLOW
Fibre 4	GREEN
Fibre 5	BLUE
Fibre 6	VIOLET
Fibre 7	GREY
Fibre 8	WHITE
Fibre 9	RED + 1 RING
Fibre 10	ORANGE + 1 RING
Fibre 11	YELLOW + 1 RING
Fibre 12	GREEN + 1 RING
Fibres per Tube	12

Tube 2 : Yellow	
Fibre 1	RED
Fibre 2	ORANGE
Fibre 3	YELLOW + 3 RINGS
Fibre 4	GREEN
Fibre 5	BLUE
Fibre 6	VIOLET
Fibre 7	GREY
Fibre 8	WHITE
Fibre 9	RED + 1 RING
Fibre 10	ORANGE + 1 RING
Fibre 11	YELLOW + 1 RING
Fibre 12	GREEN + 1 RING
Fibres per Tube	12

Tube 3 : Green	
Fibre 1	RED
Fibre 2	ORANGE
Fibre 3	YELLOW
Fibre 4	GREEN + 3 RINGS
Fibre 5	BLUE
Fibre 6	VIOLET
Fibre 7	GREY
Fibre 8	WHITE
Fibre 9	RED + 1 RING
Fibre 10	ORANGE + 1 RING
Fibre 11	YELLOW + 1 RING
Fibre 12	GREEN + 1 RING
Fibres per Tube	12

Tube 4 : Blue	
Fibre 1	RED
Fibre 2	ORANGE
Fibre 3	YELLOW
Fibre 4	GREEN
Fibre 5	BLUE + 3 RINGS
Fibre 6	VIOLET
Fibre 7	GREY
Fibre 8	WHITE
Fibre 9	RED + 1 RING
Fibre 10	ORANGE + 1 RING
Fibre 11	YELLOW + 1 RING
Fibre 12	GREEN + 1 RING
Fibres per Tube	12

Tube 5 : White	
Fibre 1	RED
Fibre 2	ORANGE
Fibre 3	YELLOW
Fibre 4	GREEN
Fibre 5	BLUE
Fibre 6	VIOLET
Fibre 7	GREY
Fibre 8	WHITE + 3 RINGS
Fibre 9	RED + 1 RING
Fibre 10	ORANGE + 1 RING
Fibre 11	YELLOW + 1 RING
Fibre 12	GREEN + 1 RING
Fibres per Tube	12

PRODUCT INFORMATION

EE6M0CA00007200N	
WEIGHT (kg/km)	270
DIAMETER (mm)	17.4
TENSILE STRENGTH (N) EN 60794-1-2, Met. E1	6200 N No tension in fibres
IMPACT RESISTANCE EN 60794-1-2, Met. E4	4.5 J ; r = 12.5 mm, T° 20°C Δα<0.1 db/km, Reversible
CRUSH RESISTANCE EN 60794-1-2, Met. E3	500 daN/dm Δα <0.1 db/km, Reversible
TEMPERATURE CYCLING EN 60794-1-2, Met. F1	-30°C / +70°C Δα < 0.1 dB/km, Reversible
WATER PENETRATION EN 60794-1-2, Met. F5C	LP water ⩽ 3 m (10 days)

SIGNALLING CABLE (36 FIBRES)
EE6M0CE

STANDARDS

S68 câbles FO-R, version 28.2

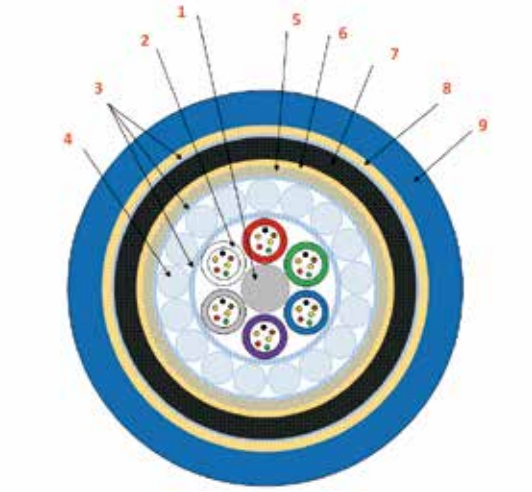
DESCRIPTION AND APPLICATION

Outdoor fibre optic cable made up of 36 fibres. The cable is totally dielectric, waterproof and with «Loose tube» structure, then is protected by a double polyethylene sheath, armoured with reinforcing dielectric elements, fiber-glass tape and several layers of aramid yarns as traction resistant elements.
Cable designed for telecommunication connections in medium or long-distance. This cable is available with two types of optic fibres: single-mode according to ITU-T G 652D or multimode 50/125 OM3.

CONSTRUCTION

- **(1) Central element**: Fiber-glass reinforced plastic central element.
- **(2) Tubes**: PBTP «Loose tubes» filled with thixotropic compound. Modules-Tubes with 6 fibres optics in accordance with Table 1.
  Formation: Loose tubes stranded in SZ around central element.
- **(3) Water blocking elements**: Sweallable yarns and tapes to avoid water penetration and to make the cable longitudinally waterproof.
- **(4,5 and6) Mechanical reinforcement**: reinforcing elements arranged helically: armour (4), fibre-glass tape (5) as shotgun protection and aramid yarns layer (6).
- **(7) Inner sheath**: High density polyethylene (HDPE), black colour.
- **(8) Mechanical reinforcement**: additional aramid yarns as traction resistant.
- **(9) Outer sheath**: High density polyethylene (HDPE), blue coloured:
  (PMS Colour: 293 – 100%), UV resistant.

Sheath marking: The cable sheath will be marked with the following information:
- INFRABEL – OPTICAL FIBER S / Manufacturing year / 36*Fibre type (G652.D) / Length markings – CCSA – Manufacturing order.
- Other sheath marks available upon request.



OPTICAL FIBRE CHARACTERISTICS

Single-mode Optical fibres are according to ITU-T G.652D recommendations and EN 60793-2 - Class B 50 B 1.3
See our fibre product sheet for the characteristics of the fibre.

Optical transmission characteristics of cabled fibre :
Attenuation coefficient:
Average / Maximum at 1310 nm: 0,345 / 0,36 dB/km
Average / Maximum at 1550 nm: 0,215 / 0,23 dB/km
Average / Maximum at 1625 nm: 0,215 / 0,23 dB/km
PMD ⩽ 0,20 ps/km1/2

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SIGNALLING CABLE (36 FIBRES)
EE6M0CE

TABLE 1: COLOUR CODE

Tube 0 : Red	
Fibre 1	BLACK
Fibre 2	BROWN
Fibre 3	RED
Fibre 4	ORANGE + 1 RING
Fibre 5	YELLOW + 1 RING
Fibre 6	GREEN + 1 RING
Fibres per tube	8

Tube 1 : Green	
Fibre 7	BLACK
Fibre 8	BROWN + 1 RING
Fibre 9	RED + 1 RING
Fibre 10	ORANGE + 1 RING
Fibre 11	YELLOW + 1 RING
Fibre 12	GREEN + 1 RING
Fibres per tube	6

Tube 2 : Blue	
Fibre 13	BLACK
Fibre 14	BROWN + 2 RINGS
Fibre 15	RED + 2 RINGS
Fibre 16	ORANGE + 2 RINGS
Fibre 17	YELLOW + 2 RINGS
Fibre 18	GREEN + 2 RINGS
Fibres per tube	6

Tube 3 : Violet	
Fibre 19	BLACK
Fibre 20	BROWN + 3 RINGS
Fibre 21	RED + 3 RINGS
Fibre 22	ORANGE + 3 RINGS
Fibre 23	YELLOW + 3 RINGS
Fibre 24	GREEN + 3 RINGS
Fibres per tube	6

Tube 4 : Grey	
Fibre 25	BLACK
Fibre 26	BROWN + 4 RINGS
Fibre 27	RED + 4 RINGS
Fibre 28	ORANGE + 4 RINGS
Fibre 29	YELLOW + 4 RINGS
Fibre 30	GREEN + 4 RINGS
Fibres per tube	6

Tube 5 : White	
Fibre 31	BLACK
Fibre 32	BROWN + 5 RINGS
Fibre 33	RED + 5 RINGS
Fibre 34	ORANGE + 5 RINGS
Fibre 35	YELLOW + 5 RINGS
Fibre 36	GREEN + 5 RINGS
Fibres per tube	6

PRODUCT INFORMATION

EE6M0CE00003600N				
WEIGHT (kg/km)	310			
DIAMETER (mm)	19.5			
TENSILE STRENGTH (N) EN 60794-1-2, Met. E1	7000 N No tension in fibres			
IMPACT RESISTANCE EN 60794-1-2, Met. E4	4.5 J ; r = 12.5 mm, T° 20°C Δα<0.1 db/km, Reversible			
CRUSH RESISTANCE EN 60794-1-2, Met. E3	500 daN/dm Δα <0.1 db/km, Reversible			
BENDING EN 60794-1-2, Met. E10	Rmin = 20xØCable			
TEMPERATURE CYCLING EN 60794-1-2, Met. F1	-30°C / +70°C Δα < 0.1 dB/km, Reversible			
WATER PENETRATION EN 60794-1-2, Met. F5C	LP water ⩽ 3 m (10 days)			
MODULUS OF ELASTICITY	15.1 GPa			
PRODUCT PRESENTATION	Production Length	Drum	Drum Dimensions	Weight (kg/drum)
	1.000	BA2W000	Ø119x79	388
	2.000	BA4W000	Ø144x91	719
	3.000	BA6W000	Ø169x108	1.105

GENERAL CATALOGUE 2024
DRIVING THE FUTURE OF CONNECTIVITY

OPTICAL FIBER CABLES

2.1.-MICROMODULE CABLES

2.2.-LOOSE TUBE CABLES

2.3.-CENTRAL TUBE CABLES

2.4.-MICROCABLES TUBE CABLES

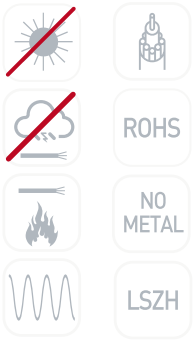
INDOOR/OUTDOOR DROP CABLE - KT SHEATH

CENTRAL TUBE DROP FIBRE-OPTIC CABLES.

EE6312L

DESCRIPTION AND APPLICATION

Indoor/Outdoor drop cable with up to 8 fibres, totally dielectric, constituted by a single loose tube. Flame-retardant and halogen free sheath, KT type. Can be installed on overhead lines, stapled on façade walls or pulled inside from the point of junction with the outside plant cables to the building or subscriber RIT.



CONSTRUCTION

1. A single loose tube with up to 8 optical fibres in a central PBT tube filled with thixotropic compound. Colour code according to table 1.
2. Optical fibres.
3. Aramid yarns as traction-resistant reinforcement.
4. Black, UV resistant and fire retardant thermoplastic, low smoke emission and halogen free.

Markings:
CABLESCOM / Year / Number of fibres / Type of fibre / Type of sheath / Length markings.
Other sheath marks available upon request.

OPTICAL FIBRE CHARACTERISTICS

The parameters of the optical fibres are compliant with the ITU-T G.652 D recommendation.
See our fibre product sheet for the characteristics of the fibre.

Optical transmission characteristics of cabled fibre:
Attenuation coefficient:
Average / maximum at 1310 nm: 0.36 / 0.37 dB/km.
Average / maximum at 1550 nm: 0.22 / 0.24 dB/km.
PMD individual ≤ 0.05 ps/km1/2.

OPTICAL FIBRE COLOUR CODE

Fibre	1	2	3	4	5	6	7	8
Colour	GREEN	RED	BLUE	YELLOW	GREY	VIOLET	BROWN	ORANGE
Abrev.	Gr	Rd	Bl	Ye	Gy	Vi	Br	Or

PRODUCT INFORMATION

CODE	Fibre Num.	Nominal OD (mm)	Nominal Weight (kg/km)
EE6312L0000080WN	8	7.0	53.0

Mechanical Characteristics	Standard	Test Conditions
Tensile strength (ΔEf≤0.33%; Δα≤0.05 dB)	UNE-EN 60794-1-2, Met.E1A	1250 N
Crush resistance (Δα≤0.05 dB)	UNE-EN 60794-1-2, Met. E3	1200 N; 10 cm
Curvature (Δα<0.05 dB)	UNE-EN 60794-1-2, Met.E11	r = 15 x cable OD; 5 turns; 3 cycles
Torsion (Δα≤0.05 dB)	UNE-EN 60794-1-2, Met. E7	50 N; ±1 giro/cycle; 10 cycles
Impact resistance (Δα ≤ 0.05 dB)	UNE-EN 60794-1-2, Met E4	5 J; r = 10 mm
Repeated bending (Δα ≤ 0.05 dB)	UNE-EN 60794-1-2, Met. E6	100 N; r= 15 x cable OD; r ≥ 250 mm; 100 cycles
Temperature cycling (operation, Δα≤0.05 dB)	UNE-EN 60794-1-2, Met. F1	-5ºC / +60ºC
Flame propagation	UNE-EN 60332-1	
Smoke density	UNE-EN 61034-2	Transmittance > 60 %

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INDOOR DROP CABLE - LSZH SHEATH

DROP FIBRE-OPTIC CABLES.

EE6212L

DESCRIPTION AND APPLICATION

Drop optical fibre cables with 1 single mode fibre for inside installations in FTTH systems. These cables have a G.657-A2 bend-optimized fibre that is compliant with the installed base of G.652D fibre for indoor applications, for bend radii down to 10 mm. It provides low macro-bend and micro-bend loss and seamless splicing.

CONSTRUCTION

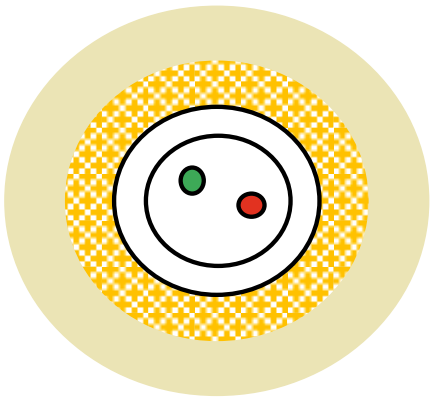
1. Dry central PBT loose tube.
2. Green single mode optical fibre according to ITU-T G.657A2.
3. Aramid yarns as traction-resistant reinforcement.
4. Ivory coloured LSZH compound.

Markings:
CABLESCOM / Year / Number of fibres / Type of fibre / Type of sheath / Length markings
Other sheath marks available upon request.

OPTICAL FIBRE CHARACTERISTICS

The parameters of the optical fibres are compliant with the ITU-T G.657 A2 recommendation.
See our fibre product sheet for the characteristics of the fibre.

Optical transmission characteristics of cabled fibre:
Attenuation coefficient:
Average / maximum at 1310 nm: 0.36 / 0.37 dB/km.
Average / maximum at 1550 nm: 0.22 / 0.24 dB/km.
Average / maximum at 1625 nm: 0.24 / 0.26 dB/km.
PMD ⩽ 0.15 ps/km1/2.
PMD link ⩽ 0.10 ps/km1/2.
Cut-off wavelength (λcc) ⩽ 1260nm.



PRODUCT INFORMATION

CODE	Fibre Num.	Diameter (mm)	Nominal Weight (kg/km)
EE6212L0000010WN	1	4.2	17

Mechanical characteristics	Standard	Test conditions
Tensile strength (ΔEf⩽0.33%; Δα⩽0.05 dB)	UNE-EN 60794-1-2, Met.E1A	450 N
Crush resistance (Δα⩽0.05 dB)	UNE-EN 60794-1-2, Met. E3	800 N
Curvature (Δα⩽0.05 dB)	UNE-EN 60794-1-2, Met.E11	R = 5 x cable OD
Impact resistance (Δα ⩽ 0.05 dB)	UNE-EN 60794-1-2, Met E4	2J/ radius 300 mm
Temperature cycling (operation, Δα⩽0.05 dB)	UNE-EN 60794-1-2, Met. F1	-5ºC / +60ºC
Reaction to fire	UNE-EN 50575	Dca-s2d2a2

Fibre colour code: Green. Other colours under request.
Tube colour code: White. Other colours under request.

OUTDOOR - FVP SHEATH
CENTRAL TUBE FIBRE-OPTIC CABLES.
FvP

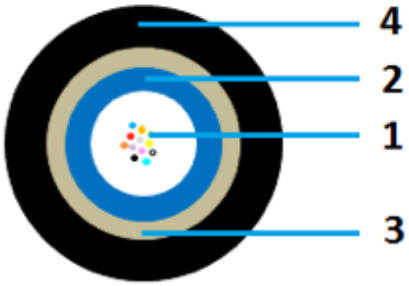
DESCRIPTION AND APPLICATION

"Central tube" type fibre-optic cables with fibreglass yarns and polyethylene sheath. This cable can be used for aerial lines, facades or can also be installed in ducts.

CONSTRUCTION

1. Optical fibres.
2. Jelly-filled PBT central tube.
3. Fibreglass yarns.
4. Polyethylene outer sheath.

Markings:
CABLESCOM / Year / Number of fibres / Type of fibre / Type of sheath / Length markings.



NO METAL

ROHS

PRODUCT INFORMATION

FIBRE Num.	2	4	6	8	12	16	24
NOMINAL WEIGHT (kg/km)	46					53	
NOMINAL OD (mm)	7.4					8	
MAX. INSTALLATION TENSILE STRENGTH (N) UNE-EN 60794-1-2, Met. E1	1600					1700	
	εf<0.5%						
MAX. OPERATION TENSILE STRENGTH (N) UNE-EN 60794-1-2, Met. E1	700						
	εf<0.2%						
IMPACT RESISTANCE UNE-EN 60794-1-2, Met. E4	10 J, 300 mm, 3 impacts, Δα<0.05 dB						
CURVATURE UNE-EN 60794-1-2, Mét. 11	R=20 x Ø cable, Δα<0.05 dB						
CRUSH RESISTANCE UNE-EN 60794-1-2, Met. E3	1000 N, 10 cm						
OPERATING TEMPERATURE UNE-EN 60794-1-2, Met. F1	-20ºC / 60ºC, Δα<0.05 dB						
WATER PENETRATION UNE-EN 60794-1-2, Met. F5C	LPwater ⩽ 3 m (24 hours)						

Fibre colour code: Green – Red – Blue – Yellow – Grey – Violet – Brown – Orange – White – Black – Pink – Turquoise.
Tube colour code: White – Red – Blue – Green – Black (Passive).
See colour code scheme according to cable configurations in Annexes – Colour code Table.
Optical fibre characteristics: See Annexes – Optical fibre characteristics.

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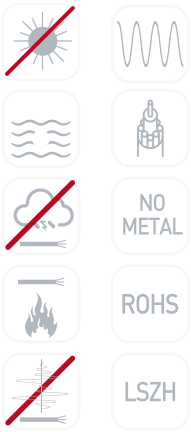
INDOOR/OUTDOOR - FVT SHEATH
CENTRAL TUBE FIBRE-OPTIC CABLES.
FvT

DESCRIPTION AND APPLICATION

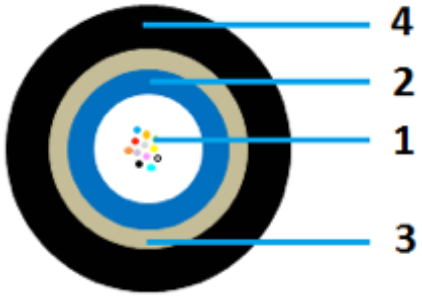
"Central tube" type fibre-optic cables with fibreglass yarns and LSZH thermoplastic sheath.
This cable can be used for aerial lines, facades or can also be installed in ducts.



