

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

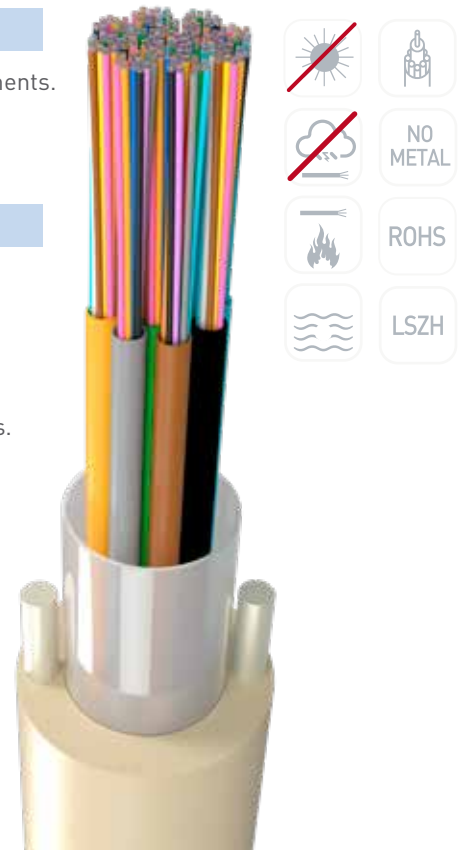
1. Micromodules: Easy strippable tube with 6 or 12 fibres.
2. Water-blocking yarns and/or tapes.
3. Fibreglass reinforcement elements embedded in the outer sheath.
4. Outer thermoplastic LSZH material sheath (Ivory or Black).

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**.

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
Maximum Operation Tension - (N) UNE-EN 60794-1-2, Met. E1	230	240	250	460	460	460	650	660	950
IMPACT RESISTANCE UNE-EN 60794-1-2, Met. E4	5 J, 300 mm, T ^a -20 °C, Δα reversible								
CURVATURE UNE-EN 60794-1-2, Met. 11	D=20 x Câble OD, 10 cycles, Δα<0.1 dB								
CRUSH RESISTANCE UNE-EN 60794-1-2, Met. E3	1000 N, 1 min, Δα reversible								
OPERATING TEMPERATURE UNE-EN 60794-1-2, Met. F1	-5°C / 60°C								
WATER PENETRATION UNE-EN 60794-1-2, Met. F5C	LP water ≤ 3 m (24 hours) (Cable core)								
PRODUCT CODE G.652D	EE82CJ2 0000600N	EE82CJ2 00001200N	EE82CJ2 00001800N	EE82CK2 00002400N	EE82CK2 00003600N	EE82CK2 00004800N	EE82CK2 00007200N	EE82CK2 00009600N	EE82CK2 00014400N
PRODUCT CODE G.657A	EE85CJ2 0000600N	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
Maximum Operation Tension - (N) UNE-EN 60794-1-2, Met. E1	230	250	450	470	470	480	650	660	1050	1070	1100
IMPACT RESISTANCE UNE-EN 60794-1-2, Met. E4	5 J, 300 mm, T ^a -20 °C, Δα reversible										
CURVATURE UNE-EN 60794-1-2, Met. 11	D=20 x Câble OD, 10 cycles, Δα<0.1 dB										
CRUSH RESISTANCE UNE-EN 60794-1-2, Met. E3	1000 N, 1 min, Δα reversible										
OPERATING TEMPERATURE UNE-EN 60794-1-2, Met. F1	-5°C / 60°C										
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.



NO METAL

ROHS

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****	YELLOW****	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

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
	$\Delta\epsilon_f < 0.5\%$, $\Delta L_{cable} < 0.6\%$, $\Delta\alpha < 0,5$ dB and reversible			
	$\Delta\epsilon_f < 0.2\%$, $\Delta\alpha < 0.05$ dB			
IMPACT RESISTANCE UNE-EN 60794-1-2, Met. E4	5 J $r = 10$ mm, T° 20°C/-15°C, $\Delta\alpha$ reversible			
CURVATURE UNE-EN 60794-1-2, Met. 11	D = 15 x Diameter 5 cycles U-bend, $\Delta\alpha < 0.1$ dB			
CRUSH RESISTANCE UNE-EN 60794-1-2, Met. E3	2.000 N, $\Delta\alpha < 0.1$ dB and reversible, 15 min 2500 N, $\Delta\alpha$ reversible			
OPERATING TEMPERATURE UNE-EN 60794-1-2, Met. F1	$\Delta\alpha < 0.1$ dB/km between -30°C / +60°C $\Delta\alpha$ reversible between -40°C / +70°C			
WATER PENETRATION UNE-EN 60794-1-2, Met. F5C	L _{Peau} ≤ 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
 - (λ_{cc}) ≤ **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
	BLUE I	ORANGE I	GREEN I	BROWN I	GREY I	WHITE I	RED I	BLACK I	YELLOW I	VIOLET I	PINK I	AQUA I
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
	BLUE II	ORANGE II	GREEN II	BROWN II	GREY II	WHITE II	RED II	BLACK II	YELLOW II	VIOLET II	PINK II	AQUA II

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 be 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

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 (*)	
NOMINAL WEIGHT (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 (mm ²)	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/°C)	9.67	10.08	10.47	10.66	10.94	11.11	10.96	11.66		11.51	11.40	
Elasticity Modulus (daN/mm ²)	6005	5779	5576	5385	5215	5058	4932	4551		3938	3509	
IMPACT RESISTANCE EN IEC 60794-1-2, Met. E4	5 J r = 300 mm, T° 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: Maximum at 1310nm: **0.36 dB/km.**
(EN 60794-3-11) Typical (90% of fibres) / Maximum at 1550nm: **0.22 / 0.23 dB/km.**
- PMD Individual ≤ **0.20 ps/km^{1/2}.**
- Cut-off wavelength (λ_{cc}) ≤ **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

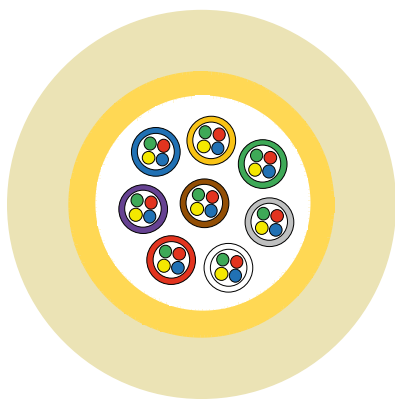
Indoor ultra-compact optical-fibre cables with LSZH sheath and aramid yarns for traction resistant. These cables are designed for installations in buildings canalizations.

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:

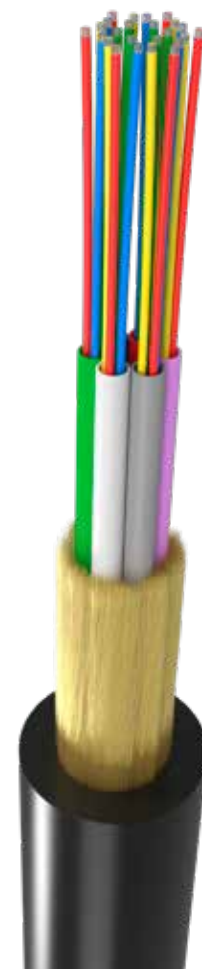
- CABLESCOM / year / FO Number / Type of fibre / Type of sheath / Length markings.



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 ($\Delta\alpha < 0.05$ dB)	UNE-EN 60794-1-2, Met.E3	1500 N
Impact resistance ($\Delta\alpha < 0.05$ dB)	UNE-EN 60794-1-2, Met.E4	5 J, r = 300 mm
Curvature ($\Delta\alpha \leq 0.1$ dB)	UNE-EN 60794-1-2, Met.E11	R = 10 x \varnothing cable
Temperature cycling ($\Delta\alpha$ operation ≤ 0.1 dB/km)	UNE-EN 60794-1-2, Met.F1	-5°C / +60°C
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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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).

