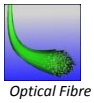
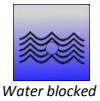
Optical telecommunications – Outside plant
OT - 8133492

# DUCT FIBER OPTIC CABLE RODENT RETARDANT


*Optical Fibre*


*Water blocked*


*UV resistant*

Fulll Dieléctric

*ROHS complian*

## STANDARDS

Fibres: ITU-T G652D
Cable construction: IEC 60794-3
Mechanical testing methods: IEC 60794-1-2
Optical testing methods: IEC 60793-1

## DESCRIPTION AND APPLICATION

Loose tube singlemode optical fibre cables, totally dielectric and a black polyethylene sheath with rodent retardant additive.
The recommended installation of the PE cable is in underground ducts by pulling or blowing techniques with a maximum installation load of 1500 N.

## CONSTRUCTION

- Dielectric fiberglass (FRP) central reinforced element. (Ø 2.4 mm)
- PBT loose tubes filled with thixotropic compound and containing singlemode optical fibers according to ITU-T G.652D.
- Colour coding of tubes and fibres according to tables 1 and 2.
- Core formation: Loose tubes stranded in SZ with jelly filled core.
- Black UV resistant polyethylene outer jacket (2,0 mm. thickness) with rodent retardant additive.
- Optional, LSZH outer jacket (2,0 mm. thickness) with rodent retardant additive.
- ***Sheath marking*** : The cable sheath will be marked with white ink at regular intervals with the following information :
  - *Manufacturer / year / Number of fibers / Sheath type (FVP) / Length markers*
  - *Other sheath marks available upon request*

## OPTICAL FIBRE CHARACTERISTICS

*The parameters of the optical fibres are compliant with the ITU-T G.652D recommendation.*
***Optical characteristics:***
*Attenuation coefficient:*
Average at 1310 nm ≤ 0,36 dB/km
Individual maximum at 1310 nm ≤ 0,37 dB/km
Average at 1550 nm ≤ 0,22 dB/km
Individual maximum at 1550 nm ≤ 0,24dB/km
*PMD ≤ 0,20 ps/km$^{1/2}$*
*PMD link ≤ 0,10 ps/km$^{1/2}$*
*Cut-off wavelength($\lambda_{cc}$) ≤ 1260nm*
*Zero Dispersion wavelength ($\lambda_0$) 1302-1322 nm*
*Dispersion slope($S_0$)@ $\lambda_0$* ≤ 0.090ps/( *km)

# DUCT FIBER OPTIC CABLE RODENT RETARDANT

***Geometrical characteristics:***
*Mode field diameter:*
- *At 1310 nm: 9.2±0.4µm*
- *At 1550 nm: 10.4±0.5 µm*

*Cladding diameter 125.0±0.7µm*
*Cladding non- circularity ≤ 1.0%*
*Core/Cladding concentricity error ≤ 0.5 µm*
*Coating diameter 245±5µm*
*Coating/Cladding concentricity error ≤ 12 µm*

## TABLE 1: LOOSE TUBES COLOUR CODE

| | | of fibres in the cable cable | | | |
|---|---|---|---|---|---|
| | **Tube number** | **8** | **12** | **24** | **48** |
| **1st Layer** | **1** | Red | Red | Red | Red |
| | **2** | Blue | Blue | Blue | Blue |
| | **3** | Black | Black | Black | White |
| | **4** | Black | Black | Black | White |
| | **5** | Black | Black | Black | Black |
| | **6** | Black | Black | Black | Black |
| | **Tube diameter** | 2,3 | 2,3 | 2,3 | 2,3 |
| | **Fibres in each tube** | 4 | 12 | 12 | 12 |

**Note: the black tubes are fillers (without optical fibres)*

## TABLE 2: OPTICAL FIBRES COLOUR CODE

| Fibre number | Colour |
|---|---|
| **1** | Green |
| **2** | Red |
| **3** | Blue |
| **4** | Yellow |
| **5** | Grey |
| **6** | Violet |
| **7** | Brown |
| **8** | Orange |
| **9** | White |
| **10** | Black |
| **11** | Pink |
| **12** | Turquoise |



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# DUCT FIBER OPTIC CABLE RODENT RETARDANT