CONSTRUCTION

1. Optical fibres.
2. Jelly-filled PBT central tube.
3. Fibreglass yarns.
4. LSZH thermoplastic outer sheath. UV Protected.

Markings:
CABLESCOM / Year / Number of fibres / Type of fibre / Type of sheath / Length markings.



PRODUCT INFORMATION

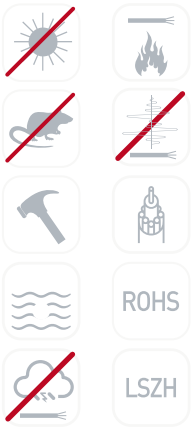
FIBRE Num.	2	4	6	8	12	16	24
NOMINAL WEIGHT (kg/km)	61					71	
NOMINAL OD (mm)	7.4					8	
MAX. INSTALLATION TENSILE STRENGTH (N) UNE-EN 60794-1-2, Met. E1	1500						
	εf<0.5%						
MAX. OPERATION TENSILE STRENGTH (N) UNE-EN 60794-1-2, Met. E1	700						
	εf<0.2%						
IMPACT RESISTANCE UNE-EN 60794-1-2, Met. E4	10 J, 300 mm, 3 impacts, Δα<0.05 dB						
CURVATURE UNE-EN 60794-1-2, Mét. 11	D=20 x Ø cable, Δα<0.05 dB						
CRUSH RESISTANCE UNE-EN 60794-1-2, Met. E3	1000 N, 10 cm						
OPERATING TEMPERATURE UNE-EN 60794-1-2, Met. F1	-20ºC / 60ºC, Δα<0.05 dB						
WATER PENETRATION UNE-EN 60794-1-2, Met. F5C	LPwater ≤ 3 m (24 hours)						

Fibre colour code: Green – Red – Blue – Yellow – Grey – Violet – Brown – Orange – White – Black – Pink – Turquoise.
Tube colour code: White – Red – Blue – Green – Black (Passive).
See colour code scheme according to cable configurations in Annexes – Colour code Table.
Optical fibre characteristics: See Annexes – Optical fibre characteristics.

INDOOR/OUTDOOR - FVTST SHEATH
CENTRAL TUBE FIBRE-OPTIC CABLES.
FvTST

DESCRIPTION AND APPLICATION

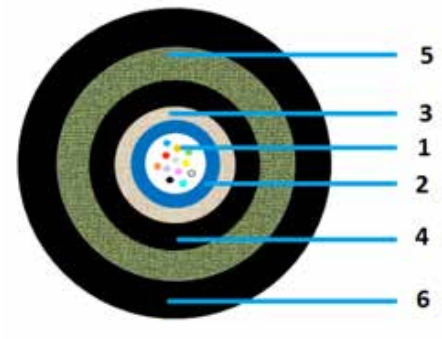
"Loose Tube" type fibre-optic cables with fibreglass yarns, longitudinal corrugated steel tape and a double LSZH thermoplastic sheath.



CONSTRUCTION

1. Optical fibres.
2. Jelly-filled PBT central tube.
3. Fibreglass yarns.
4. LSZH thermoplastic inner sheath.
5. Corrugated copolymer-coated steel tape longitudinally applied with overlap.
6. LSZH thermoplastic outer sheath.

Markings:
CABLESCOM / Year / Number of fibres / Type of fibre / Type of sheath / Length markings.



PRODUCT INFORMATION

FIBRE Num.	2	4	6	8	12	16	24
NOMINAL WEIGHT (kg/km)	151					167	
NOMINAL OD (mm)	11.7					12.4	
MAX. INSTALLATION TENSILE STRENGTH (N) UNE-EN 60794-1-2, Met. E1	1200						
	εf<0.5%						
MAX. OPERATION TENSILE STRENGTH (N) UNE-EN 60794-1-2, Met. E1	500						
	εf<0.2%						
IMPACT RESISTANCE UNE-EN 60794-1-2, Met. E4	5 J, 300 mm, 3 impacts, Δα<0.05 dB						
CURVATURE UNE-EN 60794-1-2, Mét. 11	D=20 x Ø cable, Δα<0.05 dB						
CRUSH RESISTANCE UNE-EN 60794-1-2, Met. E3	3000 N, 10 cm						
OPERATING TEMPERATURE UNE-EN 60794-1-2, Met. F1	-20ºC / 60ºC, Δα<0.05 dB						
WATER PENETRATION UNE-EN 60794-1-2, Met. F5C	LPwater ≤ 3 m (24 hours)						

Fibre colour code: Green – Red – Blue – Yellow – Grey – Violet – Brown – Orange – White – Black – Pink - Turquoise.
Tube colour code: White – Red – Blue – Green – Black (Passive).
See colour code scheme according to cable configurations in Annexes – Colour code Table.
Optical fibre characteristics: See Annexes – Optical fibre characteristics.

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OUTDOOR – KP SHEATH
CENTRAL TUBE FIBRE-OPTIC CABLE.
KP

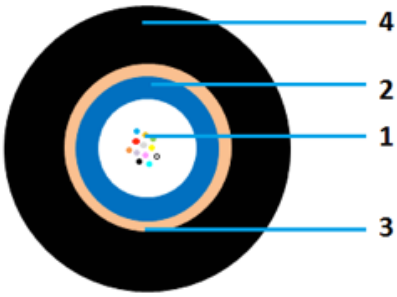
DESCRIPTION AND APPLICATION

"Central tube" type fibre-optic cables with aramid yarns and polyethylene sheath. This cable can be used for aerial lines, facades or can also be installed in ducts.

CONSTRUCTION

1. Optical fibres.
2. Jelly-filled PBT central tube.
3. Aramid yarns.
4. Polyethylene outer sheath.

Markings:
CABLESCOM / Year / Number of fibres / Type of fibre / Type of sheath / Length markings.



NO METAL

ROHS

PRODUCT INFORMATION

FIBRE Num.	2	4	6	8	12	16	24
NOMINAL WEIGHT (kg/km)	39					47	
NOMINAL OD (mm)	7					7.7	
MAX. INSTALLATION TENSILE STRENGTH (N) UNE-EN 60794-1-2, Met. E1	1600						
	εf<0.5%						
MAX. OPERATION TENSILE STRENGTH (N) UNE-EN 60794-1-2, Met. E1	700						
	εf<0.2%						
IMPACT RESISTANCE UNE-EN 60794-1-2, Met. E4	5 J, 300 mm, 3 impacts, Δα<0.05 dB						
CURVATURE UNE-EN 60794-1-2, Mét. 11	D=20 x Ø cable, Δα<0.05 dB						
CRUSH RESISTANCE UNE-EN 60794-1-2, Met. E3	1200 N, 10 cm						
OPERATING TEMPERATURE UNE-EN 60794-1-2, Met. F1	-20ºC / 60ºC, Δα<0.05 dB						
WATER PENETRATION UNE-EN 60794-1-2, Met. F5C	LPwater ≤ 3 m (24 hours)						

Fibre colour code: Green – Red – Blue – Yellow – Grey – Violet – Brown – Orange – White – Black – Pink – Turquoise.
Tube colour code: White – Red – Blue – Green – Black (Passive).
See colour code scheme according to cable configurations in Annexes – Colour code Table.
Optical fibre characteristics: See Annexes – Optical fibre characteristics.

OUTDOOR - KSP SHEATH
CENTRAL TUBE FIBRE-OPTIC CABLE.
KSP

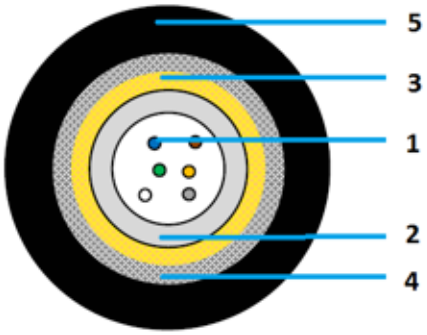
DESCRIPTION AND APPLICATION

"Central tube" type fibre-optic cables with aramid yarns, armoured with a steel tape for mechanical and rodent protection and polyethylene sheath. This cable can be used for aerial lines, facades or can also be installed in ducts.

CONSTRUCTION

1. Optical fibres.
2. Jelly-filled PBT central tube.
3. Aramid yarns.
4. Corrugated copolymer-coated steel tape longitudinally applied with overlap.
5. Polyethylene sheath.

Markings:
CABLESCOM / Year / Number of fibres / Type of fibre / Type of sheath / Length markings.



PRODUCT INFORMATION

FIBRE Num.	2	4	6	8	12	16	24
NOMINAL WEIGHT (kg/km)	81					91	
NOMINAL OD (mm)	9.3					9.9	
MAX. INSTALLATION TENSILE STRENGTH (N) UNE-EN 60794-1-2, Met. E1	2700					2800	
	εf<0.5%						
MAX. OPERATION TENSILE STRENGTH (N) UNE-EN 60794-1-2, Met. E1	1200						
	εf<0.2%						
IMPACT RESISTANCE UNE-EN 60794-1-2, Met. E4	5 J, 300 mm, 3 impacts, Δα<0.05 dB						
CURVATURE UNE-EN 60794-1-2, Mét. 11	D=20 x Ø cable, Δα<0.05 dB						
CRUSH RESISTANCE UNE-EN 60794-1-2, Met. E3	1500 N, 10 cm						
OPERATING TEMPERATURE UNE-EN 60794-1-2, Met. F1	-20ºC / 60ºC, Δα<0.05 dB						
WATER PENETRATION UNE-EN 60794-1-2, Met. F5C	LPwater ≤ 3 m (24 hours)						

Fibre colour code: Green – Red – Blue – Yellow – Grey – Violet – Brown – Orange – White – Black – Pink – Turquoise.
Tube colour code: White – Red – Blue – Green – Black (Passive).
See colour code scheme according to cable configurations in Annexes – Colour code Table.
Optical fibre characteristics: See Annexes – Optical fibre characteristics.

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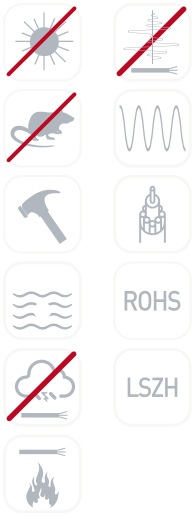
INDOOR/OUTDOOR - KST SHEATH
CENTRAL TUBE FIBRE-OPTIC CABLES.
KST

DESCRIPTION AND APPLICATION

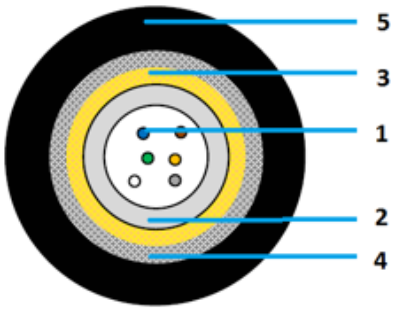
"Central tube" type fibre-optic cables with fibreglass yarns and LSZH thermoplastic sheath.
This cable can be used for outdoor installation.



CONSTRUCTION

1. Optical fibres.
2. Jelly-filled PBT central tube.
3. Aramid yarns.
4. Corrugated copolymer-coated steel tape longitudinally applied with overlap.
5. LSZH thermoplastic sheath. UV protected.

Markings:
CABLESCOM / Year / Number of fibres / Type of fibre / Type of sheath / Length markings.



PRODUCT INFORMATION

FIBRE Num.	2	4	6	8	12	16	24
NOMINAL WEIGHT (kg/km)	103					115	
NOMINAL OD (mm)	9.3					9.9	
MAX. INSTALLATION TENSILE STRENGTH (N) UNE-EN 60794-1-2, Met. E1	2500					2600	
	εf<0.5%						
MAX. OPERATION TENSILE STRENGTH (N) UNE-EN 60794-1-2, Met. E1	1100					1200	
	εf<0.2%						
IMPACT RESISTANCE UNE-EN 60794-1-2, Met. E4	5 J, 300 mm, 3 impacts, Δα<0.05 dB						
CURVATURE UNE-EN 60794-1-2, Mét. 11	D=20 x Ø cable, Δα<0.05 dB						
CRUSH RESISTANCE UNE-EN 60794-1-2, Met. E3	1500 N, 10 cm						
OPERATING TEMPERATURE UNE-EN 60794-1-2, Met. F1	-20ºC / 60ºC, Δα<0.05 dB						
WATER PENETRATION UNE-EN 60794-1-2, Met. F5C	LPwater ≤ 3 m (24 hours)						

Fibre colour code: Green – Red – Blue – Yellow – Grey – Violet – Brown – Orange – White – Black – Pink – Turquoise.
Tube colour code: White – Red – Blue – Green – Black (Passive).
See colour code scheme according to cable configurations in Annexes – Colour code Table.
Optical fibre characteristics: See Annexes – Optical fibre characteristics.

FLAT OPTICAL CABLE
OUTDOOR – SINGLEMODE FIBRE.
EE720F1

NO METAL

ROHS

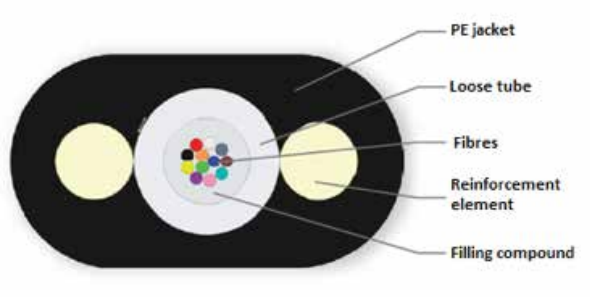
DESCRIPTION AND APPLICATION

Drop optical cable with 12 fibres, totally dielectric. Central tube construction with 2 FRP reinforcements.
This cable can be used for aerial lines, facades or can also be installed in ducts.

CONSTRUCTION

1. Optical fibres according to ITU-T G.652D.
2. Jelly-filled PBT central tube.
3. Reinforcement elements: 2 FRPs, embedded in the outer sheath.
4. Outer jacket: Black HDPE, UV resistant.

Sheath marking:
CABLESCOM <Year> 12F Fibre type OVAL FLAT <Length marking>.
Other sheath markings available upon request.



OPTICAL FIBRE COLOUR CODE

Cable Mod12	1
12	BLUE

OPTICAL FIBRE COLOUR CODE

Fibre	1	2	3	4	5	6	7	8	9	10	11	12
Colour	RED	GREEN	YELLOW	BLUE	ORANGE	BROWN	WHITE	VIOLET	PINK	TURQUOISE	GREY	BLACK

OPTICAL FIBRE CHARACTERISTICS

Optical Fibres according to ITU-T G.652D (EN 60794-2-50). Optical transmission characteristics of cabled fibre:

- Attenuation coefficient:
  Average/Maximum at 1310 nm: 0,36 / 0,37 dB/km.
  Average/Maximum at 1550 nm: 0,22 / 0,24 dB/km.
- PMD ⩽ 0,20 ps/km$^{1/2}$.
- Cut-off wavelength (λcc) ⩽ 1260 nm.

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FLAT OPTICAL CABLE
OUTDOOR – SINGLEMODE FIBRE.
EE720F1

PRODUCT INFORMATION

CABLE INFORMATION	
Fibres Num.	12
Tubes Num.	1
Modularity (fibres / tube)	12
Nominal weight [kg/km]	27
Nominal diameter [mm]	6.5 x 3.5
Instalation tensile strength [N] EN 60794-1-2, Met. E1	1000 Δεf < 0.5%, Δα reversible
Operation tensile strength [N] EN 60794-1-2, Met. E1	400 Δα ≤ 0,05 dB
Crush resistance EN 60794-1-2, Met. E3	500 N Δα reversible
Operating temperature EN 60794-1-2, Met. F1	-30ºC / +70ºC Δα reversible

GENERAL CATALOGUE 2024
DRIVING THE FUTURE OF CONNECTIVITY

OPTICAL FIBER CABLES

2.1.-MICROMODULE CABLES

2.2.-LOOSE TUBE CABLES

2.3.-CENTRAL TUBE CABLES

2.4.-MICROCABLES TUBE CABLES

OUTDOOR BLOWN MICRO-CABLE 7/4
A-D(ZN)2Y (HT) 7/4.
A-D(ZN)2Y_7_4_CT

DESCRIPTION AND APPLICATION

Micro optic-fibre cables designed to be rapidly installed by blowing in micro-ducts De/Di 7/4 mm. Cables used for medium or long distance telecommunications networks and designed with single mode type ITU-T G652D or G657A1 of 200µm.

NO METAL

ROHS

CONSTRUCTION

- Optical Fibre: Optical fibre according to ITU-T 652D or G657A1 (200 µm).
- Central loose tubes: PBT loose tube filled with thixotropic compound.
- Reinforcement elements: Water-blocking aramid yarns.
- Outer sheath: Black HDPE, UV resistant outer jacket.
- Sheath marking:
  CABLESCOM / Num of fibres – Fibre type – Year/Month - Batch Number – Length Marks.

OPTICAL FIBRE AND LOOSE TUBE COLOUR CODE

Fibre	1	2	3	4	5	6	7	8	9	10	11	12
Colour	RED	GREEN	BLUE	YELLOW	WHITE	GREY	BROWN	VIOLET	AQUA	BLACK	ORANGE	PINK

Fibre	13	14	15	16	17	18	19	20	21	22	23	24
Colour	RED I	GREEN I	BLUE I	YELLOW I	WHIT I	GREY I	BROWN I	VIOLET I	AQUA I	BLACK I	ORANGE I	PINK I

Fibres from 13 to 24 will be marked with one black ring.

PRODUCT INFORMATION

CABLES FIBRES		4	6	12	24
Nominal OD (mm) (±0.2mm)		2.5	2.5	2.8	2.8
Nominal weight (kg/km) (±20%)		5.5	5.5	8.0	8.0
Fibre type		G652D/G657A1		G657A1 200 µm	
MAX. TENSILE STRENGTH (N)	UNE-EN 60794-1-2, Met. E1	100 Δεf ⩽ 0,6%, Δα ⩽ 0,05 dB/km after test			
IMPACT RESISTANCE	UNE-EN 60794-1-2, Met. E4	1 J, 300 mm Δα reversible (Δα ⩽ 0,05 dB/km after test)			
CRUSH RESISTANCE	UNE-EN 60794-1-2, Met. E3	300 N/10 cm; 1 min; 3 positions (500mm apart) Δα reversible (Δα ⩽ 0,1 dB/km after test)			
REPEATED BENDING	UNE-EN 60794-1-2, Met. E6	25 Cycles: 20 x Ø cable Δα reversible (Δα ⩽ 0,05 dB/km after test)			
TORSION	UNE-EN 60794-1-2, Met. E7	2m cable ; 5 cycles ; ±180° Δα reversible (Δα ⩽ 0,05 dB/km after test)			
BENDING	UNE-EN 60794-1-2, Met. 11	Ø =10 x ø cable; 4 turns; 3 cycles Δα reversible (Δα ⩽ 0,05 dB/km after test)			
TEMPERATURE CYCLING	UNE-EN 60794-1-2, Met. F1	-20 °C / 70 °C; Δα < 0.1 dB/km			
WATER PENETRATION	UNE-EN 60794-1-2,Met.F5C	LP water ⩽ 3 m (24 hours); No leakage			

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OUTDOOR BLOWN MICRO-CABLE 10/6 A-D(ZN)2Y (HT).