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/km^{1/2}

PMD Q ≤ 0.10 ps/km^{1/2}

Cut-off wavelength λ_{cc} ≤ 1260 nm

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	[*]: Fibres from 13 to 16 are marked with black rings separated up to 50 mm apart.							
Colour	WHITE*	YELLOW*	ORANGE*	PINK*								
Abrev.	W	Ye	Or	P								

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 ($\Delta\epsilon_f=0.05\%$, $\alpha\leq 0.05$ dB)	EN 187000 Met. 501	3500 N
Impact resistance ($\Delta\alpha\leq 0.05$ dB)	EN 187000 Met. 505	5 J, 10 mm
Curvature ($\Delta\alpha\leq 0.05$ dB)	EN 187000 Met. 513	R=15 x \emptyset cable; r \geq 250 mm
Temperature cycling (operation, $\Delta\alpha\leq 0.05$ dB)	EN 187000 Met. 601	-25°C / 70°C
Water penetration	EN 187000 Met. 605B	LPwater \leq 1 m (14 days)
Crush resistance ($\Delta\alpha\leq 0.05$ 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 ($\Delta\epsilon_f < 0.50\%$, $\Delta\alpha < 0.05$ dB)	UNE-EN 60794-1-2, Met. E1	See table
MOT ($\Delta\epsilon_f < 0.20\%$, $\Delta\alpha < 0.05$ dB)	UNE-EN 60794-1-2, Met. E1	See table
Impact resistance ($\Delta\alpha < 0.05$ dB)	UNE-EN 60794-1-2, Met. E4	5 J, r = 300 mm
Curvature ($\Delta\alpha < 0.05$ dB)	UNE-EN 60794-1, Met E11	r = 15 x \varnothing cable
Operating temperature ($\Delta\alpha < 0.05$ dB)	UNE-EN 60794-1-2, Met. F1	-40°C / +70°C
Water penetration	UNE-EN 60794-1-2, Met.F5C	3m cable, 1m water column, 24 hours
Crush resistance ($\Delta\alpha < 0.05$ 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.



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 ($\Delta\epsilon_f < 0.33\%$, $\Delta\alpha$ reversible)	UNE-EN 60794-1-2, Met. E1	7000 N
MOT ($\Delta\epsilon_f = 0.00\%$, $\Delta\alpha < 0.05$ 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 ($\Delta\alpha < 0.05$ dB)	UNE-EN 60794-1-2, Met. F1	-20°C / +60°C
Operating temperature ($\Delta\alpha < 0.05$ dB)	UNE-EN 60794-1-2, Met. F5B	LPwater \leq 3 m (24 hours)
Water penetration	UNE-EN 60794-1-2, Met. E3	2000N
Crush resistance ($\Delta\alpha < 0.05$ dB)	UNE-EN 60794-1-2, Met. E27	$\pm 180^\circ$, 25 N, 20 cycles
Torsion tes ($\Delta\alpha < 0.05$ dB)	UNE-EN 60794-1-2, Met. E11	r = 15d mm (r \geq 250 mm)
Static bending ($\Delta\alpha < 0.05$ dB)	UNE-EN 60794-1-2, Met. E6	r = 15d mm, 100 cycles
Repeated bending ($\Delta\alpha < 0.05$ 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.



NO
METAL

ROHS



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, buried or on trays, due to its outer sheath UV resistance and its mechanical reinforcements.

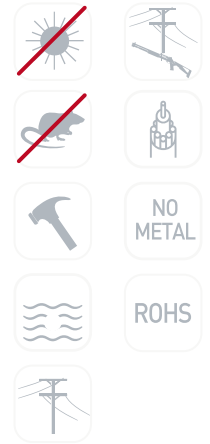
CONSTRUCTION

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	
Typ./Max. Atenuation coefficient at 1625 nm	0,22 / 0,26	dB/km	IEC 60793-1-40
Polarization Mode Dispersion (PMD)	≤ 0,2	ps/√km	IEC 60793-1-48
Link Design Value. (PMDQ)	≤ 0,1	ps/√km	
Cut-off wavelenght	$\lambda_{cc} < 1260$	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	
Typ./Max. Atenuation coefficient at 1625 nm	0,22 / 0,27	dB/km	IEC 60793-1-40
Polarization Mode Dispersion (PMD)	≤ 0,2	ps/√km	IEC 60793-1-48
Link Design Value. (PMDQ)	≤ 0,1	ps/√km	
Cut-off wavelenght	$\lambda_{cc} < 1450$	nm	UNE-EN 188000-313 IEC 60793-1-44



DIELECTRIC SELF-SUPPORTED CABLE (ADSS MT-BT)

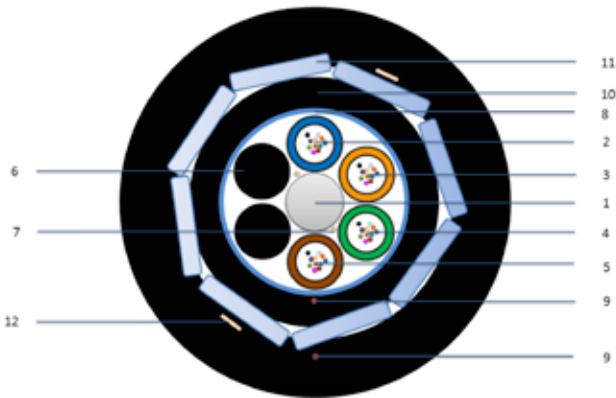
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DETAIL CONSTRUCTION AND CABLE ADSS MT-BT 36+12 FO BOM

Cable Element	Material	Commercial Name /Supplier	Requirement			
1	Central Element	Central Element 2,50 mm	FRP ROD (ERHARDT-AKSHI)/ (GOTEX)			2,5 mm
Cable Element	Material	Commercial Name /Supplier	Requirement			
			Outer Diameter	Inner Diameter	Thickness	
2	Blue Tube	Poliamide 12	POLIAMIDA 12 AECNO TL (ARKEMA)			
		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	Poliamide 12	POLIAMIDA 12 AECNO TL (ARKEMA)			
		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	Poliamide 12	POLIAMIDA 12 AECNO TL (ARKEMA)			
		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	Poliamide 12	POLIAMIDA 12 AECNO TL (ARKEMA)			
		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			
11	Mechanical reinforcement	Flat Support Elements 4,0 X 1,0 mm	LLF/F 400C (Neptco JV LLC) / SIV 400X100 (DXTEN)			Units 8
			Twaron® 2200 (TEIJIN)			Width 4 mm
12	Mechanical reinforcement	Aramid Yarns (H.M.) 3200 DTEX D	Twaron® 2200 (TEIJIN)			Units 2
						Dtex/unit 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 1 to 12 will be marked with a black ring (**): Fibres from 13 to 24 will be marked with 2 black rings.

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 expansion coef. (α (/°))	Effective Resistant Section (Sef (mm ²))	Tensile modulus related to this resistant section. (E/ExS)
36+12	EE4939A00004800N	223	15.4	7,8x10 ⁻⁶	8,52	75810 (Mpa - N/mm ²) 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

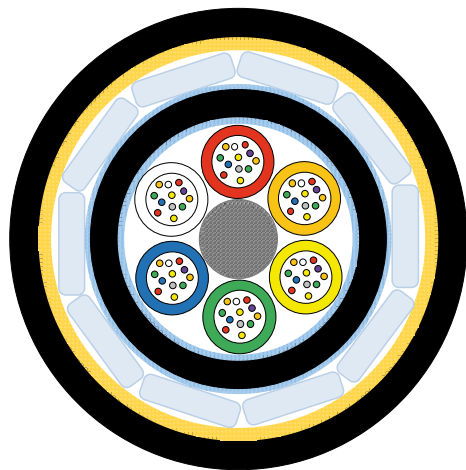
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DESCRIPTION AND APPLICATION

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 \leq 0,20 ps/km^{1/2}



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All drawings, weights and dimensions details, as well as tube and fibre colours in this document are only indicative and must not be considered contractual.