## MECHANICAL CHARACTERISTICS

| | | |
|---|---|---|
| Tensile strength ($\Delta\varepsilon_f \leq 0{,}33\%$) | IEC 60794-1-2 Met E1A | 1500 N |
| Tensile strength ($\Delta\alpha \leq 0{,}05$ dB) | IEC 60794-1-2 Met E1A | 750 N |
| Crush resistance ($\Delta\alpha<0.05$ dB) | IEC 60794-1-2 Met E3 | 3000 N/10cm |
| Impact resistance ($\Delta\alpha<0.05$ dB) | IEC 60794-1-2 Met E4 | 15 J/striking radius 300mm |
| Curvature ($\Delta\alpha<0.05$ dB) | IEC 60794-1-2 Met E11 | r = 10 x cable diameter |
| Water penetration | IEC 60794-1-2 Met F5B | $L_{Pwater} \leq 1$ m (14 days) |
| Operating temperature cycling ($\Delta\alpha<0.05$ dB) | IEC 60794-1-2 Met F1 | -40ºC / 70ºC |
| Storing temperature | | -40ºC / 70ºC |
| Installation temperature | | -15ºC / 60ºC |

## SIZE AND WEIGHT

**PE option**

| Number of fibres | Nominal diameter (mm) | Nominal weight (kg/km) |
|---|---|---|
| 8 | **11,0** | 100 |
| 12 | **11,0** | 100 |
| 24 | **11,0** | 100 |
| 48 | **11,0** | 100 |

**LSZH option**

| Number of fibres | Nominal diameter (mm) | Nominal weight (kg/km) |
|---|---|---|
| 8 | **11,0** | 135 |
| 12 | **11,0** | 135 |
| 24 | **11,0** | 135 |
| 48 | **11,0** | 135 |



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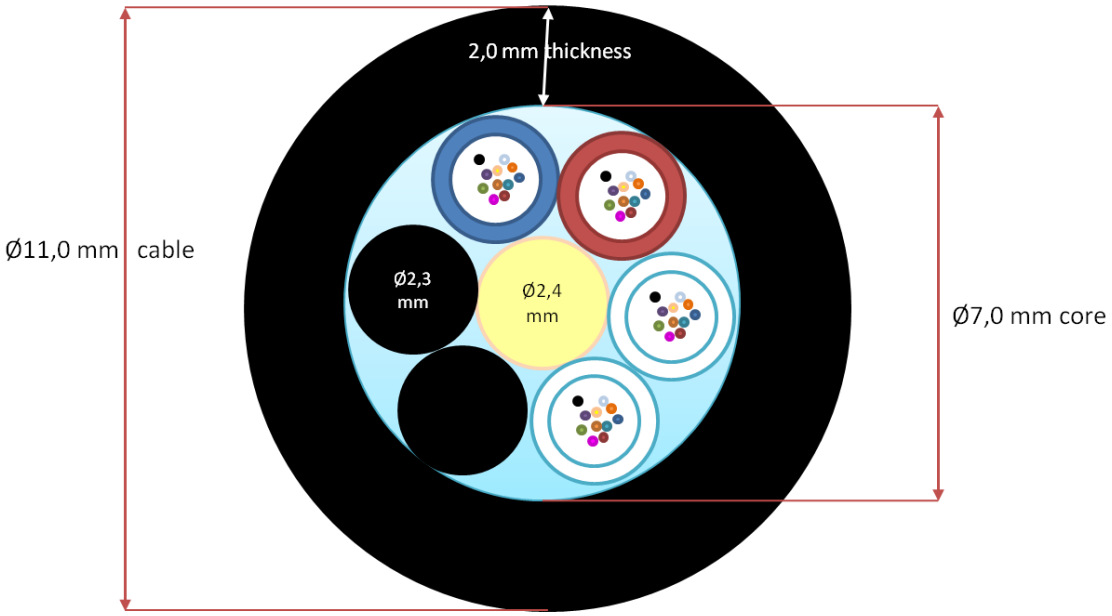
## CABLE CONSTRUCION




**Estructure:**

Ø2,4 mm FRP rod
Ø2,3 mm PBT tubes and fillers
Jelly filled for waterblocking tightness
2,0 mm thickness sheath with rodent retardant additive



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