A-D(ZN)2Y_10_6_CT

DESCRIPTION AND APPLICATION

Micro optic-fibre cables designed to be rapidly installed by blowing in micro-ducts De/Di 10/6 mm. Cables used for medium or long distance telecommunications networks and designed with single mode type ITU-T G652D or G657A1.

CONSTRUCTION

- Optical Fibre: Optical fibre according to ITU-T 652D or G657A1.
- Central loose tubes: PBT loose tube filled with thixotropic compound.
- Reinforcement elements: Water-blocking aramid yarns.
- Outer sheath: Black HDPE, UV resistant outer jacket.
- Sheath marking:
  CABLESCOM / Num of fibres – Fibre type – Year/Month - Batch Number – Length Marks.

NO METAL

ROHS

OPTICAL FIBRE AND LOOSE TUBE COLOUR CODE

Fibre	1	2	3	4	5	6	7	8	9	10	11	12
Colour	RED	GREEN	BLUE	YELLOW	WHITE	GREY	BROWN	VIOLET	AQUA	BLACK	ORANGE	PINK

Fibre	13	14	15	16	17	18	19	20	21	22	23	24
Colour	RED I	GREEN I	BLUE I	YELLOW I	WHIT I	GREY I	BROWN I	VIOLET I	AQUA I	BLACK I	ORANGE I	PINK I

Fibres from 13 to 24 will be marked with one black ring.

PRODUCT INFORMATION

CABLES FIBRES		4	6	12	24
Nominal OD (mm) (±0.2mm)		3.7	3.7	4.1	4.1
Nominal weight (kg/km) (±20%)		11	11	15	15
Fibre type		G652D/G657A1		G652D/G657A1	
MAX. TENSILE STRENGTH (N)	UNE-EN 60794-1-2, Met. E1	250 Δεf ⩽ 0,6%, Δα ⩽ 0,05 dB/km after test			
IMPACT RESISTANCE	UNE-EN 60794-1-2, Met. E4	1 J, 300 mm Δα reversible (Δα ⩽ 0,05 dB/km after test)			
CRUSH RESISTANCE	UNE-EN 60794-1-2, Met. E3	300 N/10 cm; 1 min; 3 positions (500mm apart) Δα reversible (Δα ⩽ 0,1 dB/km after test)			
REPEATED BENDING	UNE-EN 60794-1-2, Met. E6	25 Cycles: 20 x Ø cable Δα reversible (Δα ⩽ 0,05 dB/km after test)			
TORSION	UNE-EN 60794-1-2, Met. E7	2m cable ; 5 cycles ; ±180° Δα reversible (Δα ⩽ 0,05 dB/km after test)			
BENDING	UNE-EN 60794-1-2, Met. 11	Ø =10 x ø cable; 4 turns; 3 cycles Δα reversible (Δα ⩽ 0,05 dB/km after test)			
TEMPERATURE CYCLING	UNE-EN 60794-1-2, Met. F1	-20 °C / 70 °C; Δα < 0.1 dB/km			
WATER PENETRATION	UNE-EN 60794-1-2,Met.F5C	LP water ⩽ 3 m (24 hours); No leakage			

OUTDOOR BLOWN MINI-CABLE A-DQ2Y NX12 (200UM).

A-DQ2Y_12XN_G657A1_200UM_LT

DESCRIPTION AND APPLICATION

Mini optic-fibre cables designed to be installed by blowing in micro-ducts. Cables used for medium or long distance telecommunications networks and designed with single mode type ITU-T G657A1 200µm.

CONSTRUCTION

- Central element: Fibreglass reinforced plastic rod.
- Loose Tubes: PBT loose tubes filled with thixotropic compound. Optional fillers depending on the cable structure.
- Core formation: Tubes stranded in SZ.
- Core wrapping: Water-blocking tape and/or yarns to avoid water propagation.
- Outer sheath: Black HDPE, UV resistant outer jacket with a ripcord.
- Sheath marking:
  CABLESCOM / Num of fibres – Fibre type – Year/Month - "Batch Number" – Length Marks.

OPTICAL FIBRE AND LOOSE TUBE COLOUR CODE

Fibre	1	2	3	4	5	6	7	8	9	10	11	12
Colour	RED	GREEN	BLUE	YELLOW	WHITE	GREY	BROWN	VIOLET	AQUA	BLACK	ORANGE	PINK

Tube	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Colour	RED	GREEN	BLUE	YELLOW	WHITE	GREY	BROWN	VIOLET	AQUA	BLACK	ORANGE	PINK	WHITE	WHITE	WHITE

Each layer starting with tube 1; from 13th, loose tubes are white. Blind elements if they are any in black colour.

PRODUCT INFORMATION

CABLES FIBRES		12	24	48	72	96	144	192	288
Nominal OD (mm) (±0.2mm)		4.5	4.5	4.5	4.5	5.2	6.8	7.7	8.0
Nominal weight (kg/km)		19	19	19	19	28	45	56	63
Tubes Num./Passive Elements Num	1st Layer 2nd Layer	1/5	2/4	4/2	6/0	8/0	12/0	8/0 8/6	9/0 15/0
Fibres Number per Tube		12							
Recommended duct dimensions (O/I-Ø in mm)		12/8 12				12/8 14/10	14/10 16/12	16/12 20/15	
MAX. TENSILE STRENGTH (N)	UNE-EN 60794-1-2, Met. E1	200 Δεf ≤ 0,6%, Δα ≤ 0,05 dB/km after test					1000		
IMPACT RESISTANCE	UNE-EN 60794-1-2, Met. E4	2 J, 300 mm Δα reversible (Δα ≤ 0,05 dB/km after test)							
CRUSH RESISTANCE	UNE-EN 60794-1-2, Met. E3	300 N/10 cm; 15 min; 3 positions (500mm apart) Δα reversible (Δα ≤ 0,1 dB/km after test)							
REPEATED BENDING	UNE-EN 60794-1-2, Met. E6	35 Cycles: R : 20 x Ø cable Δα reversible (Δα ≤ 0,05 dB/km after test)							
TORSION	UNE-EN 60794-1-2, Met. E7	2m cable ; 100N ; 10 cycles ; ±180° Δα reversible (Δα ≤ 0,05 dB/km after test)							
BENDING	UNE-EN 60794-1-2, Met. 11	R : 20 x ø cable; 4 turns; 3 cycles Δα reversible (Δα ≤ 0,05 dB/km after test)							
TEMPERATURE CYCLING	UNE-EN 60794-1-2, Met. F1	-20 °C / 70 °C; Δα < 0.1 dB/km							
WATER PENETRATION	UNE-EN 60794-1-2,Met.F5C	LP water ≤ 3 m (24 hours); No leakage							

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OUTDOOR BLOWN MINI-CABLE A-DQ2Y NX12 (HT).

A-DQ2Y_12XN_LT

DESCRIPTION AND APPLICATION

Mini optic-fibre cables designed to be installed by blowing in micro-ducts. Cables used for medium or long distance telecommunications networks and designed with single mode type ITU-T G652D or G657A1.

CONSTRUCTION

- Central element: Fibreglass reinforced plastic rod.
- Loose Tubes: PBT loose tubes filled with thixotropic compound. Optional fillers depending on the cable structure.
- Core formation: Tubes stranded in SZ.
- Core wrapping: Water-blocking tape and/or yarns to avoid water propagation.
- Outer sheath: Black HDPE, UV resistant outer jacket with a ripcord.
- Sheath marking:
  CABLESCOM / Num of fibres – Fibre type – Year/Month - "Batch Number" – Length Marks.

OPTICAL FIBRE AND LOOSE TUBE COLOUR CODE

Fibre	1	2	3	4	5	6	7	8	9	10	11	12
Colour	RED	GREEN	BLUE	YELLOW	WHITE	GREY	BROWN	VIOLET	AQUA	BLACK	ORANGE	PINK

Tube	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Colour	RED	GREEN	BLUE	YELLOW	WHITE	GREY	BROWN	VIOLET	AQUA	BLACK	ORANGE	PINK	WHITE	WHITE	WHITE

Each layer starting with tube 1; from 13th, loose tubes are white. Blind elements if they are any in black colour.

PRODUCT INFORMATION

CABLES FIBRES		12	24	48	72	96	144	192	288
Nominal OD (mm) (±0.2mm)		5.4	5.4	5.4	5.4	6.3	8.0	8.8	9.3
Nominal weight (kg/km)		26	25	25	24	35	55	70	76
Tubes Num./Passive Elements Num	1st Layer 2nd Layer	1/5	2/4	4/2	6/0	8/0	12/0	8/0 8/6	9/0 15/0
Fibres Number per Tube		12							
Recommended duct dimensions (O/I-Ø in mm)		12/8 12				12/8 14/10	14/10 16/12	16/12 20/15	
MAX. TENSILE STRENGTH (N)	UNE-EN 60794-1-2, Met. E1	500 Δεf ≤ 0,6%, Δα ≤ 0,05 dB/km after test					1000		
IMPACT RESISTANCE	UNE-EN 60794-1-2, Met. E4	2 J, 300 mm Δα reversible (Δα ≤ 0,05 dB/km after test)							
CRUSH RESISTANCE	UNE-EN 60794-1-2, Met. E3	300 N/10 cm; 15 min; 3 positions (500mm apart) Δα reversible (Δα ≤ 0,1 dB/km after test)							
REPEATED BENDING	UNE-EN 60794-1-2, Met. E6	35 Cycles: R : 20 x Ø cable; Load 100N Δα reversible (Δα ≤ 0,05 dB/km after test)							
TORSION	UNE-EN 60794-1-2, Met. E7	2m cable ; 100N ; 10 cycles ; ±180° Δα reversible (Δα ≤ 0,05 dB/km after test)							
BENDING	UNE-EN 60794-1-2, Met. 11	R : 20 x ø cable; 4 turns; 3 cycles Δα reversible (Δα ≤ 0,05 dB/km after test)							
TEMPERATURE CYCLING	UNE-EN 60794-1-2, Met. F1	-15 °C / 70 °C; Δα < 0.1 dB/km							
WATER PENETRATION	UNE-EN 60794-1-2,Met.F5C	LP water ≤ 3 m (24 hours); No leakage							

OUTDOOR BLOWN MINI-CABLE A-DQ2Y NX24 (HT).

A-DQ2Y_24XN_LT

DESCRIPTION AND APPLICATION

Mini optic-fibre cables designed to be installed by blowing in micro-ducts. Cables used for medium or long distance telecommunications networks and designed with single mode type ITU-T G657A1 200µm.

CONSTRUCTION

- Central element: Fibre-glass reinforced plastic rod.
- Loose Tubes: PBT loose tubes filled with thixotropic compound. Optional fillers depending on the cable structure.
- Core formation: Tubes stranded in SZ.
- Core wrapping: Water-blocking tape and/or yarns to avoid water propagation.
- Outer sheath: Black HDPE, UV resistant outer jacket with a ripcord.
- Sheath marking:
  CABLESCOM / Num of fibres – Fibre type – Year/Month - "Batch Number" – Length Marks.

OPTICAL FIBRE AND LOOSE TUBE COLOUR CODE

Fibre	1	2	3	4	5	6	7	8	9	10	11	12
Colour	RED	GREEN	BLUE	YELLOW	WHITE	GREY	BROWN	VIOLET	AQUA	BLACK	ORANGE	PINK
Fibre	13	14	15	16	17	18	19	20	21	22	23	24
Colour	RED I	GREEN I	BLUE I	YELLOW I	WHIT I	GREY I	BROWN I	VIOLET I	AQUA I	BLACK I	ORANGE I	PINK I

Tube	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Colour	RED	GREEN	BLUE	YELLOW	WHITE	GREY	BROWN	VIOLET	AQUA	BLACK	ORANGE	PINK	WHITE	WHITE	WHITE

Each layer starting with tube 1; from 13th, loose tubes are white. Blind elements if they are any in black colour.

PRODUCT INFORMATION

CABLES FIBRES		96	144	192	216	288	384	432	576
Nominal OD (mm) (±0.2mm)		6.5	6.5	7.6	8.2	10.0	11.8	11.8	11.8
Nominal weight (kg/km)		39	39	58	66	92	130	130	130
Tubes Num./Passive Elements Num	1st Layer 2nd Layer	4/2	6/0	8/0	9/0	12/0	9/0 7/8	9/0 9/6	9/0 15/0
Fibres Number per Tube		24 (200µm)							
MAX. TENSILE STRENGTH (N)	UNE-EN 60794-1-2, Met. E1	600				1000			
		Δεf ≤ 0,6%, Δα ≤ 0,05 dB/km after test							
IMPACT RESISTANCE	UNE-EN 60794-1-2, Met. E4	2 J, 300 mm							
		Δα reversible (Δα ≤ 0,05 dB/km after test)							
CRUSH RESISTANCE	UNE-EN 60794-1-2, Met. E3	300 N/10 cm; 15 min; 3 positions (500mm apart)							
		Δα reversible (Δα ≤ 0,1 dB/km after test)							
REPEATED BENDING	UNE-EN 60794-1-2, Met. E6	35 Cycles: R: 20 x Ø cable; Load 100N							
		Δα reversible (Δα ≤ 0,05 dB/km after test)							
TORSION	UNE-EN 60794-1-2, Met. E7	2m cable ; 100N ; 10 cycles ; ±180°							
		Δα reversible (Δα ≤ 0,05 dB/km after test)							
BENDING	UNE-EN 60794-1-2, Met. 11	R : 20 x ø cable; 4 turns; 3 cycles							
		Δα reversible (Δα ≤ 0,05 dB/km after test)							
TEMPERATURE CYCLING	UNE-EN 60794-1-2, Met. F1	-15 °C / 70 °C; Δα < 0.1 dB/km							
WATER PENETRATION	UNE-EN 60794-1-2,Met.F5C	LP water ≤ 3 m (24 hours); No leakage							

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OUTDOOR BLOWN MINI-CABLE A-DQ4Y NX24 (HT).

DQ4Y_24XN_LT

DESCRIPTION AND APPLICATION

Mini optic-fibre cables designed to be installed by blowing in micro-ducts with a polyamide sheath. Cables used for medium or long distance telecommunications networks and designed with single mode type ITU-T G657A1 200µm.

CONSTRUCTION

- Central element: Fibre-glass reinforced plastic rod.
- Loose Tubes: PBT loose tubes filled with thixotropic compound. Optional fillers depending on the cable structure.
- Core formation: Tubes stranded in SZ.
- Core wrapping: Water-blocking tape and/or yarns to avoid water propagation.
- Outer sheath: Black Polyamide, UV resistant outer jacket with a ripcord.
- Sheath marking:
  CABLESCOM / Num of fibres – Fibre type – Year/Month - "Batch Number" – Length Marks.

OPTICAL FIBRE AND LOOSE TUBE COLOUR CODE

Fibre	1	2	3	4	5	6	7	8	9	10	11	12
Colour	RED	GREEN	BLUE	YELLOW	WHITE	GREY	BROWN	VIOLET	AQUA	BLACK	ORANGE	PINK
Fibre	13	14	15	16	17	18	19	20	21	22	23	24
Colour	RED I	GREEN I	BLUE I	YELLOW I	WHIT I	GREY I	BROWN I	VIOLET I	AQUA I	BLACK I	ORANGE I	PINK I

Tube	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Colour	RED	GREEN	BLUE	YELLOW	WHITE	GREY	BROWN	VIOLET	AQUA	BLACK	ORANGE	PINK	WHITE	WHITE	WHITE

Each layer starting with tube 1; from 13th, loose tubes are white. Blind elements if they are any in black colour.

PRODUCT INFORMATION

CABLES FIBRES		96	144	192	216	288	384	432	576
Nominal OD (mm) (±0.2mm)		6.2	6.2	7.2	7.7	9.4	11.1	11.1	11.1
Nominal weight (kg/km)		36	36	53	63	84	121	121	121
Tubes Num./Passive Elements Num	1st Layer 2nd Layer	4/2	6/0	8/0	9/0	12/0	9/0 7/8	9/0 9/6	9/0 15/0
Fibres Number per Tube		24 (200µm)							
MAX. TENSILE STRENGTH (N)	UNE-EN 60794-1-2, Met. E1	500		1000					
		Δεf ≤ 0,6%, Δα ≤ 0,05 dB/km after test							
IMPACT RESISTANCE	UNE-EN 60794-1-2, Met. E4	2 J, 300 mm							
		Δα reversible (Δα ≤ 0,05 dB/km after test)							
CRUSH RESISTANCE	UNE-EN 60794-1-2, Met. E3	500 N/10 cm; 15 min; 3 positions (500mm apart)							
		Δα reversible (Δα ≤ 0,1 dB/km after test)							
REPEATED BENDING	UNE-EN 60794-1-2, Met. E6	35 Cycles: R : 20 x Ø cable; Load 100N							
		Δα reversible (Δα ≤ 0,05 dB/km after test)							
TORSION	UNE-EN 60794-1-2, Met. E7	2m cable ; 100N ; 10 cycles ; ±180°							
		Δα reversible (Δα ≤ 0,05 dB/km after test)							
BENDING	UNE-EN 60794-1-2, Met. 11	R : 20 x ø cable; 4 turns; 3 cycles							
		Δα reversible (Δα ≤ 0,05 dB/km after test)							
TEMPERATURE CYCLING	UNE-EN 60794-1-2, Met. F1	-15 °C / 70 °C; Δα < 0.1 dB/km							
WATER PENETRATION	UNE-EN 60794-1-2,Met.F5C	LP water ≤ 3 m (24 hours); No leakage							

OUTDOOR – DUCT – MINICABLE

MICROMODULE STRUCTURE FIBRE-OPTIC CABLES.

EE8WBG1

DESCRIPTION AND APPLICATION

Outdoor ultra-compact fibre optic cables with polyethylene sheath and fibre glass reinforcements embedded in the sheath. Designed for duct installation (by blowing) on small sized conduits.
These cables are designed for every kind of communication networks.

CONSTRUCTION

1. **Micromodules**: easy strippable tube with 12 fibres.
2. **Core**: SZ stranded micromodules without any central strength element.
3. **Longitudinal water tightness**: WB yarns or tapes to avoid water propagation.
4. **Strength elements**: reinforcement elements embedded in the outer sheath.
5. **Outer jacket**: High density polyethylene (HDPE), UV resistant.
   Sheath marking:
   - Year of manufacturing / CABLESCOM / Cable type / Number of fibres / Length markings.
   - Other sheath markings available upon request.

Optical fibre characteristics: See Annexes – Optical fibre characteristics.

TABLE 1: MODULE COLOR CODE

Cable Mod12	TUBE											
	1	2	3	4	5	6	7	8	9	10	11	12
12	RED											
24	RED	BLUE										
36	RED	BLUE	GREEN									
48	RED	BLUE	GREEN	YELLOW								
72	RED	BLUE	GREEN	YELLOW	VIOLET	WHITE						
96	RED	BLUE	GREEN	YELLOW	VIOLET	WHITE	ORANGE	GREY				
144	RED	BLUE	GREEN	YELLOW	VIOLET	WHITE	ORANGE	GREY	BROWN	BLACK	TURQUOISE	PINK
192	RED*	BLUE*	GREEN*	YELLOW*	VIOLET*	WHITE*	ORANGE*	GREY *	BROWN *	GREEN LIGHT*	TURQUOISE*	PINK*
	RED**	BLUE**	GREEN**	YELLOW**								
288	RED*	BLUE*	GREEN*	YELLOW*	VIOLET*	WHITE*	ORANGE*	GREY*	BROWN*	GREEN LIGHT*	TURQUOISE*	PINK*
	RED**	BLUE**	GREEN**	YELLOW**	VIOLET**	WHITE**	ORANGE**	GREY**	BROWN**	GREEN LIGHT**	TURQUOISE**	PINK**

Note: In 192, 288 fibre cables the micromodules from 1 to 12 will be marked with a ring and the micromodules from 13 to 24 will be marked with 2 rings.