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 $\Delta\alpha < 0.1$ dB/km, Reversible
CRUSH RESISTANCE EN 60794-1-2, Met. E3	500 daN/dm $\Delta\alpha < 0.1$ dB/km, Reversible
TEMPERATURE CYCLING EN 60794-1-2, Met. F1	-30°C / +70°C $\Delta\alpha < 0.1$ dB/km, Reversible
WATER PENETRATION EN 60794-1-2, Met. F5C	LP water \leq 3 m (10 days)

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

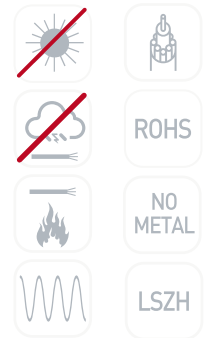
Indoor/Outdoor drop cable with up to 8 fibres, totally dielectric, constituted by a single loose tube. Flame-retardant and halogen free sheath, KT type. Can be installed on overhead lines, stapled on façade walls or pulled inside from the point of junction with the outside plant cables to the building 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/km^{1/2}.



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 ($\Delta f \leq 0.33\%$; $\Delta \alpha \leq 0.05$ dB)	UNE-EN 60794-1-2, Met.E1A	1250 N
Crush resistance ($\Delta \alpha \leq 0.05$ dB)	UNE-EN 60794-1-2, Met. E3	1200 N; 10 cm
Curvature ($\Delta \alpha < 0.05$ dB)	UNE-EN 60794-1-2, Met.E11	$r = 15 \times$ cable OD; 5 turns; 3 cycles
Torsion ($\Delta \alpha \leq 0.05$ dB)	UNE-EN 60794-1-2, Met. E7	50 N; ± 1 giro/cycle; 10 cycles
Impact resistance ($\Delta \alpha \leq 0.05$ dB)	UNE-EN 60794-1-2, Met E4	5 J; $r = 10$ mm
Repeated bending ($\Delta \alpha \leq 0.05$ dB)	UNE-EN 60794-1-2, Met. E6	100 N; $r = 15 \times$ cable OD; $r \geq 250$ mm; 100 cycles
Temperature cycling (operation, $\Delta \alpha \leq 0.05$ dB)	UNE-EN 60794-1-2, Met. F1	-5°C / +60°C
Flame propagation	UNE-EN 60332-1	
Smoke density	UNE-EN 61034-2	Transmittance > 60 %



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:

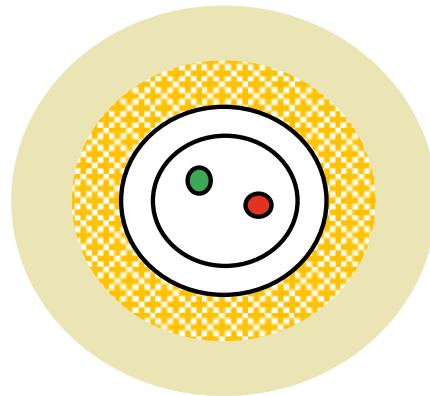
Attenuation coefficient:

- 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 \leq 0.15 ps/km^{1/2}.

PMD link \leq 0.10 ps/km^{1/2}.

Cut-off wavelength (λ_{cc}) \leq 1260nm.



PRODUCT INFORMATION

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

Mechanical characteristics	Standard	Test conditions
Tensile strength ($\Delta f \leq 0.33\%$; $\Delta \alpha \leq 0.05$ dB)	UNE-EN 60794-1-2, Met. E1A	450 N
Crush resistance ($\Delta \alpha \leq 0.05$ dB)	UNE-EN 60794-1-2, Met. E3	800 N
Curvature ($\Delta \alpha \leq 0.05$ dB)	UNE-EN 60794-1-2, Met. E11	R = 5 x cable OD
Impact resistance ($\Delta \alpha \leq 0.05$ dB)	UNE-EN 60794-1-2, Met. E4	2J/ radius 300 mm
Temperature cycling (operation, $\Delta \alpha \leq 0.05$ dB)	UNE-EN 60794-1-2, Met. F1	-5°C / +60°C
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

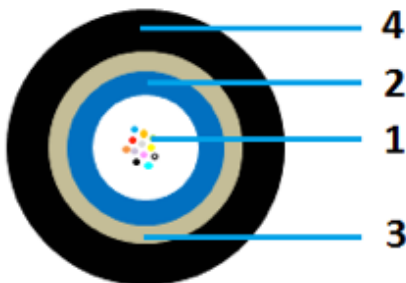
“Central tube” type fibre-optic cables with fibreglass yarns and polyethylene sheath. This cable can be used for aerial lines, facades or can also be installed in ducts.

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.



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
			$\epsilon f < 0.5\%$				
MAX. OPERATION TENSILE STRENGTH (N) UNE-EN 60794-1-2, Met. E1				700			
			$\epsilon f < 0.2\%$				
IMPACT RESISTANCE UNE-EN 60794-1-2, Met. E4			10 J, 300 mm, 3 impacts, $\Delta\alpha < 0.05$ dB				
CURVATURE UNE-EN 60794-1-2, Mét. 11			$R = 20 \times \varnothing$ cable, $\Delta\alpha < 0.05$ dB				
CRUSH RESISTANCE UNE-EN 60794-1-2, Met. E3			1000 N, 10 cm				
OPERATING TEMPERATURE UNE-EN 60794-1-2, Met. F1			-20°C / 60°C, $\Delta\alpha < 0.05$ dB				
WATER PENETRATION UNE-EN 60794-1-2, Met. F5C			LPwater \leq 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 - FVT SHEATH

CENTRAL TUBE FIBRE-OPTIC CABLES.

FvT

DESCRIPTION AND APPLICATION

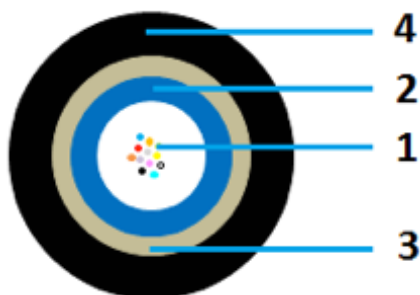
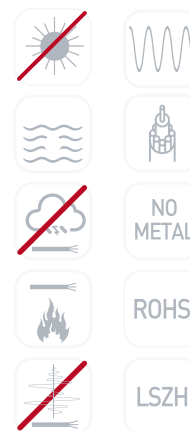
"Central tube" type fibre-optic cables with fibreglass yarns and LSZH thermoplastic sheath. This cable can be used for aerial lines, facades or can also be installed in ducts.

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			
				$\epsilon_f < 0.5\%$			
MAX. OPERATION TENSILE STRENGTH (N) UNE-EN 60794-1-2, Met. E1				700			
				$\epsilon_f < 0.2\%$			
IMPACT RESISTANCE UNE-EN 60794-1-2, Met. E4			10 J, 300 mm, 3 impacts, $\Delta\alpha < 0.05$ dB				
CURVATURE UNE-EN 60794-1-2, Mét. 11			D=20 x \emptyset cable, $\Delta\alpha < 0.05$ dB				
CRUSH RESISTANCE UNE-EN 60794-1-2, Met. E3			1000 N, 10 cm				
OPERATING TEMPERATURE UNE-EN 60794-1-2, Met. F1			-20°C / 60°C, $\Delta\alpha < 0.05$ dB				
WATER PENETRATION UNE-EN 60794-1-2, Met. F5C			LPwater \leq 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

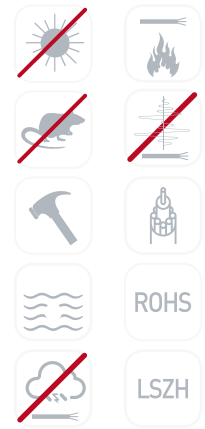
“Loose Tube” type fibre-optic cables with fibreglass yarns, longitudinal corrugated steel tape and a double LSZH thermoplastic sheath.

