

# OUTDOOR $\mu$ CABLE – PE SHEATH

MICRO FIBRE-OPTIC CABLES TOL\_D T/E – ING-INF-ST-007-18 V4



## DESCRIPTION AND APPLICATION

Micro optic-fibre cables to be rapidly installed by blowing in micro-ducts Di/De 10/12 mm or 10/14 mm, and Di/De 14/18mm for the 396 optic-fibre cable. High blowing distance due to the excellent friction properties of the outer sheath  $\approx$  1500 m depending on way route. It contains 6, 8 or 11 loose tubes of 12, 24 or 36 fibres each. These cables are used for medium or long distance telecommunications networks and can be designed with single mode type ITU-T G 657A1.

Generally according to INFRATEL specification INF-ING-ST-007-18 V 4.0 of 25/01/2019.

## CONSTRUCTION

1. Central element: Fibre-glass reinforced plastic rod.
2. Loose Tubes: PBT loose tubes filled with thixotropic compound. Optional fillers depending on the cable structure. Colour coding according to tables 1 and 2.
3. Core formation: Tubes are stranded in SZ.
4. Core wrapping: Water-blocking tape and/or yarns to avoid water propagation.
5. Outer sheath: Grey (RAL 7001) HDPE, UV resistant outer jacket.
6. Sheath marking:  
“cavo ottico” TO “X” “NF” “NP” (“N” “tipo fibra”) T/Y “INFRATEL I “NUM-SPEC” “IQQ” Nome del costruttore “AAAA” “nnnnnnn” “CODFO”  
\*meaning of each field according to point 9 in the technical specification

## LOOSE TUBE AND OPTICAL FIBRE COLOUR CODE

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

\*Fibers from 13 to 24 will be marked with one black ring each 50 mm.

\*Fibers from 25 to 36 will be marked with two black rings each 50 mm.

\* In case of the black fiber, this could be natural fiber with one or two black rings.

| Tube  | Colour |
|-------|--------|
| 1     | Red    |
| 2     | Green  |
| Other | White  |

\*Filler rods, if they are necessary, in black colour



## PRODUCT INFORMATION

| CABLE FIBRES   | 12   | 24  | 48  | 72  | 96   | 144 | 192             | 288 | 396  |
|--|--|-----|-----|-----|------|-----|-----------------|-----|------|
| FIBRE  | G.657.A1 250 μm  |     |     |     |      |     | G.657.A1 200 μm |     |      |
| Nominal OD (mm)(±0.3mm)  | 6.2  | 6.2 | 6.2 | 6.2 | 7.5  | 7.5 | 7.7             | 8.2 | 10.7 |
| Nominal weight (kg/km)   | 35   | 35  | 37  | 37  | 51   | 57  | 63              | 68  | 106  |
| Tubes Num.   | 1  | 2   | 4   | 6   | 4    | 6   | 8               | 8   | 11   |
| Passive Elements Num.  | 5  | 4   | 2   | 0   | 2    | 0   | 0               | 0   | 0    |
| Fibres Number per Tube   | 12   | 12  | 12  | 12  | 24   | 24  | 24              | 36  | 36   |
| <b>MAX. TENSILE STRENGTH (N)</b><br>UNE-EN 60794-1-2, Met. E1<br><i>Δ<sub>ef</sub> ≤ 0,5%, Δα ≤ 0,1 dB/km after test</i> | 600  |     |     |     | 1000 |     |                 |     |      |
| <b>IMPACT RESISTANCE</b><br>UNE-EN 60794-1-2, Met. E4  | 3 J, 300 mm ; Δα reversible (Δα ≤ 0,1 dB/km after test)                          |     |     |     |      |     |                 |     |      |
| <b>CRUSH RESISTANCE (N/cm)</b><br>UNE-EN 60794-1-2, Met. E3  | 100 ; Δα reversible (Δα ≤ 0,1 dB/km after test)                                  |     |     |     |      |     |                 |     |      |
| <b>REPEATED BENDING</b><br>UNE-EN 60794-1-2, Met. E6   | 25 Cycles: 20 x Ø cable; Δα reversible (Δα ≤ 0,1 dB/km after test)               |     |     |     |      |     |                 |     |      |
| <b>TORSION</b><br>UNE-EN 60794-1-2, Met. E7  | 2m cable ; 100N ; 5 cycles ; ±180°;<br>Δα reversible (Δα ≤ 0,1 dB/km after test) |     |     |     |      |     |                 |     |      |
| <b>BENDING</b><br>UNE-EN 60794-1-2, Met. 11  | R=20XØ cable; 5 turns; 3 cycles;<br>Δα reversible (Δα ≤ 0,1 dB/km after test)    |     |     |     |      |     |                 |     |      |
| <b>TEMPERATURE CYCLING</b><br>UNE-EN 60794-1-2, Met. F1  | -30°C / 60°C; Δα < 0.1 dB/km   |     |     |     |      |     |                 |     |      |
| <b>WATER PENETRATION</b><br>UNE-EN 60794-1-2, Met. F5B   | LP <sub>water</sub> ≤ 3 m (8 hours); No leakage                                  |     |     |     |      |     |                 |     |      |

Optical fibre characteristics: See Annexes – Optical fibre characteristics.

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.

### Cables de Comunicaciones Zaragoza, SL.

Polígono de Malpica, calle D, nº 83. 50016 Zaragoza – SPAIN

+34 976 729 900 | +34 976 729 974

www.cablescom.com | comercial@cablescom.com

Certified Company ISO 9001 – ISO 14001

TITLE  
HP\_EE2M81B\_i

EDITION  
3

APPROVED BY  
O. Salomón

DATE  
2019-07-01