TABLE 2: FIBRE COLOUR CODE

Fibre	1	2	3	4	5	6	7	8	9	10	11	12
Colour	RED	BLUE	GREEN	YELLOW	VIOLET	WHITE	ORANGE	GREY	BROWN	BLACK	TURQUOISE	PINK

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OUTDOOR – DUCT – MINICABLE

MICROMODULE STRUCTURE FIBRE-OPTIC CABLES.

EE8WBG1

PRODUCT INFORMATION

MODULARITY 12 FO / TUBE										
FIBRE Num.	12	24	36	48	72	96		144	192	288
MODULE Num.	1	2	3	4	6	8		12	16	24
NOMINAL WEIGHT (kg/km)	29	36	43	50	59	67		88	101	123
NOMINAL OD (mm)	5.7	6.4	7.3	7.8	8.8	9.5		10.8	11.6	12.8
Installation Tensile Strength - ITS (N) EN 60794-1-2, Met. E1	850	1000	1100	1350	1450	1500		2100	2250	2600
	Δεf<0.5%, ΔLcable<0.6%, Δα < 0,5 dB and reversible									
	3 J			5 J						
IMPACT RESISTANCE UNE-EN 60794-1-2, Met. E4	r = 10 mm, T° 20°C, Δα reversible									
CURVATURE UNE-EN 60794-1-2, Met. 11	D = 15 x cable OD 5 cycles, Δα reversible (<0.1 dB)									
CRUSH RESISTANCE UNE-EN 60794-1-2, Met. E3	1600 N / 100mm. 15 min, Δα<0.1 dB			2000 N / 100mm. 15 min, Δα<0.1 dB						
	2500 N / 100mm. 15 min, Δα reversible									
OPERATING TEMPERATURE UNE-EN 60794-1-2, Met. F1	-30°C / +60°C Δα< 0.1 dB and reversible -40°C / +70°C Δα reversible									
WATER PENETRATION UNE-EN 60794-1-2, Met. F5C	LP water ≤ 3 m (24 hours) (Cable core)									
Jacket Thickness / FRP Diam (mm)	1.7/1.0	1.8/1.1	1.8/1.1	1.9/1.2	1.9/1.2	1.9/1.2		2.1/1.4	2.1/1.4	2.1/1.4

GENERAL CATALOGUE 2024

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OPTICAL FIBER DATA SHEET

OPTICAL FIBER. SIGLE MODE

ATTACHMENT:G.652.D(NATURAL) SPECIFICATION

G652D

Optical Characteristics	Conditions	Units	Specified Value
Attenuation			
1310nm		dB/km	≤0.345
1550nm		dB/km	≤0.205
1625nm		dB/km	≤0.23
1383nm		dB/km	≤0.32
Attenuation vs Wavelength			
1310nm 1285-1330nm		dB/km	≤0.04
1550nm 1525-1575nm		dB/km	≤0.03
1550nm 1480-1580nm		dB/km	≤0.05
Dispersion Coefficient			
1288-1339nm		ps/(nm.km)	≥-3.5, ≤3.5
1271-1360nm		ps/(nm.km)	≥-5.3, ≤5.3
1480-1580nm		ps/(nm.km)	≤20
1550nm		ps/(nm.km)	≤18
1625nm		ps/(nm.km)	≤22
Zero Dispersion Wavelength		nm	1300-1324
Zero Dispersion Slope		ps/(nm^2.km)	≤0.091
Typical Value		ps/(nm^2.km)	0.086
PMD			
Maximum Individual Fiber		ps/√km	0.1
Cable Cutoff Wavelength λcc		nm	≤1260
Fiber Cutoff Wavelength λc		nm	1150-1330
Mode Field Diameter(MFD)			
1310nm		μm	9.2+/-0.4
1550nm		μm	10.4+/-0.5
Effective Group Index of Refraction			
@1310nm			1.4672
@1550nm			1.4683
Attenuation Discontinuity			
1310nm		dB	≤0.03
1550nm		dB	≤0.03
Bidirectional Attenuation			
1310nm		dB	≤0.05
1550nm		dB	≤0.05
Attenuation Nonuniformity			
1310nm		dB/km	≤0.05
1550nm		dB/km	≤0.05
Splicing Loss			
Average Value 1310nm,1550nm		dB	≤0.05
Maximum Value 1310nm,1550nm		dB	≤0.1

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OPTICAL FIBER. SIGLE MODE

ATTACHMENT:G.652.D(NATURAL) SPECIFICATION

G652D

Geometrical Characteristics	Conditions	Units	Specified Value
Cladding Diameter		μm	125+/-1
Cladding Non-circularity		%	≤1.0
Core-Cladding Concentricity Error		μm	≤0.6
Coating Diameter		μm	242+/-7
Cladding-Coating Concentricity Error		μm	≤12
Coating Non-circularity		%	≤3.0
Curl		m	≥4
Environmental Characteristics (1310nm, 1550nm, 1625nm)	Conditions	Units	Specified Value
Temperature Dependence Induced Attenuation	-60°C to +85°C	dB/km	≤0.03
Temperature Humidity Cycling Induced Attenuation	85°C,RH85%, 30 days	dB/km	≤0.03
Water Soak Dependence Induced Attenuation	23°C,30 days	dB/km	≤0.03
Dry Heat Aging	85°C,30 days	dB/km	≤0.03
Mechanical Characteristics	Conditions	Units	Specified Value
Proof Test		%	≥1.02
		N	≥9.1
		Gpa	≥0.704
Coating Strip Force			
Peak Force		N	1.3-8.9
Typical Value		N	1.9
Tensile Strength			
Weibull Probability 50%		Mpa	≥4000
Weibull Probability 15%		Mpa	≥3050
Dynamic Stress Corrosion Susceptibility Parameter Nd			≥20
Macro-bend Induced Attenuation			
1 turn around a mandrel of 32mm diameter 1310nm		dB	≤0.05
100 turns around a mandrel of 60mm diameter 1550nm,1625nm		dB	≤0.05

OPTICAL FIBER. SIGLE MODE. BEND OPTIMIZED

ATTACHMENT:G.657.A2(NATURAL) SPECIFICATION

G657A2

Optical Characteristics	Conditions	Units	Specified Value
Attenuation			
1310nm		dB/km	≤0.345
1550nm		dB/km	≤0.205
1625nm		dB/km	≤0.23
1383nm		dB/km	≤0.32
Attenuation vs Wavelength			
1310nm 1285-1330nm		dB/km	≤0.05
1550nm 1525-1575nm		dB/km	≤0.04
Zero Dispersion Wavelength		nm	1300-1324
Zero Dispersion Slope		ps/(nm^2.km)	≤0.092
Typical Value		ps/(nm^2.km)	0.086
PMD			
Maximum Individual Fiber		ps/√km	0.2
Cable Cutoff Wavelength λcc		nm	≤1260
Fiber Cutoff Wavelength λc		nm	1180-1310
Mode Field Diameter(MFD)			
1310nm		μm	8.6+/-0.4
1550nm		μm	9.6+/-0.5
Effective Group Index of Refraction			
@1310nm			1.4672
@1550nm			1.4683
Attenuation Discontinuity			
1310nm		dB	≤0.05
1550nm		dB	≤0.05
Bidirectional Attenuation			
1310nm		dB	≤0.05
1550nm		dB	≤0.05
Attenuation Nonuniformity			
1310nm		dB/km	≤0.05
1550nm		dB/km	≤0.05
Splicing Loss			
Average Value 1310nm,1550nm		dB	≤0.05
Maximum Value 1310nm,1550nm		dB	≤0.1

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OPTICAL FIBER. SIGLE MODE. BEND OPTIMIZED

ATTACHMENT:G.657.A2(NATURAL) SPECIFICATION

G657A2

Geometrical Characteristics	Conditions	Units	Specified Value
Cladding Diameter		μm	125+/-1
Cladding Non-circularity		%	≤1.0
Core-Cladding Concentricity Error		μm	≤0.6
Coating Diameter		μm	242+/-7
Cladding-Coating Concentricity Error		μm	≤12
Coating Non-circularity		%	≤3.0
Curl		m	≥4
Environmental Characteristics (1310nm, 1550nm, 1625nm)	Conditions	Units	Specified Value
Temperature Dependence Induced Attenuation	-60°C to +85°C	dB/km	≤0.03
Temperature Humidity Cycling Induced Attenuation	85°C,RH85%, 30 days	dB/km	≤0.03
Water Soak Dependence Induced Attenuation	23°C,30 days	dB/km	≤0.03
Dry Heat Aging	85°C,30 days	dB/km	≤0.03
Mechanical Characteristics	Conditions	Units	Specified Value
Proof Test		%	≥1.02
		N	≥9.1
		Gpa	≥0.704
Coating Strip Force			
Peak Force		N	1.3-8.9
Typical Value		N	1.9
Tensile Strength			
Weibull Probability 50%		Mpa	≥4000
Weibull Probability 15%		Mpa	≥3050
Dynamic Stress Corrosion Susceptibility Parameter Nd			≥20
Macro-bend Induced Attenuation			
10 turn around a mandrel of 30mm diameter 1550nm		dB	≤0.03
10 turn around a mandrel of 30mm diameter 1625nm		dB	≤0.1
1 turn around a mandrel of 20mm diameter 1550nm		dB	≤0.1
1 turn around a mandrel of 20mm diameter 1625nm		dB	≤0.2
1 turn around a mandrel of 15mm diameter 1550nm		dB	≤0.4
1 turn around a mandrel of 15mm diameter 1625nm		dB	≤0.8

OPTICAL FIBER. ACCESS NETWORK
G657A1- 250 MICRAS

Optical Characteristics	Conditions	Units	Specified Value
Attenuation			
1310nm		dB/km	≤0.35
1383nm		dB/km	≤0.33
1550nm		dB/km	≤0.21
1310-1625nm		dB/km	≤0.35
Zero Dispersion Wavelength		nm	1300-1324
Typical Value		nm	1312
Zero Dispersion Slope		ps/(nm^2.km)	≤0.092
Typical Value		ps/(nm^2.km)	0.086
Dispersion			
1285-1339nm		ps/(nm·km)	≥-3.5,≤3.5
1550nm		ps/(nm·km)	≤19
1625nm		ps/(nm·km)	≤22
PMD			
Maximum Individual Fiber		ps/√km	0.1
Link Design Value(M=20Œ Q=0.01%)		ps/√km	0.06
Typical Value		ps/√km	0.04
Cable Cutoff Wavelength λcc		nm	≤1260
Mode Field Diameter(MFD)			
1310nm		μm	9.2±0.3
1550nm		μm	10.4±0.4
Effective Group Index of Refraction			
1310nm			1.4672
1550nm			1.4683
Attenuation Discontinuity			
1310nm		dB	≤0.03
1550nm		dB	≤0.03

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OPTICAL FIBER. ACCESS NETWORK
G657A1- 250 MICRAS

Geometrical Characteristics	Conditions	Units	Specified Value
Cladding Diameter		µm	125±0.7
Cladding Non-circularity		%	≤0.8
Core-Cladding Concentricity Error		µm	≤0.5
Coating Diameter		µm	242±7/190±10
Cladding-Coating Concentricity Error		µm	≤12
Coating Non-circularity		%	≤3
Curl		m	≥4
Environmental Characteristics (1310nm, 1550nm, 1625nm)	Conditions	Units	Specified Value
Temperature Dependence Induced Attenuation	-60°C to +85°C	dB/km	≤0.03
Temperature Humidity Cycling Induced Attenuation	85°C,RH85%, 30 days	dB/km	≤0.03
Water Soak Dependence Induced Attenuation	23°C,30 days	dB/km	≤0.03
Dry Heat Aging Induced Attenuation	85°C,30 days	dB/km	≤0.03
Environmental Characteristics	Conditions	Units	Specified Value
Tensile Prooftest		%	≥1.06
		N	≥9.1
		Gpa	≥0.74
Coating Strip Force			
Peak Force		N	1.3-8.9
Average Value		N	1.0-5.0
Tensile Strength			
Weibull Probability 50%		Gpa	≥4.00
Weibull Probability 15%		Gpa	≥3.20
Dynamic Fatigue Parameter		Nd	≥20
Macro-bending Attenuation	Conditions	Units	Specified Value
10 turns, 15mm radius 1550nm		dB	≤0.25
10 turns, 15mm radius 1625nm		dB	≤1.0
1 turn, 10mm radius 1550nm		dB	≤0.75
1 turn, 10mm radius 1550nm		dB	≤1.5
Length	Conditions	Units	Specified Value
Length Per Spool		km	2.1-61

OPTICAL FIBER. ACCESS NETWORK
G657A1- 200 MICRAS

Optical Characteristics	Conditions	Units	Specified Value
Attenuation			
1310nm		dB/km	≤0.35
1383nm		dB/km	≤0.33
1550nm		dB/km	≤0.21
1310-1625nm		dB/km	≤0.35
Zero Dispersion Wavelength		nm	1300-1324
Typical Value		nm	1312
Zero Dispersion Slope		ps/(nm^2.km)	≤0.092
Typical Value		ps/(nm^2.km)	0.086
Dispersion			
1285-1339nm		ps/(nm·km)	≥-3.5,≤3.5
1550nm		ps/(nm·km)	≤19
1625nm		ps/(nm·km)	≤22
PMD			
Maximum Individual Fiber		ps/√km	0.1
Link Design Value(M=20ŒQ=0.01%)		ps/√km	0.06
Typical Value		ps/√km	0.04
Cable Cutoff Wavelength λcc		nm	≤1260
Mode Field Diameter(MFD)			
1310nm		μm	9.2±0.3
1550nm		μm	10.4±0.4
Effective Group Index of Refraction			
1310nm			1.4672
1550nm			1.4683
Attenuation Discontinuity			
1310nm		dB	≤0.05
1550nm		dB	≤0.05

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OPTICAL FIBER. ACCESS NETWORK
G657A1- 200 MICRAS

Geometrical Characteristics	Conditions	Units	Specified Value
Cladding Diameter		µm	125±0.7
Cladding Non-circularity		%	≤0.8
Core-Cladding Concentricity Error		µm	≤0.5
Coating Diameter		µm	242±7/190±10
Cladding-Coating Concentricity Error		µm	≤12
Coating Non-circularity		%	≤3
Curl		m	≥4
Environmental Characteristics (1310nm, 1550nm, 1625nm)	Conditions	Units	Specified Value
Temperature Dependence Induced Attenuation	-60°C to +85°C	dB/km	≤0.03
Temperature Humidity Cycling Induced Attenuation	85°C,RH85%, 30 days	dB/km	≤0.03
Water Soak Dependence Induced Attenuation	23°C,30 days	dB/km	≤0.03
Dry Heat Aging Induced Attenuation	85°C,30 days	dB/km	≤0.03
Environmental Characteristics	Conditions	Units	Specified Value
Tensile Prooftest		%	≥1.06
		N	≥9.1
		Gpa	≥0.74
Coating Strip Force			
Peak Force		N	1.3-8.9
Average Value		N	1.0-5.0
Tensile Strength			
Weibull Probability 50%		Gpa	≥4.00
Weibull Probability 15%		Gpa	≥3.20
Dynamic Fatigue Parameter		Nd	≥20
Macro-bending Attenuation	Conditions	Units	Specified Value
10 turns, 15mm radius 1550nm		dB	≤0.25
10 turns, 15mm radius 1625nm		dB	≤1.0
1 turn, 10mm radius 1550nm		dB	≤0.75
1 turn, 10mm radius 1550nm		dB	≤1.5
Length	Conditions	Units	Specified Value
Length Per Spool		km	2.1-61

GENERAL CATALOGUE 2024

DRIVING THE FUTURE OF CONNECTIVITY

OPTICAL DISTRIBUTION NETWORK (ODN)

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SFPS TRANSCEIVERS

DESCRIPTION AND APPLICATION

SFP (short for Small Form-factor Pluggable) is a compact, hot-pluggable transceiver responsible for electrical and optical conversion to extend telecom and data link distances.

Data rate and format, form factor, distance reach, fibre type, optical connectors, operating wavelength or grid, temperature working range, etc. SFPs can be settled to fit in any telecommunication network or data application.

CONSTRUCTION AND FEATURES

- Supports various data rates and connection types.
- Small size saves space allowing hight port density.
- Energy Efficiency reduces environmental impact.
- Easy replacement without network downtime for maintenance or upgrades.
- Compatible with diverse networking equipment.
- Enable speed and capacity upgrades reducing costs.

PRODUCTS AVAILABLE UNDER REQUEST

Router/Switch equipment, servers in data centres, backbone transmission links in telecom networks, 5G applications, etc. Cablescom can provide a wide range of solutions to fit in any requirement and help our clients to future proof their networks. Please feel free to reach our sales team for any ad-hoc setting or information request.

Application Environment	SFP Family	Available Products
Data Centers	800G	800G-2xFR4, 800G-DR8
	400G	400G-QSFP112 FR4, 400G-QSFP112 DR4, 400G-QSFP112 SR4
		400G-QSFP-DD LR4, 400G-QSFP-DD DR4 EML
		400G QSFP-DD DR4 SiP, 400G QSFP-DD SR8
	100G	100G-QSFP28 LR4, 100G-QSFP28 CWDM4, 100G-QSFP28 SR4
	40G	40G-QSFP+ eSR4, 40G-QSFP+ SR4, 40G-QSFP+ PSM4
		40G QSFP+ CWDM4
ONTs	200G	200G-QSFP56 SR4, 200G-QSFP56 FR4, 200G-QSFP56 LR4
		200G QSFP56 ER4
	100G	100G-CFP4 LR4, 100G-CFP2 LR4, 100G-QSFP28 ZR4
		100G-QSFP28 ER4, 100G QSFP28 LR4
Front Haul	25G	25G-LR MWDM, 25G-LR LWDM, 25G-LR CWDM
		25G Bidi, 25G-SR
	10G	10G Bidi, 10G-ZR, 10G-ER, 10G-CWDM
Ethernet	25G	25G-LR MWDM, 25G-LR LWDM, 25G-CWDM
		25G-Bidi, 25G-LR, 25G-SR
	10G	10G-Bidi, 10G-ZR, 10G-ER, 10G-CWDM
	1.25G	1.25G-Bidi, 1.25G-ZR, 1.25-ER, 1.25 CWDM
FTTx	PON	XGSPON Combo OLT, XGPON Combo OLT, XGSPON OLT
		GPON OLT, EPON OLT

FIBER OPTIC PATCH CORDS AND PIGTAILS

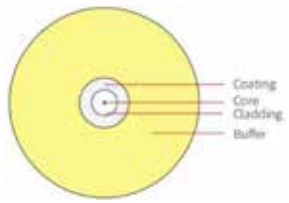
DESCRIPTION AND APPLICATION

Fiber Optic Patch Cord/Fiber Jumper and Fiber Optic Pigtail are mainly used for providing connectivity between optical devices, Optical Distribution Frames ODF, Fiber Optic Patch Panels, Optical Distribution Boxes, etc. in telecom, cable TV, and FTTH networks.