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) <small>UNE-EN 60794-1-2, Met. E1</small>				1200			
				$\epsilon f < 0.5\%$			
MAX. OPERATION TENSILE STRENGTH (N) <small>UNE-EN 60794-1-2, Met. E1</small>				500			
				$\epsilon f < 0.2\%$			
IMPACT RESISTANCE <small>UNE-EN 60794-1-2, Met. E4</small>			5 J, 300 mm, 3 impacts, $\Delta\alpha < 0.05$ dB				
CURVATURE <small>UNE-EN 60794-1-2, Mét. 11</small>			D=20 x \emptyset cable, $\Delta\alpha < 0.05$ dB				
CRUSH RESISTANCE <small>UNE-EN 60794-1-2, Met. E3</small>			3000 N, 10 cm				
OPERATING TEMPERATURE <small>UNE-EN 60794-1-2, Met. F1</small>			-20°C / 60°C, $\Delta\alpha < 0.05$ dB				
WATER PENETRATION <small>UNE-EN 60794-1-2, Met. F5C</small>			LPwater \leq 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 – KP SHEATH

CENTRAL TUBE FIBRE-OPTIC CABLE.

KP

DESCRIPTION AND APPLICATION

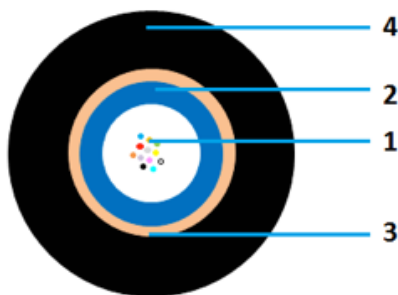
“Central tube” type fibre-optic cables with aramid yarns and polyethylene sheath. This cable can be used for aerial lines, facades or can also be installed in ducts.

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) <small>UNE-EN 60794-1-2, Met. E1</small>			1600				
			$\epsilon f < 0.5\%$				
MAX. OPERATION TENSILE STRENGTH (N) <small>UNE-EN 60794-1-2, Met. E1</small>			700				
			$\epsilon f < 0.2\%$				
IMPACT RESISTANCE <small>UNE-EN 60794-1-2, Met. E4</small>			5 J, 300 mm, 3 impacts, $\Delta\alpha < 0.05$ dB				
CURVATURE <small>UNE-EN 60794-1-2, Mét. 11</small>			D=20 x Ø cable, $\Delta\alpha < 0.05$ dB				
CRUSH RESISTANCE <small>UNE-EN 60794-1-2, Met. E3</small>			1200 N, 10 cm				
OPERATING TEMPERATURE <small>UNE-EN 60794-1-2, Met. F1</small>			-20°C / 60°C, $\Delta\alpha < 0.05$ dB				
WATER PENETRATION <small>UNE-EN 60794-1-2, Met. F5C</small>			LPwater \leq 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

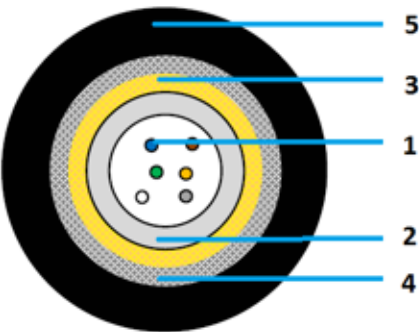
“Central tube” type fibre-optic cables with aramid yarns, armoured with a steel tape for mechanical and rodent protection and polyethylene sheath. This cable can be used for aerial lines, facades or can also be installed in ducts.

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) <small>UNE-EN 60794-1-2, Met. E1</small>			2700				2800
			$\epsilon f < 0.5\%$				
MAX. OPERATION TENSILE STRENGTH (N) <small>UNE-EN 60794-1-2, Met. E1</small>			1200				
			$\epsilon f < 0.2\%$				
IMPACT RESISTANCE <small>UNE-EN 60794-1-2, Met. E4</small>			5 J, 300 mm, 3 impacts, $\Delta\alpha < 0.05$ dB				
CURVATURE <small>UNE-EN 60794-1-2, Mét. 11</small>			$D = 20 \times \varnothing$ cable, $\Delta\alpha < 0.05$ dB				
CRUSH RESISTANCE <small>UNE-EN 60794-1-2, Met. E3</small>			1500 N, 10 cm				
OPERATING TEMPERATURE <small>UNE-EN 60794-1-2, Met. F1</small>			-20°C / 60°C, $\Delta\alpha < 0.05$ dB				
WATER PENETRATION <small>UNE-EN 60794-1-2, Met. F5C</small>			LPwater \leq 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 - KST SHEATH

CENTRAL TUBE FIBRE-OPTIC CABLES.

KST

DESCRIPTION AND APPLICATION

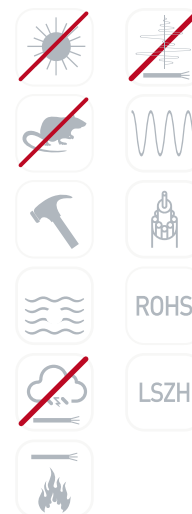
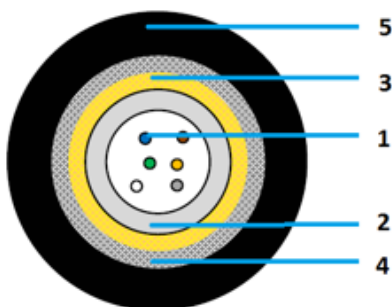
"Central tube" type fibre-optic cables with fibreglass yarns and LSZH thermoplastic sheath. This cable can be used for outdoor installation.

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
			$\epsilon f < 0.5\%$				
MAX. OPERATION TENSILE STRENGTH (N) UNE-EN 60794-1-2, Met. E1			1100				1200
			$\epsilon f < 0.2\%$				
IMPACT RESISTANCE UNE-EN 60794-1-2, Met. E4			5 J, 300 mm, 3 impacts, $\Delta\alpha < 0.05$ dB				
CURVATURE UNE-EN 60794-1-2, Mét. 11			$D = 20 \times \varnothing$ cable, $\Delta\alpha < 0.05$ dB				
CRUSH RESISTANCE UNE-EN 60794-1-2, Met. E3			1500 N, 10 cm				
OPERATING TEMPERATURE UNE-EN 60794-1-2, Met. F1			$-20^{\circ}\text{C} / 60^{\circ}\text{C}$, $\Delta\alpha < 0.05$ 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

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.

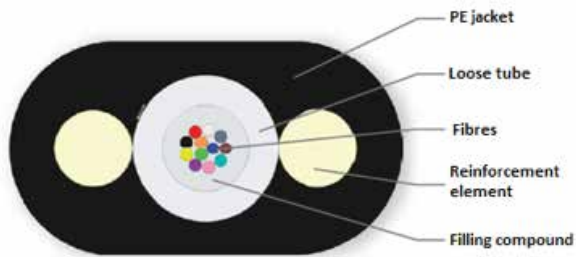
CONSTRUCTION

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 $\leq 0,20$ ps/km^{1/2}.
- Cut-off wavelength (λ_{cc}) ≤ 1260 nm.



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
Installation tensile strength [N] EN 60794-1-2, Met. E1	1000
	$\Delta\epsilon_f < 0.5\%$, $\Delta\alpha$ reversible
Operation tensile strength [N] EN 60794-1-2, Met. E1	400
	$\Delta\alpha \leq 0,05$ dB
Crush resistance EN 60794-1-2, Met. E3	500 N
	$\Delta\alpha$ reversible
Operating temperature EN 60794-1-2, Met. F1	-30°C / +70°C
	$\Delta\alpha$ 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.