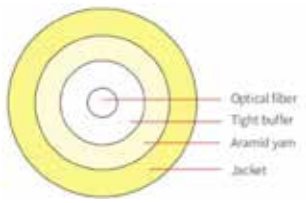
CONSTRUCTION

- End polish type: PC/UPC/APC.
- Fiber Diameter: 0.9mm, 2.0mm or 3.0mm.
- Available for simplex and duplex.
- Outer Jacket: PVC, LSZH, armoured, etc.
- Single mode (SM) and multimode (MM) fibres are available.
- Low Insertion loss and high return loss.
- Customer lengths and connectors are available upon request.

Tight Buffered Fibre Pigtail



Simplex Patch Cord Cable



PRODUCT INFORMATION

Product/Model	Simplex/Duplex	Fibre	Polishing	Jacket Diameter	Colour
Pigtail	Simplex	SM G657A2	APC	0,9 mm	YELLOW
		SM G657A2	UPC	0,9 mm	YELLOW
		MM OM1	PC	0,9 mm	ORANGE
		MM OM3	PC	0,9 mm	AQUA
		MM OM4	PC	0,9 mm	VIOLET
		MM OM5	PC	0,9 mm	Lime
Patch-cord-Jumper		SM G657A2	APC	1,9 mm	YELLOW
		SM G657A2	APC	1,9 mm	YELLOW
		SM G657A2	UPC	3 mm	YELLOW
		SM G657A2	UPC	1,9 mm	YELLOW
	Duplex	SM G657A2	APC	3 mm	YELLOW
		SM G657A2	APC	1,9 mm	YELLOW
		SM G657A2	UPC	3 mm	YELLOW
		SM G657A2	UPC	1,9 mm	YELLOW
		MM OM3	PC	3 mm	AQUA
		MM OM3	PC	1,9 mm	AQUA
		MM OM3	PC	3 mm	AQUA
		MM OM3	PC	1,9 mm	AQUA
		MM OM4	PC	3 mm	VIOLET
		MM OM4	PC	1.9 mm	VIOLET
		MM OM5	PC	3 mm	Lime

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FIBER OPTIC PATCH CORDS AND PIGTAILS

TECHNICAL SPECIFICATIONS AND PARAMETERS

Fiber Optic Patch Cord/Fiber Jumper and Fiber Optic Pigtail are mainly used for providing connectivity between optical devices, Optical Distribution Frames ODF, Fiber Optic Patch Panels, Optical Distribution Boxes, etc. in telecom, cable TV, and FTTH networks.

Technical Specification / Parameter			Single Mode (SM)	Multi Mode (MM)
Insertion Loss		dB	⩽ 0,25	
Return Loss Connector housing		dB	PC ⩾ 45	PC ⩾ 35 dB/Km
		dB	UPC ⩾ 55	
		dB	APC ⩾ 60	
Fiber Type			G657 A2	OM1, OM2, OM3, OM4, OM5
Wavelength		Nm	1310 - 1625	850 - 1300
Radius of Curvature	10 rounds Ø30mm – 1550nm	dB	⩽ 0,03	-
	1 round Ø20mm – 1550nm	dB	⩽ 0,01	-
	1 round Ø15mm – 1550nm	dB	⩽ 0,05	-
	100 rounds Ø75mm – 850-1300nm	dB	-	⩽ 0,05
Durability			⩽ 0,03 dB for up to 500 mattings	
Outer Jacket			PVC, LSZH, armoured, etc.	
Working temperature range		°C	-40 ~+85	
Storage temperature range		°C	-50 ~+85	

CONNECTORS AVAILABLE UPON REQUEST

FIBER OPTIC ADAPTERS - COUPLERS

DESCRIPTION AND APPLICATION

A fibre optic adapter, also called coupler, is a small device that is used to accurately terminate or link the fibre cables or optical connectors. Widely used in fibre communication systems, fibre optical testing devices, FTTH networks, etc. enable quicker connection and disconnection than the traditional splicing methods.

CONSTRUCTION AND FEATURES

- Simplex / Duplex.
- Good compatibility.
- High reliability & stability.
- High performance.
- Ceramic sleeve.
- Low Insertion and
- High return loss.
- Low environmental sensitivity.

SC/SC – SM y MM PC-APC Simplex and Duplex

LC/LC – SM y MM PC-APC Simplex, Duplex and Quadruplex

TECHNICAL SPECIFICATIONS AND PARAMETERS

Connector Type		SC (female) – SC (female)	LC (female) – LC (female)
Raw Materials	Dust Cap	Translucent PolyPropylene - PP	Polypropylene - PP
	Connector housing	Polycarbonate - PC	Polycarbonate - PC
	Ferrule	Ceramic - Zirconia Zr02	Ceramic - Zirconia Zr02
Tensile Resistance		2.0 ~ 5.9 N	2.0 ~ 5.9 N
Housing colour according to accepted fiber	SM	Green / Blue	
	MM	Beige / Aqua / Violet	Beige / Aqua / Violet / Lime
Insertion Loss (dB)		≤ 0,25	
Durability	Mattings	> 500 times	
	Loss (dB)	< 0.2	
Working temperature range (°C)		-40 ~ +75	
Storing temperature range (°C)		-40 ~ +85	

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FIBER OPTIC ADAPTERS - COUPLERS

DESCRIPTION AND APPLICATION

Connectors	Simplex/Duplex	Polishing	SM/MM Fibre		Colour
SC-SC	Simplex	APC	SM		GREEN
	Simplex				
	Duplex				
	Simplex				
	Simplex				
	Simplex				
	Simplex				
	Simplex				
	Simplex	UPC			BLUE
	Duplex				
	Simplex				
	Simplex	PC	MM	OM1/2	BROWN
	Duplex				
	Simplex			OM3	AQUA
	Duplex				
	Simplex			OM4	VIOLET
	Duplex				
LC-LC	Simplex	APC	SM		GREEN
	Duplex				
	Quadruplex				
	Simplex	UPC			BLUE
	Duplex				
	Quadruplex				
	Simplex	PC	MM	OM1/2	BEIGE
	Duplex				
	Quadruplex				
	Simplex			OM3	AQUA
	Duplex				
	Quadruplex				
	Simplex			OM4	VIOLET
	Duplex				
	Quadruplex				
	Duplex			OM5	Lime
	Quadruplex				

OPTICAL DISTRIBUTION FRAMES & RACKS

DESCRIPTION AND APPLICATION

Optical Distribution Frames and Racks provide a modular and reliable solution for splicing, patching and distributing optic trunk and distribution cables in fibre networks.

ODFs offer direct patching as well as cross-connect and suitable for installation and termination of all kinds of fibre optic pigtails, ribbon fanouts, optic splitters, etc.

CONSTRUCTION AND FEATURES

- Aluminium or cold rolled sheet with electrostatic paint.
- High strength, corrosion resistance, light weight, easy to install and transport.
- 19-inch structure to fit in any standard frame or cabinet.
- Easy access with telescopic rail pull-out system.
- Storage space to coil up excess cable lengths.

PRODUCT INFORMATION

Model / Reference		ODF-24E	ODF-24SA	ODF-24SAP	ODF-24DXSA
Raw Materials		Aluminium or cold rolled steel with electrostatic treatment.			
Thickness	mm	1.2 / 1.5			
Opening		Telescopic double rail pull-out front system.			
Locking System		Detachable and lockable with screw + clips.			
Included Adaptors		Empty closure	24 SC/APC transparent cap.	24 SC/APC simplex transparent cap.	24 SC/APC duplex transparent cap.
Max. Splicing Capacity		24 splices or 48 (double height)			
Fiber Radius Bend	mm	> 25			
Colour		Black (RAL9005) and other options under request			
Dimensions	Length (mm)	475 (19¨)			
	Width (mm)	245			
	Height (mm)	45 (IU)			

PRODUCT INFORMATION

Optical Distribution Frames and Racks can be provided in different modular and scalable solutions. Please feel free to reach our sales team for any ad-hoc setting or requirement.

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SPLICE CLOSURE – DOME TYPE HEAT SHRINKABLE

DESCRIPTION AND APPLICATION

A dome fibre optic splice closure (also known as a dome closure or dome splice closure) is a protective enclosure used in fibre optic networks to house and protect optic splices.

The splice closure connects and stores optical fibres safely by providing a secure and weather-resistant environment for splicing and protecting fibre optic cables either in the outside plant or indoor buildings.

CONSTRUCTION AND FEATURES

- Easy to assemble.
- Protection level reaches IP68.
- High quality plastic body material ensures durability.
- Aerial, poles, buried, manhole and handhole deployments.
- Adapts to ambient temperature ranges.
- Heat-shrinkable sealing.

PRODUCT INFORMATION

Model /Reference		GJS-D004	GJS-D021	GJS-D023	GJS-0206H	GJS-D035
Raw Materials		Strengthened PP	Strengthened PP	Strengthened PP	Strengthened PP	Strengthened PP
Sealing Method		Heat Shrinkable	Heat Shrinkable	Heat Shrinkable	Heat Shrinkable	Heat Shrinkable
Protection Level		IP-68	IP-68	IP-68	IP-68	IP-68
Inlet Ports	Qty. – Type.	1 x oval	1 x oval	1 x oval	1 x oval	1 x oval
	Cable Ø (mm)	10 – 25	10 – 25	12 – 29	12 – 29	12 – 29
Outlet Ports	Qty. – Type.	4 x round	8 x round	6 x round	6 x round	6 x round
	Cable Ø (mm)	8 – 18.5	6 – 13	8 – 25	8 – 25	8 – 25
Max Capacity		96 cores	144 cores	288 cores	576 cores	720 cores 408 cores + 48SC
Splice Trays		4pcs x 24 splices	6pcs x 24 splices	6pcs x 24 splices	48pcs x 12 splices	30pcs x 24 17pcs x24 + 48SC
Dimensions	Height (mm)	540	470	515	550	515
	Diameter (mm)	205	210	310	213	310

OTHER PRODUCTS AVAILABLE UPON REQUEST

Dome Type Splice Closures can be provided with different inlet/outlet ports for cable diameters and can hold different core/splice trays. Please feel free to reach our sales team for any ad-hoc setting or requirement.

SPLICE CLOSURE – DOME TYPE MECHANICAL

DESCRIPTION AND APPLICATION

A dome fibre optic splice closure (also known as a dome closure or dome splice closure) is a protective enclosure used in fibre optic networks to house and protect optic splices.

The splice closure connects and stores optical fibres safely by providing a secure and weather-resistant environment for splicing and protecting fibre optic cables either in the outside plant or indoor buildings.

CONSTRUCTION AND FEATURES

- Easy to assemble.
- Protection level reaches IP68.
- High quality plastic body material ensures durability.
- Aerial, poles, buried, manhole and handhole deployments.
- Adapts to ambient temperature ranges.
- Mechanical sealing.

PRODUCT INFORMATION

Model /Reference		GJS-CQS-0204M	GJS-D033	GJS-D037	GJS-0206M	GJS-D036
Raw Materials		Strengthened PP	Strengthened PP	Strengthened PP	Strengthened PP	Strengthened PP
Sealing Method		Mechanical	Mechanical	Mechanical	Mechanical	Mechanical
Protection Level		IP-68	IP-68	IP-68	IP-68	IP-68
Inlet Ports	Qty. – Type.	2 x round	2 x round	2 x round	1/2 x round (L)	2 x round
	Cable Ø (mm)	10 – 17.5	5 – 17	5 – 17	16 – 23	5 – 17
Outlet Ports	Qty. – Type.	4 x round	4 x round	4 x round	2 x round (S)	4 x round
	Cable Ø (mm)	10 – 17.5	8 – 16.5	8 – 16.5	2 x (10 – 18) 12 x 7	8 – 16.5
Max Capacity		72 cores	144 cores	288 cores	576 cores	720 cores
Splice Trays		6pcs x 12 splices	6pcs x 24 splices	12pcs x 24 splices	48pcs x 12 splices	60pcs x 12 splices 30pcs x 24 splices
Dimensions	Height (mm)	400	475	530	560	530
	Diameter (mm)	175	210	310	213	310

OTHER PRODUCTS AVAILABLE UPON REQUEST

Dome Type Splice Closures can be provided with different inlet/outlet ports for cable diameters and can hold different core/splice trays. Please feel free to reach our sales team for any ad-hoc setting or requirement.

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SPLICE CLOSURE – IN LINE CLOSURES

DESCRIPTION AND APPLICATION

An in-line fibre optic splice closure (also known as a horizontal splice closure) is a protective enclosure used in fibre optic networks to house and protect optic splices.

The splice closure connects and stores optical fibres safely by providing a secure and weather-resistant environment for splicing and protecting fibre optic cables either in the outside plant or indoor buildings.

CONSTRUCTION AND FEATURES

- Easy to assemble.
- Protection level reaches IP68.
- High quality fully rugged plastic body material ensures the durability.
- Aerial, underground, manholes, handholes deployments.
- Adapts to ambient temperature ranges.
- Ports on both sides can be used as inlets-outlets.

PRODUCT INFORMATION

Model /Reference		H011	H015	H009	H016
Raw Materials		Strengthened PC	Strengthened PC	Strengthened PC	Strengthened PC
Sealing Method		Mechanical	Mechanical	Mechanical	Mechanical
Protection Level		IP-68	IP-68	IP-68	IP-68
Inlet Ports	Qty. – Type.	2 x round	2 x round	3 x round	2 x round
	Cable Ø (mm)	8 – 16.5	8 – 20	2 x (8 – 20) 1 x (8 – 16.5)	8 – 20
Outlet Ports	Qty. – Type.	2 x round	2 x round	3 x round	2 x round
	Cable Ø (mm)	8 – 16.5	8 – 20	2 x (8 – 20) 1 x (8 – 16.5)	8 – 20
Max Capacity		48 cores	96 cores	144 cores	288 cores
Splice Trays		4pcs x 12 splices	4pcs x 24 splices	6pcs x 24 splices	6pcs x 48 splices
Dimensions	Length(mm)	340	460	470	605
	Width (mm)	150	150	180	215
	Heigth (mm)	70	70	125	175

OTHER PRODUCTS AVAILABLE UPON REQUEST

The In Line Splice Closures can be provided with different inlet/outlet ports for cable diameters and can hold different core/splice trays. Please feel free to reach our sales team for any ad-hoc setting or requirement.

SPLICE CLOSURE – UNIVERSAL ACCESS CLOSURE

DESCRIPTION AND APPLICATION

An Universal Access Closure (usually referred to as FOB closure) is a protective enclosure used in fibre optic networks to house and protect optic splices than can be accessed with no special tools.

The splice closure connects and stores optical fibres safely by providing a secure and weather-resistant environment for splicing and protecting fibre optic cables either in the outside plant or indoor buildings.

CONSTRUCTION AND FEATURES

- Compact, versatile and highly reliable design.
- Protection level reaches IP65.
- High quality plastic body material ensures durability.
- Wall, buried, manhole and handhole deployments.
- Adapts to ambient temperature ranges.
- Can be opened and closed without special tools.
- Storage for tubes and/or leftover cable fibres.

PRODUCT INFORMATION

Model /Reference		FOB-128	FOB-256
Raw Materials		PC + ABS	PC + ABS
Sealing Method		IP-65	IP-65
Protection Level		Cut and/or Uncut	Cut and/or Uncut
Inlet Ports	Qty. – Type.	2 x round	2 x round
	Cable Ø (mm)	14.3 – 16 or 19	7 – 22
Outlet Ports	Qty. – Type.	2 x round	2 x round
	Cable Ø (mm)	14.3 – 16 or 19	7 – 22
Max Capacity		128 cores	256 cores
Splice Trays		8pcs x (16 splices + 1 PLC Splitter)	8pcs x 32 splices
Dimensions	Length(mm)	380	316
	Width (mm)	150	250
	Heigth (mm)	98	126

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SPLICE CLOSURE – FIBRE ACCESS TERMINAL

DESCRIPTION AND APPLICATION

Fibre Access Terminal Closures (usually referred to as FATC closure) can be used as a splicing closure and a termination point for the subscribers drop cable in FTTx networks.

The closure connects and stores optical fibres safely by providing a secure and weather-resistant environment for splicing and protecting fibre optic cables either in the outside plant or indoor buildings.

CONSTRUCTION AND FEATURES

- Mechanical Sealing for water-proof with IP-68 level.
- Fiber bend radius control >40mm.
- Mid-span cable entry for uncut cable
- Full rugged design. Impact test: 1K10. Pull Force: 100N.
- All stainless metal plate and anti-rusting bolts nuts.
- Wall, buried, manhole and handhole deployments.
- Can house PLC and LGX splitters if required.

PRODUCT INFORMATION

Model /Reference		FATC-003	FATC-004	FATC-006	FATC-007
Raw Materials		Strengthened PP	Strengthened PP	Strengthened PP	Strengthened PP
Protection Level		IP-68	IP-68	IP-68	IP-68
Input Cable Method		Cut and/or Uncut	Cut and/or Uncut	Cut and/or Uncut	Cut and/or Uncut
Inlet Ports	Qty. – Type.	2 round + 2 midspan	2 midspan	2 round + 2 midspan	1 midspan + 2 round
	Cable Ø (mm)	8 – 17	8 – 17	8 – 17	8 – 17
Outlet Ports	Qty. – Type.	24	6 round	16	24
	Cable Ø (mm)	3 – 7	8 – 17	1 – 4	3 – 7
Max Capacity		96 cores + 24SC	288 cores	144 cores + 16 mini SC	288 cores + 24 mini SC
Splice Trays		4pcs x 24 splices	12pcs x 24 splices	6pcs x 24 splices	12pcs x 24 splices
Splitter(s)		PLC 1x8	-	PLC 1x8 – 1x16	PLC 1x8 – 1x16
Dimensions	Length(mm)	385	395	385	385
	Width (mm)	245	245	245	245
	Heigth (mm)	155	130	155	155

OTHER PRODUCTS AVAILABLE UPON REQUEST

The Fibre Access Terminal Closures can be provided with different inlet/outlet ports for cable diameters and can hold different core/splice trays. Please feel free to reach our sales team for any ad-hoc setting or requirement.

NETWORK ACCESS POINT – NAP

DESCRIPTION AND APPLICATION

A Network Access Point (usually referred to as NAP or CTO) is used as a termination point for the feeder/distribution cable to connect with drop cable in FTTX networks.

It integrates fibre splicing, splitting, distribution, storage and cable connection in one solid protection box that provides a small form resistant and secure network access point for indoor installations.

CONSTRUCTION AND FEATURES

- Water-proof design with IP-6x protection levels.
- High quality plastic body material ensures durability.
- Houses splice trays, connectors, and splitters.
- Storage for tubes and/or leftover cable fibres.
- Mid-span cable entries for uncut cable.
- All stainless metal plate and anti-rusting bolts nuts.
- Wall and pole installation for in and outdoor deployments.
- Storage for tubes and/or leftover cable fibres.

PRODUCT INFORMATION

Model /Reference		FSTC – 16QX	FSN – 0416R	FATC-M0416A	FAT-16R
Raw Materials		Strengthened PP	Strengthened PP	Strengthened PP	Strengthened PP
Protection Level		IP-68	IP-68	IP-68	IP-68
Input Cable Method		Cut and/or Uncut	Cut and/or Uncut	Cut and/or Uncut	Cut and/or Uncut
Inlet Ports	Qty. – Type.	4 round	4 round (2 midspan)	4 round	2 round (midspan)
	Cable Ø (mm)	7 – 18	8 – 16.5	7 – 18	8 – 17
Outlet Ports	Qty. – Type.	16 Mini SC Ports	16 Mini SC Ports	16	16 Mini SC Ports
	Cable Ø (mm)	–	–	3 – 7	–
Max Capacity		16 cores	16 cores	24 cores + 16 mini SC	16 cores
Splice Trays		2pcs PLC 1:8 1pc PLC 1:16	2pcs PLC 1:8 1pc PLC 1:16	2pcs PLC 1:8	2pcs PLC 1:8
Dimensions	Length(mm)	355	317	330	227
	Width (mm)	256	210	243	205
	Heigth (mm)	140	130	121	117

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NETWORK ACCESS POINT – NAP

Model /Reference		FATM-0416L	FATM-0416S	FATJ-0408R	FATJ-0416S
Raw Materials		Strengthened PP	Strengthened PP	Strengthened PP	Strengthened PP
Protection Level		IP-65	IP-65	IP-65	IP-65
Input Cable Method		Cut and/or Uncut	Cut and/or Uncut	Cut and/or Uncut	Cut and/or Uncut
Inlet Ports	Qty. – Type.	4 (1 midspan)	4 (1 midspan)	2 (1 midspan)	2 (1 midspan)
	Cable Ø (mm)	7 – 13	7 – 13	8 – 13.5	10 – 16.5
Outlet Ports	Qty. – Type.	16	16	8	16
	Cable Ø (mm)	3 – 5	3 – 5	3 – 5	3 – 7
Max Capacity		16 cores	48 cores	120 cores	16 cores
Splice Trays		LGX 1:8 – 1:16	2pcs PLC 1:8	2pcs 1:8 – 1pc 1:16	2pcs PLC 1:8
Dimensions	Length(mm)	290	290	345	340
	Width (mm)	210	210	220	220
	Heigth (mm)	78	78	95	95

Model /Reference		EPK-08-4P	EPK-16-4P	EPK-08-R	EPK-A08
Raw Materials		Strengthened PP	Strengthened PP	Strengthened PP	Strengthened PP
Protection Level		IP-65	IP-65	IP-65	IP-68
Input Cable Method		Cut and/or Uncut	Cut and/or Uncut	Cut and/or Uncut	Cut and/or Uncut
Inlet Ports	Qty. – Type.	4 (2 round + 2 midspan)	4 (2 round + 2 midspan)	1 round	4 round
	Cable Ø (mm)				7 – 18
Outlet Ports	Qty. – Type.	16 SC Ports	8 SC Ports	8 SC Ports	8 SC Ports
	Cable Ø (mm)	–	–	–	3 – 7
Max Capacity		16	16	8	24 cores
Splice Trays		2pcs 1:8	1pc 1:8	–	1pc PLC 1:8
Dimensions	Length(mm)	214	214	155	237
	Width (mm)	129	129	129	115
	Heigth (mm)	294	294	294	268

OTHER PRODUCTS AVAILABLE UPON REQUEST

The Network Access Point (NAP) can be provided with different inlet/outlet ports for cable diameters and can hold different core/splice trays and splitter. Please feel free to reach our sales team for any ad-hoc setting or requirement.

NETWORK ACCESS POINT – MULTI DWELLING UNITS

DESCRIPTION AND APPLICATION

A Network Access Point (usually referred to as NAP or CTO) is used as a termination point for the feeder/distribution cable to connect with drop cable in FTTX networks.

It integrates fibre splicing, splitting, distribution, storage and cable connection in one solid protection box that provides a small form resistant and secure network access point for indoor installations.

CONSTRUCTION AND FEATURES

- Protection level IP30 for indoor installations.
- High quality plastic body material ensures durability.
- Integrated with splice trays and connectors.
- Can house mini-ABS box splitters.
- Storage for tubes and/or leftover cable fibres.

PRODUCT INFORMATION

Model /Reference		CTO-32	CTO-32E	CTO-48
Raw Materials		PC + ABS	PC + ABS	PC + ABS
Protection Level		IP-30	IP-30	IP-30
Input Cable Method		Cut	Cut	Cut
Inlet Ports	Qty. – Type.	3 round	3 round	1 midspan + 2 round
	Cable Ø (mm)	1 x 16mm, 2 x 7mm	1 x 16mm, 2 x 7mm	8 – 16
Outlet Ports	Qty. – Type.	32 SC Ports	32 SC Ports	48 SC Ports
	Cable Ø (mm)	-	-	-
Max Capacity		32 cores	32 cores	48 cores
Splice Trays		4pcs x 8 splices	2pcs x 16 splices	6pcs x 8 splices
Splitter(s)		2pcs mini-ABS box 1:16	2pcs mini-ABS box 1:16	3pcs mini-ABS box 1:16
Dimensions	Length(mm)	320	320	450
	Width (mm)	150	150	150
	Heigth (mm)	105	70	180

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NETWORK ACCESS POINT – FLOOR DISTRIBUTION BOX

DESCRIPTION AND APPLICATION

A Floor Distribution Box (usually referred to as FDB) is used as a termination point for the feeder/distribution cable to connect with drop cable in FTTX networks.

It integrates fibre splicing, splitting, distribution, storage and cable connection in one solid protection box that provides a small form resistant and secure network access point for indoor and outdoor installations.

CONSTRUCTION AND FEATURES

- Water-proof design with protection level IP54.
- High quality plastic body material ensures durability.
- Fiber bend radius control > 35mm.
- Integrated with splice trays and connectors.
- Can house PLC splitters.
- Storage for tubes and/or leftover cable fibres.

PRODUCT INFORMATION

Model /Reference		FAT-8H	FAT-8T	FAT-16K
Raw Materials		PC + ABS	PC + ABS	PC + ABS
Protection Level		IP-54	IP-54	IP-54
Input Cable Method		Cut and/or Uncut	Cut and/or Uncut	Cut and/or Uncut
Inlet Ports	Qty. – Type.	2 round	4 round	2 round
	Cable Ø (mm)	6 – 12	6 – 12	6 – 12
Outlet Ports	Qty. – Type.	8 SC Ports	8 SC Ports	8 SC Ports
	Cable Ø (mm)	3 – 5	3 – 5	3 – 5
Max Capacity		8 cores	8 cores	16 cores
Splice Trays		1pc x 8 splices	2pcs x 16 splices	6pcs x 8 splices
Splitter(s)		1pc steel-tube PLC 1:8	1pc steel-tube PLC 1:8	2pcs steel-tube PLC 1:8 1pc steel-tube PLC 1:16
Dimensions	Length(mm)	236	135	212
	Width (mm)	126	193	133
	Heigth (mm)	50	47	53

WALL OUTLETS – FIBRE SOCKETS

DESCRIPTION AND APPLICATION

The FTTH wall outlet (also referred to as fibre socket), is used to terminate optical cable at subscriber's premises, in residential and business applications. Usually made up of a base, a splice tray and a cover, it can be fixed to the wall with screws and is used for entrance of optical cable. Can house one or more connectors for pre-connectorized patch cords.

CONSTRUCTION AND FEATURES

- High quality plastic body material ensures durability.
- Cable entry from rear or bottom of the unit.
- Fiber bend radius control management >15.
- Storage for tubes and/or leftover cable fibres.
- Compact, low profile, wall mounted unit.
- Removable cover for easy access.

PRODUCT INFORMATION

Model /Reference		FRB-D	FRB-1D	FRB-2B	FRB-4B
Raw Materials		ABS	ABS	ABS	ABS
Protection Level		IP-45	IP-45	IP-45	IP-45
Mounting Method		Wall / Embedded	Wall / Embedded	Wall / Embedded	Wall / Embedded
Max Capacity		1 core	1 core	2 cores	4 cores
Connecting Adaptors		0 – SC	1 x SC	2 x SC	4 x SC
Fibre Diameter	(µm)	250 & 900	250 & 900	250 & 900	250 & 900
Dimensions	Length(mm)	148	116	105	100
	Width (mm)	16	22	22	28
	Heigth (mm)	90	85	82	80

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PLC OPTICAL SPLITTERS

DESCRIPTION AND APPLICATION

A Planar Lightwave Circuit splitter (also referred to as PLC splitter) is a passive device used to evenly divide one or two optical signals into multiple paths, enabling the distribution of data to various endpoints.

Widely used in Passive Optical (PON) Networks, splitters are available in different ratios (1x2 to 64 or 2x2 to 64) and form factors and packaging to fit in any required FTTx topology and application.

CONSTRUCTION AND FEATURES

- Uniform power splitting.
- Compact package dimension.
- Low polarization-dependent loss.
- Good channel-to-channel uniformity.
- Low insertion loss and High return loss.
- Environmentally and mechanically stable.
- Wide operating wavelength range [1.260 nm to 1.650 nm]

PRODUCT INFORMATION

Parameters / Splitter	Bare	Blockless	Mini – ABS	LGX Box	Rack Mount
Structure	Compact small size	Compact small size	Mini - cassette	Modular design	19" rack mount
Connector Type	–	SC, LC/APC, PC	SC, LC/APC, PC	SC, LC/APC, PC	SC, LC/APC, PC
Fibre Cable Grade	G.657 A1	G.657 A1	G.657 A1	G.657 A1	G.657 A1
Fibre Mode	Single Mode	Single Mode	Single Mode	Single Mode	Single Mode
Input/Output Fibre Diameter (Ø)	250 µm	900 µm	2.0mm/900µm	–	–
Input/Output Fibre Length	1.5 m	1.5 m	1.5 m	–	–
Split Ratio	1x2 to 1x64	1x2 to 1x64	1x2 to 1x16	1x2 to 1x64	1x2 to 1x64

PRODUCTS AVAILABLE UPON REQUEST

Depending on the application environment, PLC splitters can be provided in different ratios and form factors.
Please feel free to reach our sales team for any ad-hoc setting or requirement.

GENERAL CATALOGUE 2024
DRIVING THE FUTURE OF CONNECTIVITY

ANEX 1.-
PACKAGING & DRUMS

WOODEN DRUMS

Cables de Comunicaciones Zaragoza, S.L offering a wide range of wooden cable packaging drum which is specifically designed to serve diverse requirements of cable industry such as metallic and optical fiber cables.

These wooden drum are manufactured using best quality, a robust construction, durable, vast storage, capacity and high efficient. Our wooden cable drums are used for transporting cables to various destinations without any hassle.

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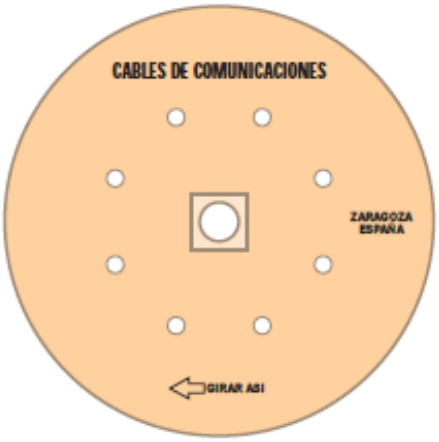
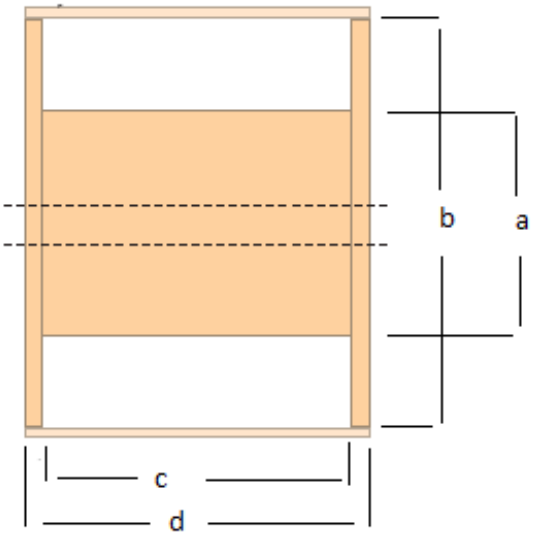
WOODEN DRUMS
STANDARD – CATEGORY 4W





Internal code	Shipping code	Barrel diameter (a-mm)	Flange diameter (b-mm)	Drive hole (mm)	Winding width (c-mm)	Overall width (d-mm)	Weight (kg)	Useful drum volume (m3)
B06S34W	J6	300	600	82	330	410	27	0.116
B07S34W	J7	300	780	82	470	550	30	0.263
B08S34W	J8	300	810	82	470	550	35	0.283
B09SA4W	J9	350	950	82	470	550	40	0.390
BA0SA4W	A0	350	950	82	680	760	44	0.539
BA0SA6W	A0	350	950	82	640	760	46	0.539
BA1S54W	A1	500	1050	82	680	760	76	0.658
BA1S56W	A1	500	1050	82	640	760	78	0.658
BA2S64W	A2	600	1150	82	680	760	76	0.789
BA2S66W	A2	600	1150	82	640	760	78	0.789
BA3S76W	A3	700	1300	82	640	760	82	1.009
BA4SC6W	A4	650	1400	82	810	890	95	1.370
BA5S86W	A5	800	1530	82	640	760	100	1.397
BA6S96W	A6	900	1650	82	1030	1150	169	2.459
BA8S18W	A8	1000	1830	100	990	1150	271	3.025
BA9S18W	A9	1000	1900	100	990	1150	305	3.261
BB0SD8W	B0	1100	2100	100	990	1150	351	3.983
BB1SD8W	B1	1100	2240	100	990	1150	382	4.532

(*) Drum dimensions are nominal values

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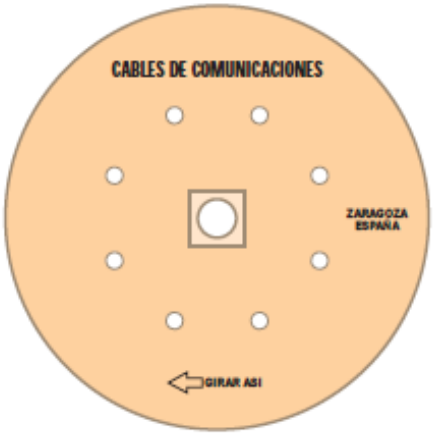
WOODEN DRUMS
STANDARD – CATEGORY 4W

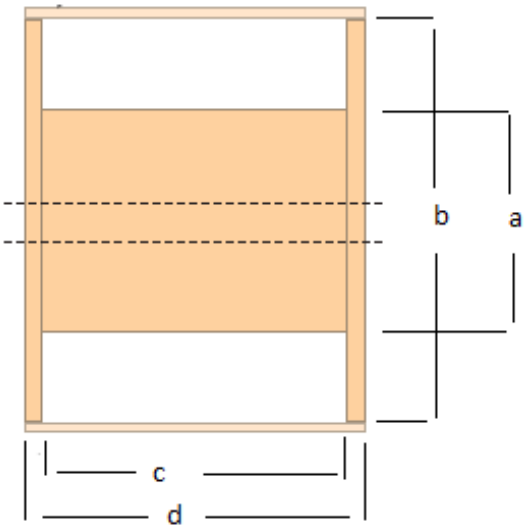
CAPACITY IN METERS (DRUMS CATEGORY 4W)

mm	J6	J7	J8	J9	A0	A1	A2	A3	A4	A5	A6	A8	A9	B0	B1
5	1.659	5.499	6.114	8.859	12.064	13.119	14.929	19.101	30.661	28.247	51.531	61.983	69.668	86.774	104.801
6	1.152	3.819	4.246	6.152	8.378	9.111	10.367	13.265	21.292	19.616	35.785	43.044	48.381	60.260	72.778
7	846	2.805	3.120	4.520	6.155	6.694	7.617	9.745	15.643	14.412	26.291	31.624	35.545	44.272	53.470
8	648	2.148	2.388	3.461	4.712	5.125	5.832	7.461	11.977	11.034	20.129	24.212	27.214	33.896	40.938
9	512	1.697	1.887	2.734	3.723	4.049	4.608	5.895	9.463	8.718	15.905	19.130	21.502	26.782	32.346
10	415	1.375	1.529	2.215	3.016	3.280	3.732	4.775	7.665	7.062	12.883	15.496	17.417	21.693	26.200
11	343	1.136	1.263	1.830	2.493	2.711	3.084	3.946	6.335	5.836	10.647	12.806	14.394	17.928	21.653
12	288	955	1.062	1.538	2.094	2.278	2.592	3.316	5.323	4.904	8.946	10.761	12.095	15.065	18.195
13	245	813	904	1.311	1.785	1.941	2.208	2.826	4.536	4.179	7.623	9.169	10.306	12.836	15.503
14	212	701	780	1.130	1.539	1.673	1.904	2.436	3.911	3.603	6.573	7.906	8.886	11.068	13.367
15	184	611	679	984	1.340	1.458	1.659	2.122	3.407	3.139	5.726	6.887	7.741	9.642	11.645
16	162	537	597	865	1.178	1.281	1.458	1.865	2.994	2.759	5.032	6.053	6.804	8.474	10.234
17	143	476	529	766	1.044	1.135	1.291	1.652	2.652	2.444	4.458	5.362	6.027	7.506	9.066
18	128	424	472	684	931	1.012	1.152	1.474	2.366	2.180	3.976	4.783	5.376	6.696	8.086
19	115	381	423	614	835	909	1.034	1.323	2.123	1.956	3.569	4.292	4.825	6.009	7.258
20	104	344	382	554	754	820	933	1.194	1.916	1.765	3.221	3.874	4.354	5.423	6.550
21	0	0	0	502	684	744	846	1.083	1.738	1.601	2.921	3.514	3.949	4.919	5.941
22	0	0	0	458	623	678	771	987	1.584	1.459	2.662	3.202	3.599	4.482	5.413
23	0	0	0	419	570	620	706	903	1.449	1.335	2.435	2.929	3.292	4.101	4.953
24	0	0	0	0	0	569	648	829	1.331	1.226	2.237	2.690	3.024	3.766	4.549
25	0	0	0	0	0	525	597	764	1.226	1.130	2.061	2.479	2.787	3.471	4.192
26	0	0	0	0	0	485	552	706	1.134	1.045	1.906	2.292	2.576	3.209	3.876
27	0	0	0	0	0	450	512	655	1.051	969	1.767	2.126	2.389	2.976	3.594
28	0	0	0	0	0	418	476	609	978	901	1.643	1.976	2.222	2.767	3.342
29	0	0	0	0	0	390	444	568	911	840	1.532	1.843	2.071	2.579	3.115
30	0	0	0	0	0	364	415	531	852	785	1.431	1.722	1.935	2.410	2.911
31	0	0	0	0	0	341	388	497	798	735	1.341	1.612	1.812	2.257	2.726
32	0	0	0	0	0	320	364	466	749	690	1.258	1.513	1.701	2.119	2.559
34	0	0	0	0	0	0	323	413	663	611	1.114	1.340	1.507	1.877	2.266
36	0	0	0	0	0	0	288	368	591	545	994	1.196	1.344	1.674	2.022
38	0	0	0	0	0	0	258	331	531	489	892	1.073	1.206	1.502	1.814
40	0	0	0	0	0	0	233	298	479	441	805	968	1.089	1.356	1.638
42	0	0	0	0	0	0	0	271	435	400	730	878	987	1.230	1.485
44	0	0	0	0	0	0	0	247	0	365	665	800	900	1.121	1.353
46	0	0	0	0	0	0	0	226	0	334	609	732	823	1.025	1.238
48	0	0	0	0	0	0	0	0	0	307	559	673	756	942	1.137
50	0	0	0	0	0	0	0	0	0	282	515	620	697	868	1.048
52	0	0	0	0	0	0	0	0	0	261	476	573	644	802	969
54	0	0	0	0	0	0	0	0	0	0	442	531	597	744	898
56	0	0	0	0	0	0	0	0	0	0	411	494	555	692	835
58	0	0	0	0	0	0	0	0	0	0	383	461	518	645	779
60	0	0	0	0	0	0	0	0	0	0	358	430	484	603	728
62	0	0	0	0	0	0	0	0	0	0	0	403	453	564	682
64	0	0	0	0	0	0	0	0	0	0	0	378	425	530	640
66	0	0	0	0	0	0	0	0	0	0	0	356	400	498	601
68	0	0	0	0	0	0	0	0	0	0	0	0	0	469	567