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 $\Delta\epsilon_f \leq 0,6\%$, $\Delta\alpha \leq 0,05$ dB/km after test			
IMPACT RESISTANCE	UNE-EN 60794-1-2, Met. E4	1 J, 300 mm $\Delta\alpha$ reversible ($\Delta\alpha \leq 0,05$ dB/km after test)			
CRUSH RESISTANCE	UNE-EN 60794-1-2, Met. E3	300 N/10 cm; 1 min; 3 positions (500mm apart) $\Delta\alpha$ reversible ($\Delta\alpha \leq 0,1$ dB/km after test)			
REPEATED BENDING	UNE-EN 60794-1-2, Met. E6	25 Cycles: 20 x \emptyset cable $\Delta\alpha$ reversible ($\Delta\alpha \leq 0,05$ dB/km after test)			
TORSION	UNE-EN 60794-1-2, Met. E7	2m cable ; 5 cycles ; $\pm 180^\circ$ $\Delta\alpha$ reversible ($\Delta\alpha \leq 0,05$ dB/km after test)			
BENDING	UNE-EN 60794-1-2, Met. 11	$\emptyset = 10 \times \emptyset$ cable; 4 turns; 3 cycles $\Delta\alpha$ reversible ($\Delta\alpha \leq 0,05$ dB/km after test)			
TEMPERATURE CYCLING	UNE-EN 60794-1-2, Met. F1	-20 °C / 70 °C; $\Delta\alpha < 0.1$ dB/km			
WATER PENETRATION	UNE-EN 60794-1-2, Met. F5C	LP water ≤ 3 m (24 hours); No leakage			



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 $\Delta\epsilon_f \leq 0,6\%$, $\Delta\alpha \leq 0,05$ dB/km after test			
IMPACT RESISTANCE	UNE-EN 60794-1-2, Met. E4	1 J, 300 mm $\Delta\alpha$ reversible ($\Delta\alpha \leq 0,05$ dB/km after test)			
CRUSH RESISTANCE	UNE-EN 60794-1-2, Met. E3	300 N/10 cm; 1 min; 3 positions (500mm apart) $\Delta\alpha$ reversible ($\Delta\alpha \leq 0,1$ dB/km after test)			
REPEATED BENDING	UNE-EN 60794-1-2, Met. E6	25 Cycles: 20 x \emptyset cable $\Delta\alpha$ reversible ($\Delta\alpha \leq 0,05$ dB/km after test)			
TORSION	UNE-EN 60794-1-2, Met. E7	2m cable ; 5 cycles ; $\pm 180^\circ$ $\Delta\alpha$ reversible ($\Delta\alpha \leq 0,05$ dB/km after test)			
BENDING	UNE-EN 60794-1-2, Met. 11	$\emptyset = 10$ x \emptyset cable; 4 turns; 3 cycles $\Delta\alpha$ reversible ($\Delta\alpha \leq 0,05$ dB/km after test)			
TEMPERATURE CYCLING	UNE-EN 60794-1-2, Met. F1	-20 °C / 70 °C; $\Delta\alpha < 0.1$ 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		1/5	2/4	4/2	6/0	8/0	12/0	8/0	9/0
1 st Layer								8/6	15/0
2 nd Layer									
Fibres Number per Tube		12							
Recommended duct dimensions (O/I-Ø in mm)		12/8		12/8		14/10		16/12	
		12		14/10		16/12		20/15	
MAX. TENSILE STRENGTH (N)		200				1000			
UNE-EN 60794-1-2, Met. E1		$\Delta\epsilon_f \leq 0,6\%$, $\Delta\alpha \leq 0,05$ dB/km after test							
IMPACT RESISTANCE		2 J, 300 mm							
UNE-EN 60794-1-2, Met. E4		$\Delta\alpha$ reversible ($\Delta\alpha \leq 0,05$ dB/km after test)							
CRUSH RESISTANCE		300 N/10 cm; 15 min; 3 positions (500mm apart)							
UNE-EN 60794-1-2, Met. E3		$\Delta\alpha$ reversible ($\Delta\alpha \leq 0,1$ dB/km after test)							
REPEATED BENDING		35 Cycles: R : 20 x Ø cable							
UNE-EN 60794-1-2, Met. E6		$\Delta\alpha$ reversible ($\Delta\alpha \leq 0,05$ dB/km after test)							
TORSION		2m cable ; 100N ; 10 cycles ; ±180°							
UNE-EN 60794-1-2, Met. E7		$\Delta\alpha$ reversible ($\Delta\alpha \leq 0,05$ dB/km after test)							
BENDING		R : 20 x Ø cable; 4 turns; 3 cycles							
UNE-EN 60794-1-2, Met. 11		$\Delta\alpha$ reversible ($\Delta\alpha \leq 0,05$ dB/km after test)							
TEMPERATURE CYCLING		-20 °C / 70 °C; $\Delta\alpha < 0.1$ dB/km							
UNE-EN 60794-1-2, Met. F1									
WATER PENETRATION		LP water ≤ 3 m (24 hours); No leakage							
UNE-EN 60794-1-2, Met. F5C									



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.



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

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		1/5	2/4	4/2	6/0	8/0	12/0	8/0	9/0
								8/6	15/0
1 st Layer									
2 nd Layer									
Fibres Number per Tube		12							
Recommended duct dimensions (O/I-Ø in mm)		12/8		12/8		14/10		16/12	
		12		14/10		16/12		20/15	
MAX. TENSILE STRENGTH (N)		500				1000			
UNE-EN 60794-1-2, Met. E1		$\Delta\epsilon_f \leq 0,6\%$, $\Delta\alpha \leq 0,05$ dB/km after test							
IMPACT RESISTANCE		2 J, 300 mm							
UNE-EN 60794-1-2, Met. E4		$\Delta\alpha$ reversible ($\Delta\alpha \leq 0,05$ dB/km after test)							
CRUSH RESISTANCE		300 N/10 cm; 15 min; 3 positions (500mm apart)							
UNE-EN 60794-1-2, Met. E3		$\Delta\alpha$ reversible ($\Delta\alpha \leq 0,1$ dB/km after test)							
REPEATED BENDING		35 Cycles: R : 20 x Ø cable; Load 100N							
UNE-EN 60794-1-2, Met. E6		$\Delta\alpha$ reversible ($\Delta\alpha \leq 0,05$ dB/km after test)							
TORSION		2m cable ; 100N ; 10 cycles ; ±180°							
UNE-EN 60794-1-2, Met. E7		$\Delta\alpha$ reversible ($\Delta\alpha \leq 0,05$ dB/km after test)							
BENDING		R : 20 x Ø cable; 4 turns; 3 cycles							
UNE-EN 60794-1-2, Met. 11		$\Delta\alpha$ reversible ($\Delta\alpha \leq 0,05$ dB/km after test)							
TEMPERATURE CYCLING		-15 °C / 70 °C; $\Delta\alpha < 0.1$ dB/km							
UNE-EN 60794-1-2, Met. F1									
WATER PENETRATION		LP water ≤ 3 m (24 hours); No leakage							
UNE-EN 60794-1-2, Met. F5C									



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		4/2	6/0	8/0	9/0	12/0	9/0	9/0	9/0
							7/8	9/6	15/0
Fibres Number per Tube		24 (200µm)							
MAX. TENSILE STRENGTH (N)		600				1000			
		UNE-EN 60794-1-2, Met. E1							
		$\Delta\epsilon_f \leq 0,6\%$, $\Delta\alpha \leq 0,05$ dB/km after test							
IMPACT RESISTANCE		2 J, 300 mm							
		UNE-EN 60794-1-2, Met. E4							
		$\Delta\alpha$ reversible ($\Delta\alpha \leq 0,05$ dB/km after test)							
CRUSH RESISTANCE		300 N/10 cm; 15 min; 3 positions (500mm apart)							
		UNE-EN 60794-1-2, Met. E3							
		$\Delta\alpha$ reversible ($\Delta\alpha \leq 0,1$ dB/km after test)							
REPEATED BENDING		35 Cycles: R: 20 x Ø cable; Load 100N							
		UNE-EN 60794-1-2, Met. E6							
		$\Delta\alpha$ reversible ($\Delta\alpha \leq 0,05$ dB/km after test)							
TORSION		2m cable ; 100N ; 10 cycles ; ±180°							
		UNE-EN 60794-1-2, Met. E7							
		$\Delta\alpha$ reversible ($\Delta\alpha \leq 0,05$ dB/km after test)							
BENDING		R : 20 x Ø cable; 4 turns; 3 cycles							
		UNE-EN 60794-1-2, Met. 11							
		$\Delta\alpha$ reversible ($\Delta\alpha \leq 0,05$ dB/km after test)							
TEMPERATURE CYCLING		-15 °C / 70 °C; $\Delta\alpha < 0.1$ dB/km							
		UNE-EN 60794-1-2, Met. F1							
WATER PENETRATION		LP water ≤ 3 m (24 hours); No leakage							
		UNE-EN 60794-1-2, Met. F5C							



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All drawings, weights and dimensions details, as well as tube and fibre colours in this document are only indicative and must not be considered contractual.