WOODEN DRUMS

SPECIAL DRUMS FOR OPTIC-FIBRE CABLES – CATEGOR Y 6W





Internal code	Shipping code	Barrel diameter (a-mm)	Flange diameter (b-mm)	Drive hole (mm)	Winding width (c-mm)	Overall width (d-mm)	Weight (kg)	Useful drum volume (m3)
B06F44W	J6	400	600	82	330	410	27	0.116
B07F54W	J7	450	780	82	470	550	30	0.263
B08F54W	J8	450	810	82	470	550	35	0.283
B09F64W	J9	600	950	82	470	550	40	0.390
BA0F74W	A0	700	950	82	680	760	44	0.539
BA0F76W	A0	700	950	82	640	760	46	0.539
BA1FJ4W	A1	750	1050	82	680	760	76	0.658
BA1FJ6W	A1	750	1050	82	640	760	78	0.658
BA2F84W	A2	800	1150	82	680	760	76	0.789
BA2F86W	A2	800	1150	82	640	760	78	0.789
BA3F86W	A3	800	1300	82	640	760	82	1.009
BA4F96W	A4	900	1400	82	810	890	95	1.370
BA5966W	A5	900	1530	82	640	760	100	1.397
BA6F16W	A6	1000	1650	82	1030	1150	169	2.459
BA8FE8W	A8	1200	1830	100	990	1150	271	3.025
BA9FF8W	A9	1300	1900	100	990	1150	305	3.261
BB0FG8W	B0	1400	2100	100	990	1150	351	3.983
BB1FH8W	B1	1500	2240	100	990	1150	382	4.532

(*) Drum dimensions are nominal values

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WOODEN DRUMS
SPECIAL DRUMS FOR OPTIC-FIBRE CABLES – CATEGORY 6W

CAPACITY IN METERS (DRUMS CATEGORY 6W)

mm	J6	J7	J8	J9	A0	A1	A2	A3	A4	A5	A6	A8	A9	B0	B1
5	933	3.838	4.453	5.352	4.967	7.263	9.880	17.090	22.393	24.829	45.383	48.298	48.208	63.448	72.455
6	648	2.665	3.093	3.717	3.449	5.044	6.861	11.868	15.551	17.242	31.516	33.540	33.478	44.061	50.316
7	476	1.958	2.272	2.731	2.534	3.706	5.041	8.720	11.425	12.668	23.154	24.642	24.596	32.371	36.967
8	364	1.499	1.740	2.091	1.940	2.837	3.859	6.676	8.747	9.699	17.728	18.866	18.831	24.784	28.303
9	288	1.184	1.374	1.652	1.533	2.242	3.049	5.275	6.912	7.663	14.007	14.907	14.879	19.583	22.363
10	233	959	1.113	1.338	1.242	1.816	2.470	4.273	5.598	6.207	11.346	12.074	12.052	15.862	18.114
11	193	793	920	1.106	1.026	1.501	2.041	3.531	4.627	5.130	9.377	9.979	9.960	13.109	14.970
12	162	666	773	929	862	1.261	1.715	2.967	3.888	4.311	7.879	8.385	8.369	11.015	12.579
13	138	568	659	792	735	1.074	1.462	2.528	3.313	3.673	6.713	7.145	7.131	9.386	10.718
14	119	489	568	683	634	926	1.260	2.180	2.856	3.167	5.789	6.160	6.149	8.093	9.242
15	104	426	495	595	552	807	1.098	1.899	2.488	2.759	5.043	5.366	5.356	7.050	8.051
16	91	375	435	523	485	709	965	1.669	2.187	2.425	4.432	4.717	4.708	6.196	7.076
17	81	332	385	463	430	628	855	1.478	1.937	2.148	3.926	4.178	4.170	5.489	6.268
18	72	296	344	413	383	560	762	1.319	1.728	1.916	3.502	3.727	3.720	4.896	5.591
19	65	266	308	371	344	503	684	1.184	1.551	1.719	3.143	3.345	3.338	4.394	5.018
20	58	240	278	335	310	454	618	1.068	1.400	1.552	2.836	3.019	3.013	3.965	4.528
21	53	218	252	303	282	412	560	969	1.269	1.408	2.573	2.738	2.733	3.597	4.107
22	48	198	230	276	257	375	510	883	1.157	1.282	2.344	2.495	2.490	3.277	3.742
23	44	181	210	253	235	343	467	808	1.058	1.173	2.145	2.283	2.278	2.998	3.424
24	40	167	193	232	216	315	429	742	972	1.078	1.970	2.096	2.092	2.754	3.145
25	37	154	178	214	199	291	395	684	896	993	1.815	1.932	1.928	2.538	2.898
26	35	142	165	198	184	269	365	632	828	918	1.678	1.786	1.783	2.346	2.680
27	0	132	153	184	170	249	339	586	768	851	1.556	1.656	1.653	2.176	2.485
28	0	122	142	171	158	232	315	545	714	792	1.447	1.540	1.537	2.023	2.310
29	0	114	132	159	148	216	294	508	666	738	1.349	1.436	1.433	1.886	2.154
30	0	107	124	149	138	202	274	475	622	690	1.261	1.342	1.339	1.762	2.013
31	0	0	0	139	129	189	257	445	583	646	1.181	1.256	1.254	1.651	1.885
32	0	0	0	131	121	177	241	417	547	606	1.108	1.179	1.177	1.549	1.769
34	0	0	0	116	107	157	214	370	484	537	981	1.045	1.043	1.372	1.567
36	0	0	0	103	96	140	191	330	432	479	875	932	930	1.224	1.398
38	0	0	0	93	86	126	171	296	388	430	786	836	835	1.098	1.254
40	0	0	0	84	78	113	154	267	350	388	709	755	753	991	1.132
42	0	0	0	0	70	103	140	242	317	352	643	684	683	899	1.027
44	0	0	0	0	64	94	128	221	289	321	586	624	623	819	936
46	0	0	0	0	59	86	117	202	265	293	536	571	570	750	856
48	0	0	0	0	0	79	107	185	243	269	492	524	523	688	786
50	0	0	0	0	0	73	99	171	224	248	454	483	482	634	725
52	0	0	0	0	0	0	91	158	207	230	420	447	446	587	670
54	0	0	0	0	0	0	0	0	192	213	389	414	413	544	621
56	0	0	0	0	0	0	0	0	179	198	362	385	384	506	578
58	0	0	0	0	0	0	0	0	166	185	337	359	358	472	538
60	0	0	0	0	0	0	0	0	156	172	315	335	335	441	503
62	0	0	0	0	0	0	0	0	0	0	295	314	314	413	471
64	0	0	0	0	0	0	0	0	0	0	277	295	294	387	442
66	0	0	0	0	0	0	0	0	0	0	260	277	277	364	416
68	0	0	0	0	0	0	0	0	0	0	0	261	261	343	392

PLYWOOD REELS

Plywood reels are intended for non-returnable, lightweight packaging than wooden drums and more versatile packaging medium.
From the high quality of hardwood plywood to a more economical option of softwood plywood we can offer a reel to meet your specific cubic and carrying capacity.

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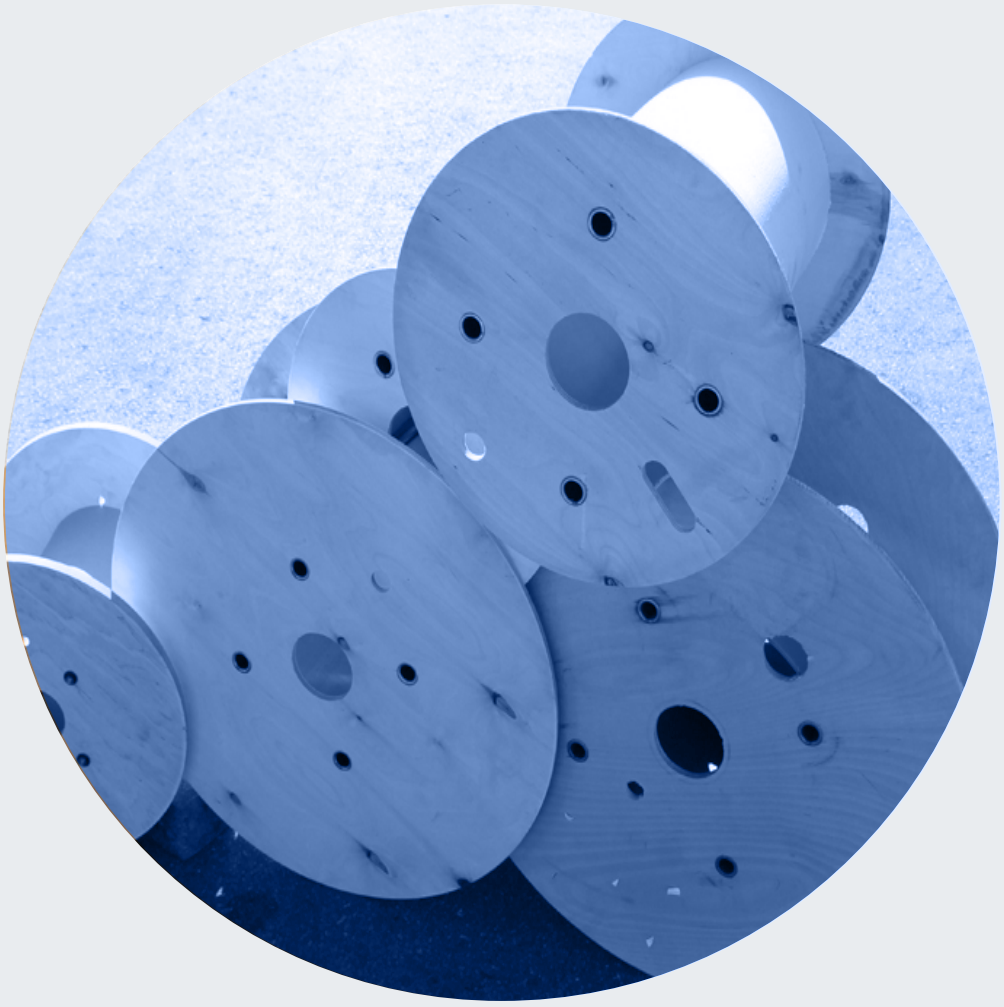
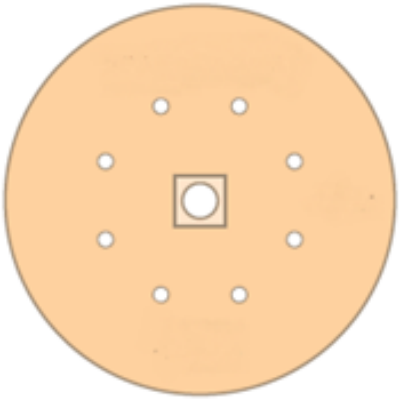
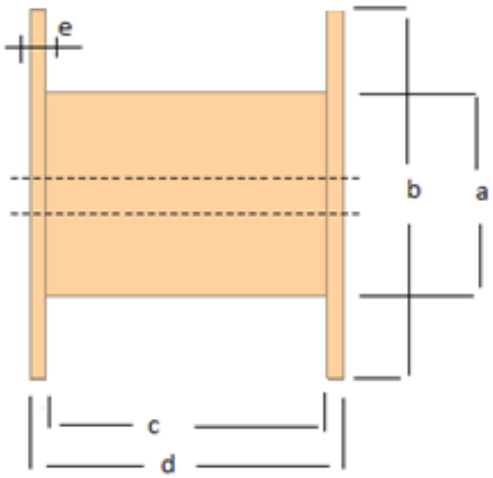


PLYWOOD REELS





Code	Barrel diameter (a-mm)	Flange diameter (b-mm)	Winding width (c-mm)	Overall width (d-mm)	Flange thickness (e-mm)	Drive hole (mm)
BC50002	217	500	170	395	8	60
BC50001	217	500	290	515	8	60
BC50003	217	600	170	395	8	60
BC50004	217	600	290	515	8	60
BC50005	244	700	300	554	10	60 o 83
BC50005	244	700	300	554	10	60 o 83
BC50006	300	800	350	660	10	60 o 83
BC50007	300	900	400	710	10	60 o 83
BC50008	217	500	290	519	12	60
BC50009	217	600	290	519	12	60
BC50010	244	700	300	556	12	60 o 83
BC50010	244	700	300	556	12	60 o 83
BC50011	300	800	350	662	12	60 o 83
BC50012	300	900	400	712	12	60 o 83
BC50013	456	1000	250	718	12	60 o 83
BC50014	217	500	290	522	15	60
BC50015	217	600	290	522	15	60
BC50016	244	700	300	559	15	60 o 83
BC50016	244	700	300	559	15	60 o 83
BC50017	300	800	350	665	15	60 o 83
BC50018	300	900	400	715	15	60 o 83

Plywood reels will go identified with at least the following information (in addition to any information specifically requested by the customer):
- Cable type / composition.
- Length.

(*) Dimensions reels are nominal values

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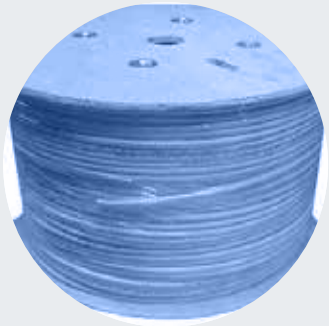
PLYWOOD REELS

PLYWOOD REELS

Plywood reels are very oYen the soluNon for a good price-quality raNo. It allows the manufacturing of very resistant plywood. Assembling of reels is done using metal tubes or metal rods in order to ensure a good mechanical resistance.
This type of reels provide us handling cables of small or medium-sized, with a capacity per reel approximately from 2500 meters depending on the type of cable. The cables remain completely protected with a shrink film to avoid damage, dirt or thermal instability.

Pallets will at least idenNfied with the following informaNon (in addiNon to any informaNon specifically requested by the customer):
- Number of reel.
- Cable type / composiNon.
- Length.
- inner end length marking Gross weight.
- Customer.



Cable Diameters from 500 to 600 mm flange, palleNzing of 1.20 x 1.20 accommodate 12 reels per pallet (4 x 3 base heights).

CARDBOARD REELS

Cardboard Reels are most suitable in applications for small or medium diameter cables, such as jumper wire or drop wire

A comfortable and lightweight packaging, which facilitates handling and installation of the cable.

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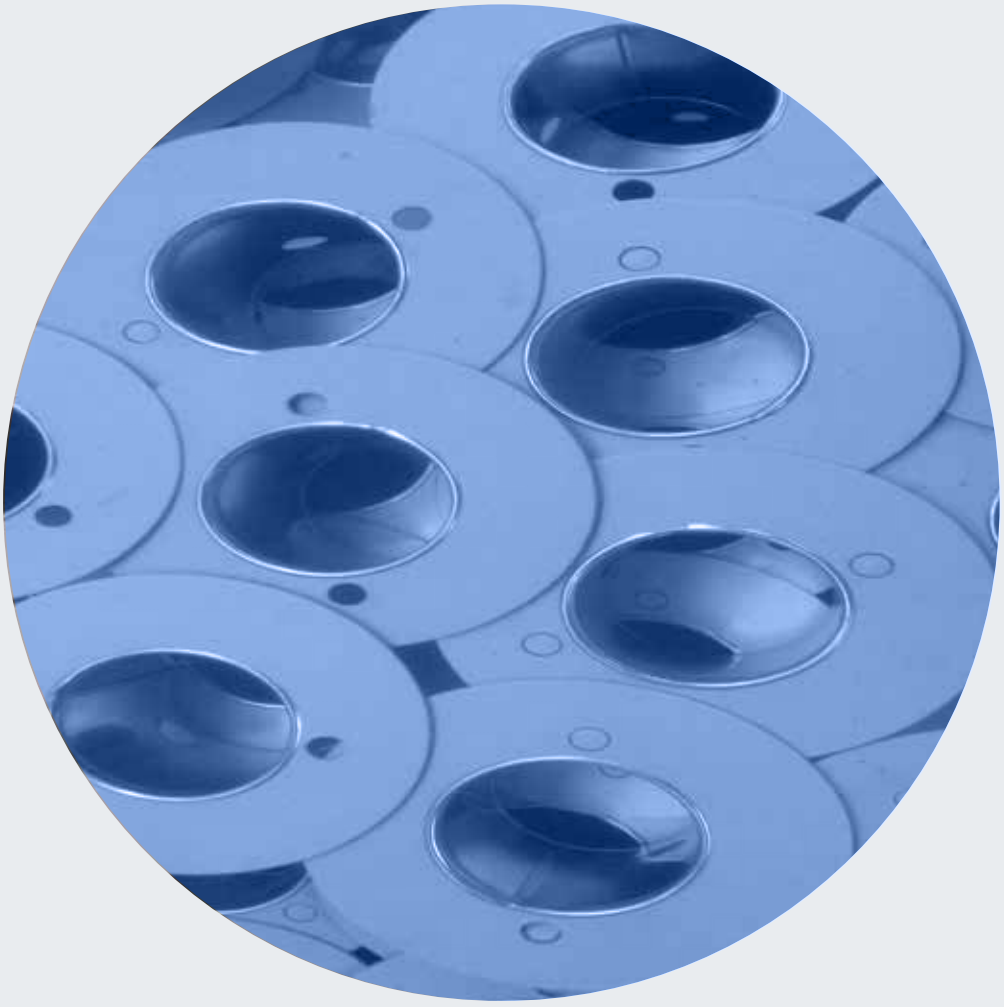