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.



NO METAL

ROHS

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		4/2	6/0	8/0	9/0	12/0	9/0	9/0	9/0
							7/8	9/6	15/0
Fibres Number per Tube		24 (200µm)							
MAX. TENSILE STRENGTH (N)		500	1000						
		$\Delta\epsilon_f \leq 0,6\%$, $\Delta\alpha \leq 0,05$ dB/km after test							
IMPACT RESISTANCE		2 J, 300 mm							
		$\Delta\alpha$ reversible ($\Delta\alpha \leq 0,05$ dB/km after test)							
CRUSH RESISTANCE		500 N/10 cm; 15 min; 3 positions (500mm apart)							
		$\Delta\alpha$ reversible ($\Delta\alpha \leq 0,1$ dB/km after test)							
REPEATED BENDING		35 Cycles: R : 20 x Ø cable; Load 100N							
		$\Delta\alpha$ reversible ($\Delta\alpha \leq 0,05$ dB/km after test)							
TORSION		2m cable ; 100N ; 10 cycles ; ±180°							
		$\Delta\alpha$ reversible ($\Delta\alpha \leq 0,05$ dB/km after test)							
BENDING		R : 20 x Ø cable; 4 turns; 3 cycles							
		$\Delta\alpha$ reversible ($\Delta\alpha \leq 0,05$ dB/km after test)							
TEMPERATURE CYCLING		-15 °C / 70 °C; $\Delta\alpha < 0.1$ dB/km							
WATER PENETRATION		LP water ≤ 3 m (24 hours); No leakage							



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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

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
	$\Delta\epsilon_f < 0.5\%$, $\Delta L_{\text{cable}} < 0.6\%$, $\Delta\alpha < 0,5$ dB and reversible									
	3 J					5 J				
IMPACT RESISTANCE UNE-EN 60794-1-2, Met. E4	$r = 10$ mm, $T^\circ 20^\circ\text{C}$, $\Delta\alpha$ reversible									
CURVATURE UNE-EN 60794-1-2, Met. 11	$D = 15 \times$ cable OD 5 cycles, $\Delta\alpha$ reversible (< 0.1 dB)									
CRUSH RESISTANCE UNE-EN 60794-1-2, Met. E3	1600 N / 100mm. 15 min, $\Delta\alpha < 0.1$ dB					2000 N / 100mm. 15 min, $\Delta\alpha < 0.1$ dB				
	2500 N / 100mm. 15 min, $\Delta\alpha$ reversible									
OPERATING TEMPERATURE UNE-EN 60794-1-2, Met. F1	$-30^\circ\text{C} / +60^\circ\text{C}$ $\Delta\alpha < 0.1$ dB and reversible $-40^\circ\text{C} / +70^\circ\text{C}$ $\Delta\alpha$ 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



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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 λ _{cc}		nm	≤1260
Fiber Cutoff Wavelength λ _c		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

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 λ _{cc}		nm	≤1260
Fiber Cutoff Wavelength λ _c		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

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=20 Q=0.01%)		ps/√km	0.06
Typical Value		ps/√km	0.04
Cable Cutoff Wavelength λ _{cc}		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

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 Proofstress		%	≥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=20 Q=0.01%)		ps/√km	0.06
Typical Value		ps/√km	0.04
Cable Cutoff Wavelength λ _{cc}		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

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 Proofstress		%	≥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

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.

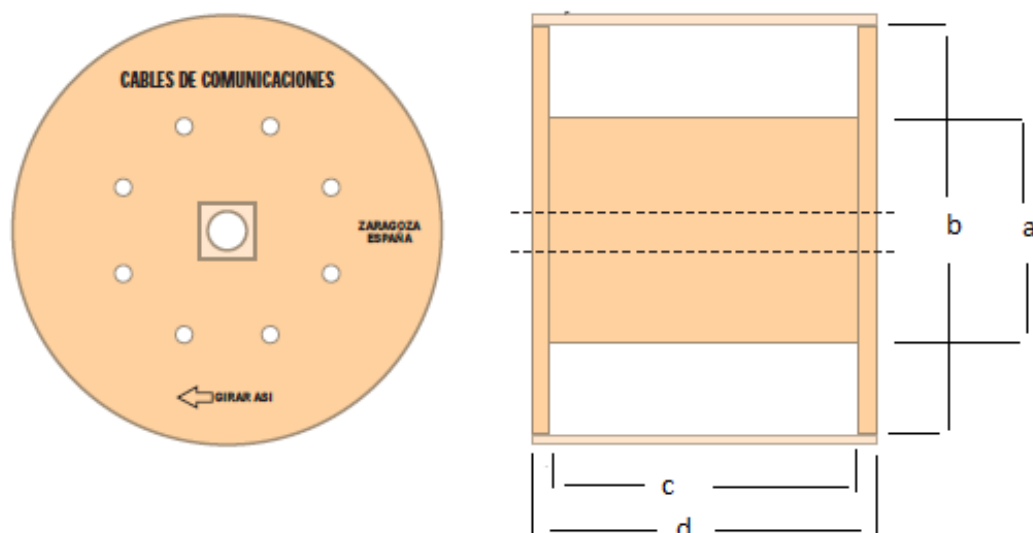
These wooden drum are manufactured using best quality, a robust construction, durable, vast storage, capacity and high efficient. Our wooden cable drums are used for transporting cables to various destinations without any hassle.

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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

WOODEN DRUMS

STANDARD – CATEGORY 4W

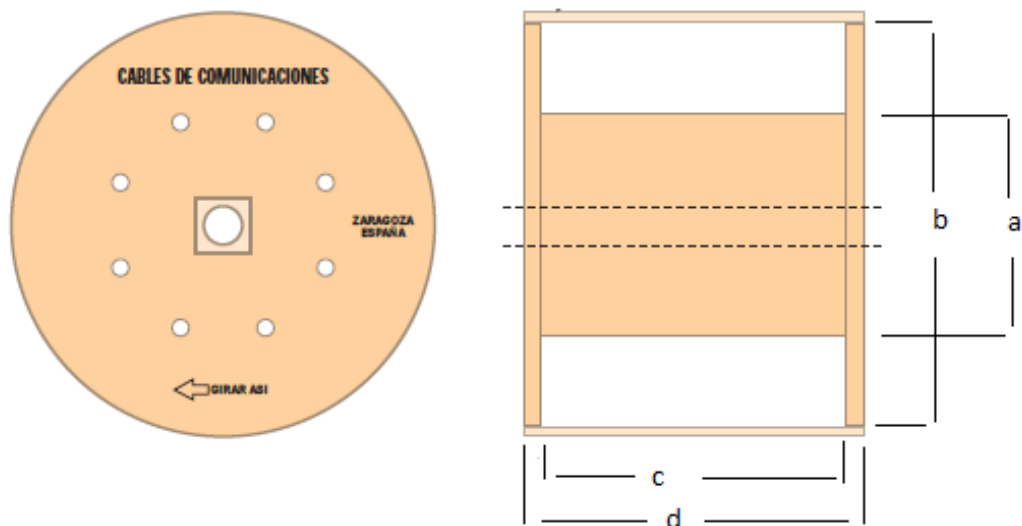
CAPACITY IN METERS (DRUMS CATEGORY 4W)

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

- CATEGORÍA 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 (m ³)
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

WOODEN DRUMS

SPECIAL DRUMS FOR OPTIC-FIBRE CABLES

- CATEGORY 6W

CAPACITY IN METERS (DRUMS CATEGORY 6W)

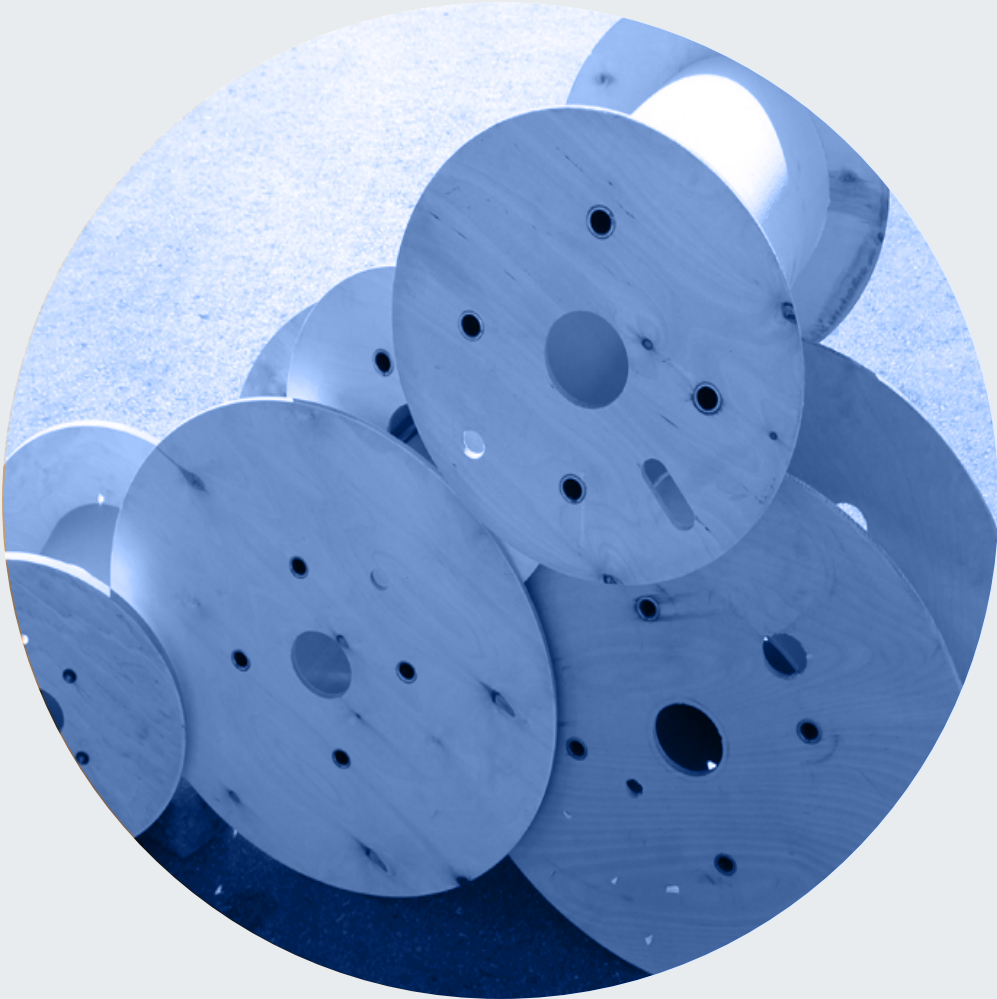
mm	J6	J7	J8	J9	A0	A1	A2	A3	A4	A5	A6	A8	A9	B0	B1
5	933	3.838	4.453	5.352	4.967	7.263	9.880	17.090	22.393	24.829	45.383	48.298	48.208	63.448	72.455
6	648	2.665	3.093	3.717	3.449	5.044	6.861	11.868	15.551	17.242	31.516	33.540	33.478	44.061	50.316
7	476	1.958	2.272	2.731	2.534	3.706	5.041	8.720	11.425	12.668	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

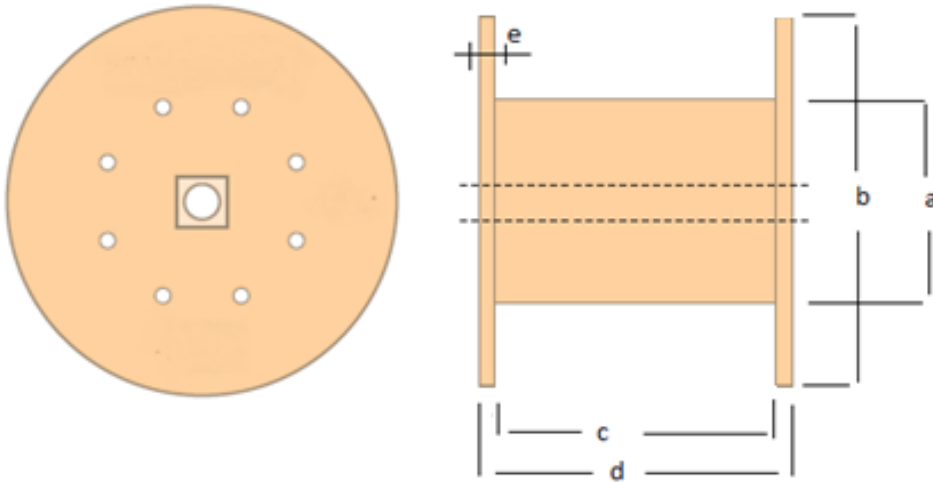
Plywood reels are intended for non-returnable, lightweight packaging than wooden drums and more versatile packaging medium.

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

PLYWOOD REELS

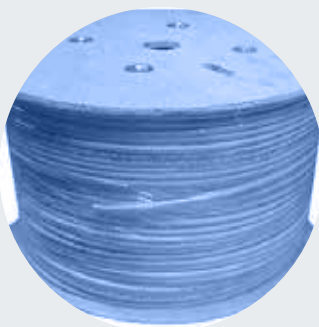
PLYWOOD REELS

Plywood reels are very often the solution for a good price-quality ratio. 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 be identified with the following information (in addition to any information specifically requested by the customer):

- Number of reel.
- Cable type / composition.
- Length.
- inner end length marking Gross weight.
- Customer.



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

CARDBOARD REELS

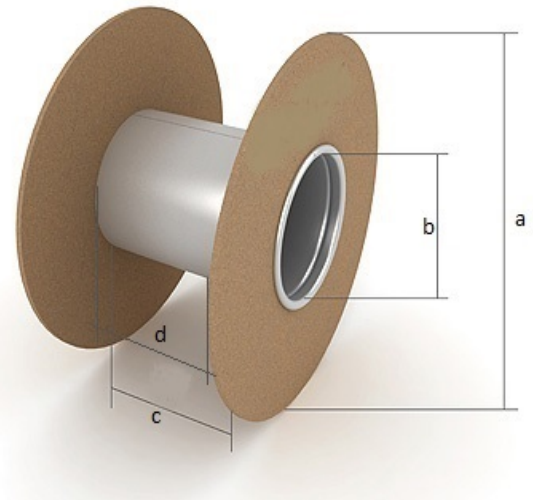
Cardboard Reels are most suitable in applications for small or medium diameter cables, such as jumper wire or drop wire

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

CARDBOARD REELS

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

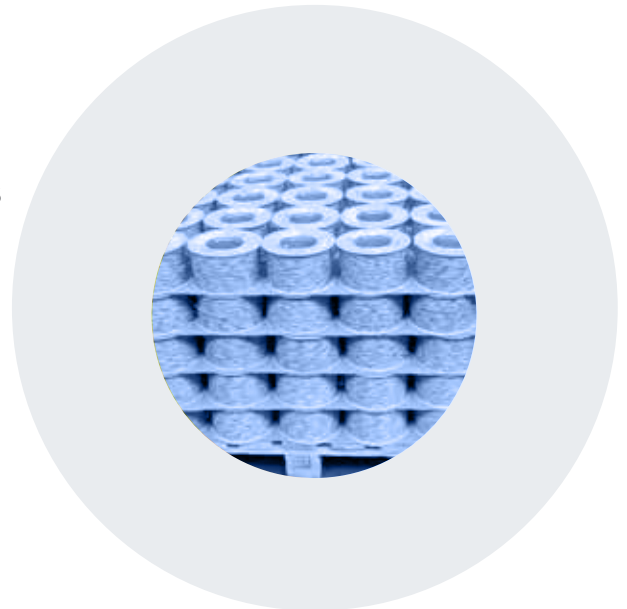
This type of cardboard reel or spool is made with 2 cardboard flanges and a metal cylinder barrel. Standard flange sizes range from 125mm to 400mm diameter, in calipers from 2000 to 4000 micron.