CABLESCOM

SPAIN

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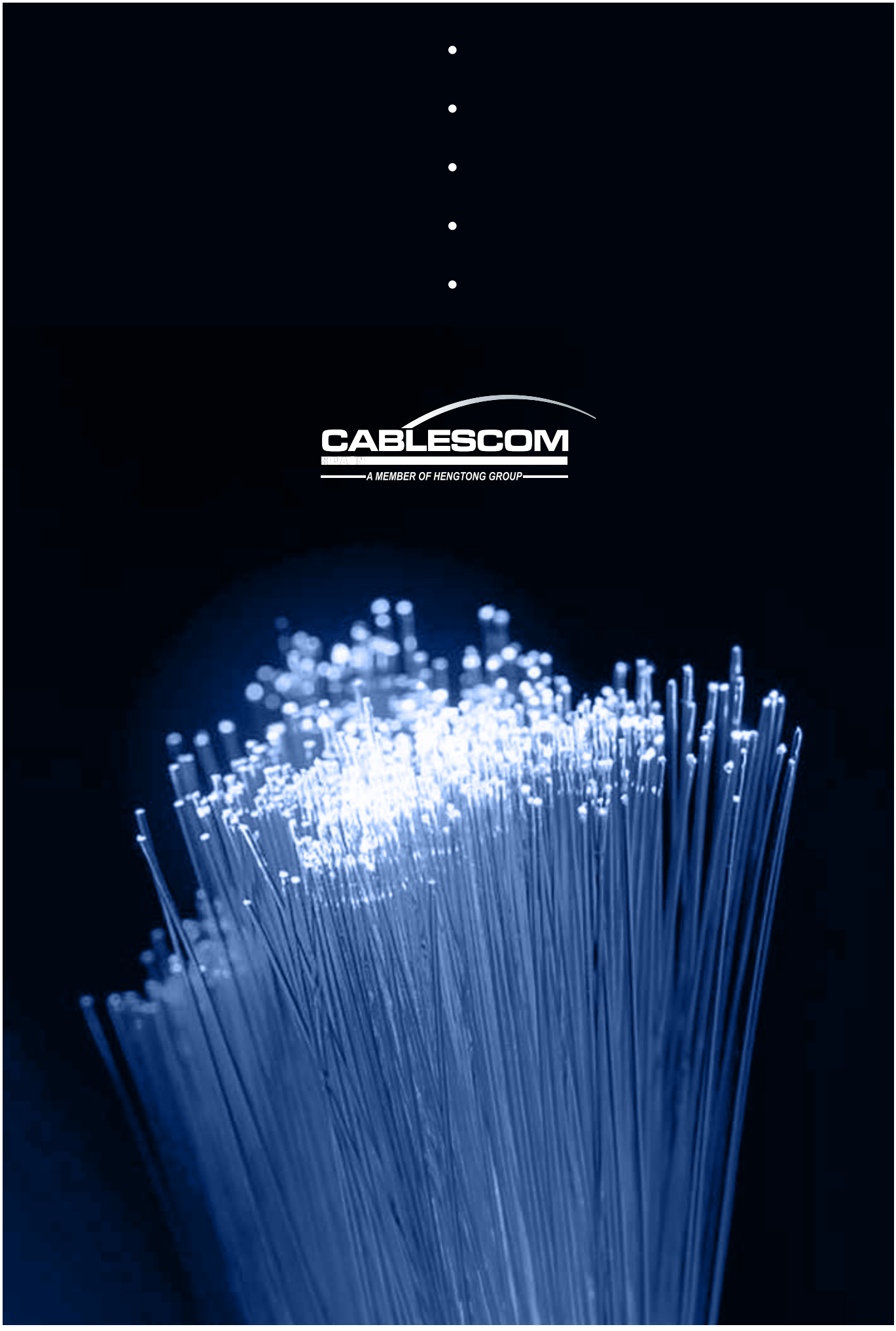
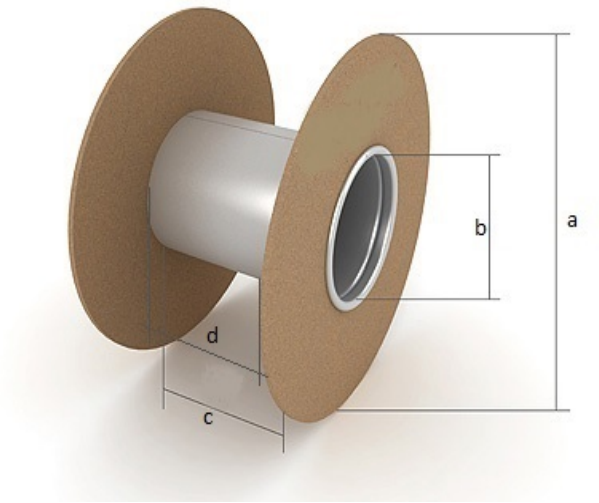


CARDBOARD REELS

The beaded metal cylinder curls back, locking to the outside face of the flange, providing a secure fit.

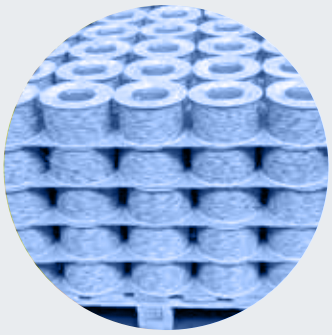
This type of cardboard reel or spool is made with 2 cardboard flanges and a metal cylinder barrel. Standard flange sizes range from 125mm to 400mm diameter, in calipers from 2000 to 4000 micron.



Code	Barrel diameter (a-mm)	Flange diameter (b-mm)	Winding width (c-mm)	Overall width (d-mm)	Weight (kg)	Useful drum volume (m3)
BTJW000	95	200	102	115	0,2	0,035

(*) Reels dimensions are nominal values

The dimensions shown in the table are those standard used and may vary upon request and needs of our customers or the manufacturing process.



Palletizing of 1,00 x 1,20 accommodate 150 reels per pallet (30 x 5 base heights)

PLASTIC REELS

Plastic reels are mainly used for small diameter cables such as jumper or drop wire; ready to pulling, easy to use , with limited weight, mechanically harder and resistant favoring the comfort of installers.
A packaging solution weighs less than a product in wood or plywood, and it maintains a constant weight regardless of the weather conditions.

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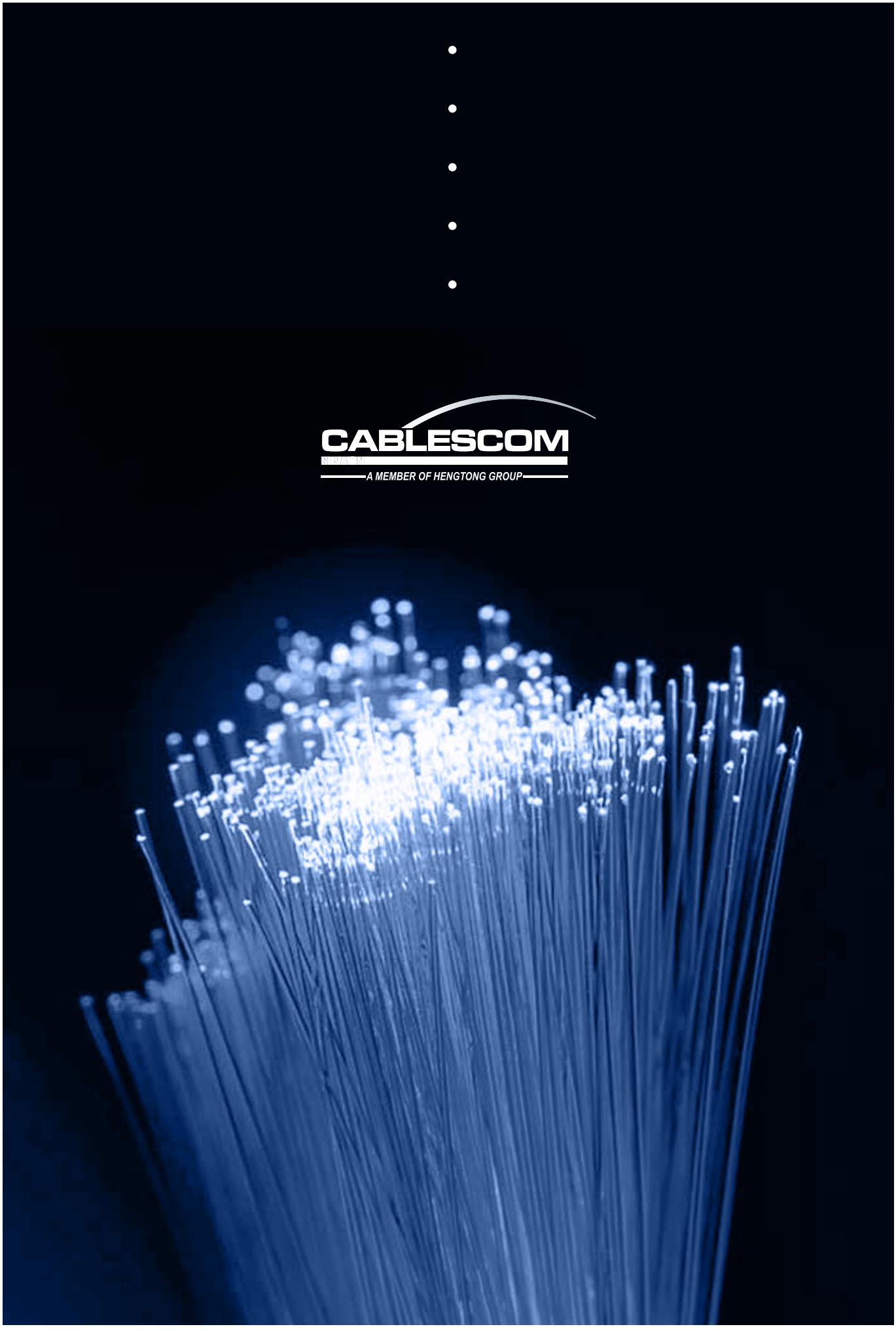
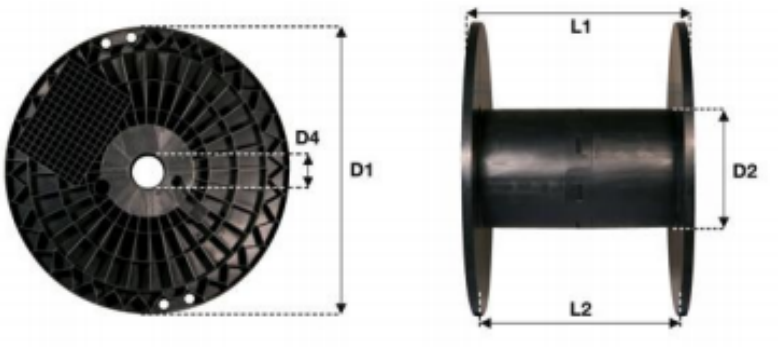


PLASTIC REELS

Plastic reels have shown itself to be 20-50% lighter than traditional products when used outdoors or in humid environments. The low weight contributes to fast and ergonomic handling when it comes to production, transportation, installation and the laying of cables. The plastic is resistant to UV exposure and can handle temperature variations between -40°C and +70°C. A shock absorbent construction means that the packaging can withstand the most violent of impacts.



Barrel diameter (a-mm)	Flange diameter (b-mm)	Winding width (c-mm)	Overall width (d-mm)	Weight (kg)	Useful drum volume (m3)
60	190	178	187	0,21	0,050
45	260	155	160	0,455	0,045
105	255	145	165	0,55	0,042

(*) Reels dimensions are nominal values

A packaging solution can be used up to 50% more times and thus significantly reduces material consumption per cycle. Consequently, a solution more cost-effective and more environmentally-friendly than a wooden product. Our products are manufactured using 100 percent recycled polypropylene.

The dimensions shown in the table are those standard used and may vary upon request and needs of our customers or the manufacturing process.

SHRINK-WRAPPED COILS

Shrink-wrapped coils are mainly used for self-supported and indoor application such as drop wire, so that ergonomics is very convenient and manageable for installers

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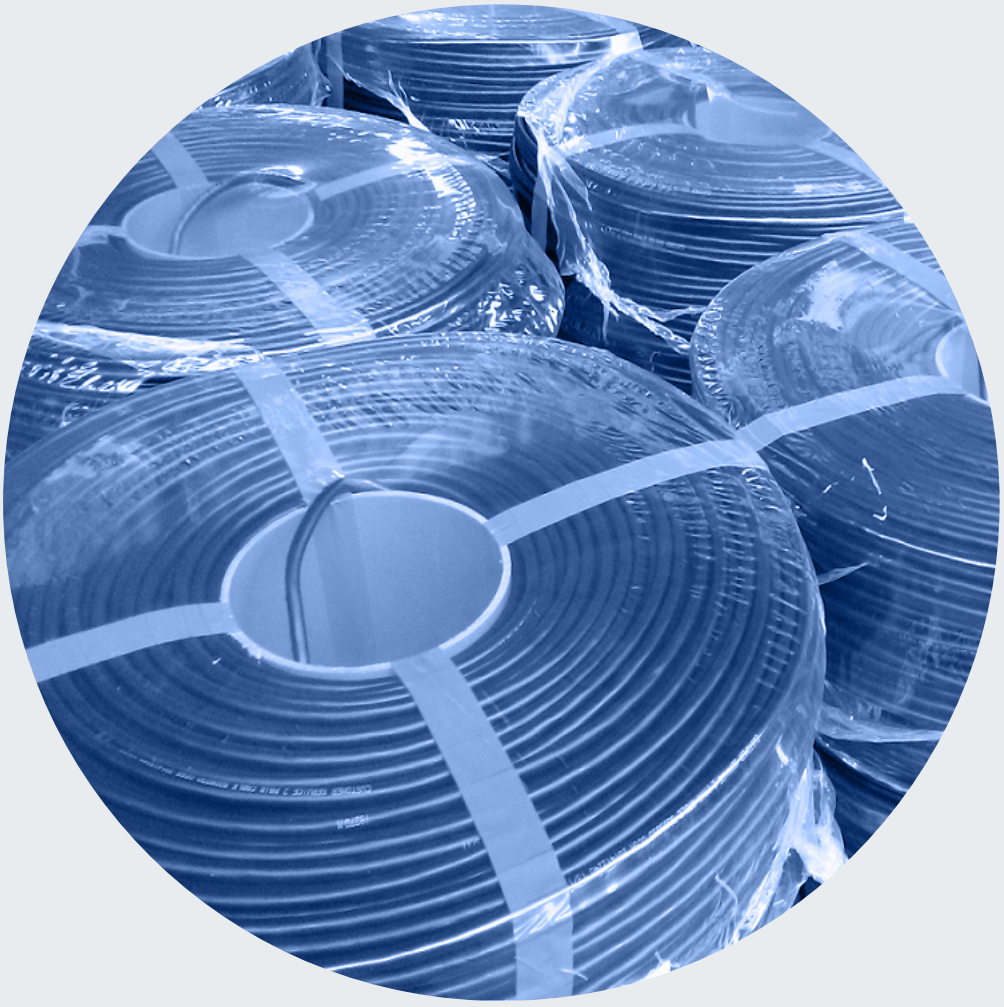


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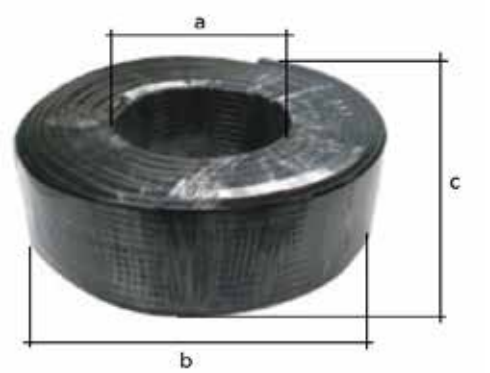
SHRINK-WRAPPED COILS

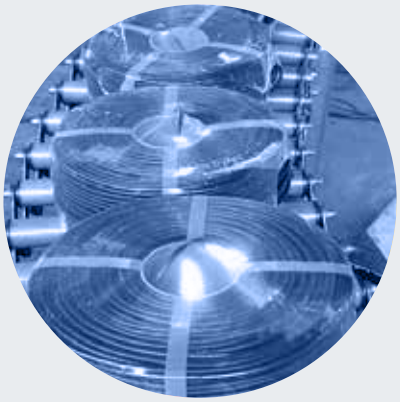
Shrink-plastic coil for telecommunication cables offers major advantages compared to the older cardboard box packaging.



- **Protection against environmental exposure.**
- **Fall protection.**
- **Protection during use.**
- **Better visibility.**
- **Improved performance during storage.**
- **Right down to the last layer. Shrink-plastic preserves the material in perfect conditions right down to the last layer without allowing any knots or tangles.**
- **Less waste.**
- **Less environmental impact.**

Barrel diameter (a-mm)	Overall width (d-mm)	Overall height (c-mm)	Useful drum volume (m3)
110	400	150	0,043

The dimensions shown in the table are those standard used and may vary upon request and needs of our customers or the manufacturing process.



Each coil is identified individually with a bar code label and the coils are grouped together according to cross-section. Furthermore, shrink-plastic allows us to provide "made-to-measure" packaging.

PROTECTIONS DRUM

Our cables are shipped and stored differently depending on shipping conditions defined by customers so they must be protected against possible mechanical or environmental external aggressions.

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PROTECTIONS DRUM
LAGGING

Laggings are protections fixed to the flanges of the drum and surrounding the periphery of the cable, thus preventing the cable having any aggression.
This system is mainly used when cables are shipping in containers, because they suffer major damage during handling. The wooden drum shall be secured with 2 metal strips for complete subjection to the coil.

TYPE STANDARD – CATEGORY 4W

Internal Code	Lags dimensions	nº lags	Weight (kg)
B06S34W	41x10x2	19	35
B07S34W	55x10x2	24	40
B08S34W	55X10X2	24	50
BA0SA4W	76x10x2	30	65
BA1S56W	76x10x2	37	100
BA2S66W	76x10x2	37	105
BA3S76W	76x10x2	40	115
BA4SC6W	89x10x2	44	135
BA5S86W	76x10x2	47	138
BA6S96W	112x10x2	50	235
BA8S18W	112x10x2	57	345
BB0SD8W	112x10x2	65	435

TYPE SPECIAL DRUMS FOR OPTIC-FIBRE CABLES – CATEGORY 6W

Internal Code	Lags dimensions	nº lags	Weight (kg)
B06F44W	41x10x2	19	35
B07F54W	55x10x2	24	40
B08F54W	55X10X2	24	50
BA0F74W	76x10x2	30	65
BA1FJ6W	76x10x2	37	100
BA2F86W	76x10x2	37	105
BA3F86W	76x10x2	40	115
BA4F96W	89x10x2	44	135
BA5F96W	76x10x2	47	138
BA6F16W	112x10x2	50	235
BA8FE8W	112x10x2	57	345
BB0FG8W	112x10x2	65	435

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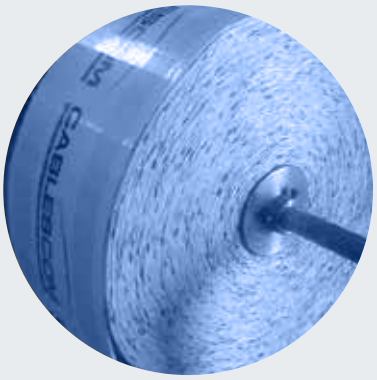
PROTECTIONS DRUM
CARDBORAD-PLASTIC COMPOSITE

Cables de Comunicaciones used plasticized cardboard composite that protects the cables from environmental and mechanical damage, this protection is more advantageous due to:

- 100% recyclable
- Flexible in all directions
- Highly resistant to shock and compressions
- Weatherproof
- Oil repellent
- Easy to apply
- Safety
- Lightweight



SYMBOLS LEYEND

SIGNALLING CABLE

UV RESISTANT

RODENT RETARDANT

IMPACT RESISTANT

LOW SMOKE EMISSIONS

FLAME RETARDANT

CHEMICALS RESISTANT

FLEXIBLE CABLE

SHOTGUN RESISTANT

WATER BLOCKED

OVERHEAD LINE CABLE

TELECOMMUNICATIONS CABLE

EM INTERFERENCES RESISTANT

OPTIC FIBRE

DIELECTRIC

ZERO HALOGEN

ROHS COMPLIANT

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NOTES

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