Code	Barrel diameter (a-mm)	Flange diameter (b-mm)	Winding width (c-mm)	Overall width (d-mm)	Weight (kg)	Useful drum volume (m ³)
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)

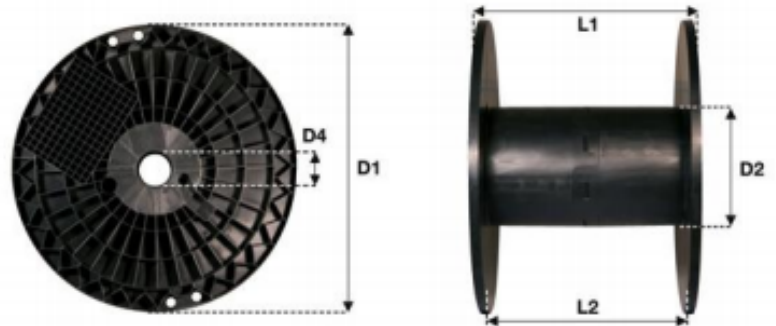
PLASTIC REELS

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.

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 (m ³)
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.



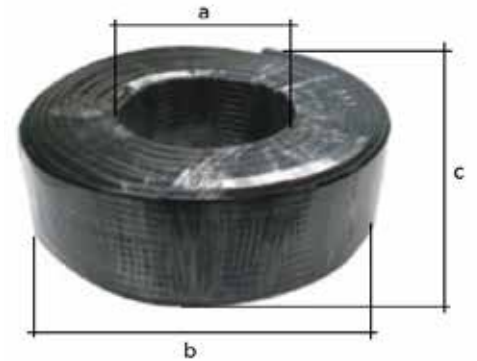
SHRINK-WRAPPED COILS

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

SHRINK-WRAPPED COILS

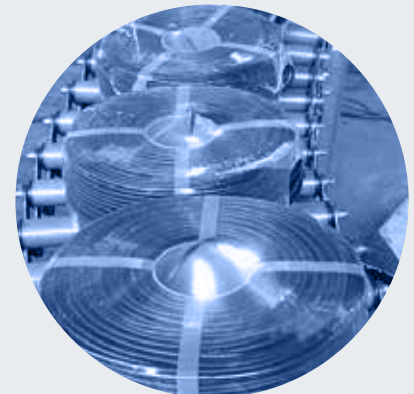
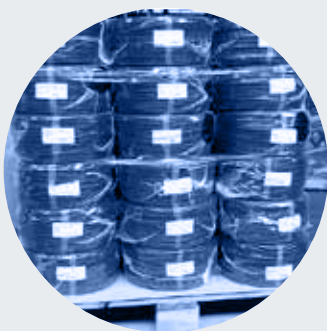
Shrink-plastic coil for telecommunication cables offers major advantages compared to the older cardboard box packaging.

- 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.

PROTECTIONS DRUM LAGGING

Lagging 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	n° 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

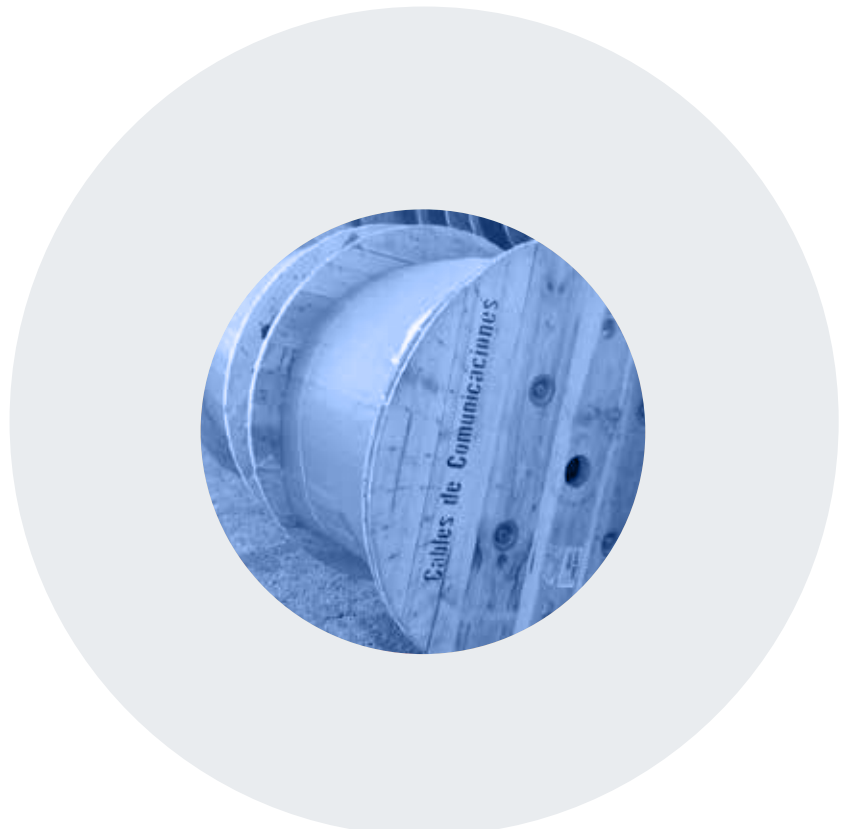
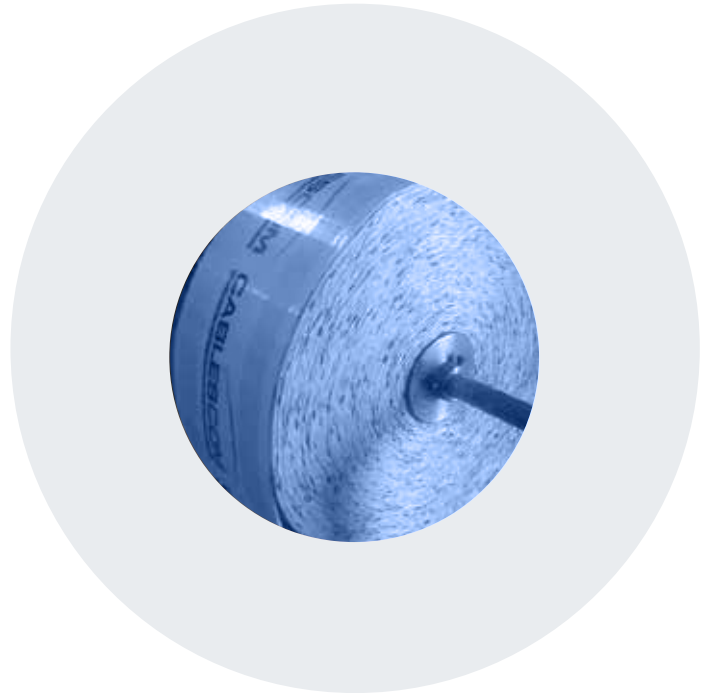
Internal Code	Lags dimensions	n° lags	Weight (kg)
B06F44W	41x10x2	19	35
B07F54W	55x10x2	24	40
B08F54W	55X10X2	24	50
BA0F74W	76x10x2	30	65
BA1FJ6W	76x10x2	37	100
BA2F86W	76x10x2	37	105
BA3F86W	76x10x2	40	115
BA4F96W	89x10x2	44	135
BA5F96W	76x10x2	47	138
BA6F16W	112x10x2	50	235
BA8FE8W	112x10x2	57	345
BB0FG8W	112x10x2	65	435



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