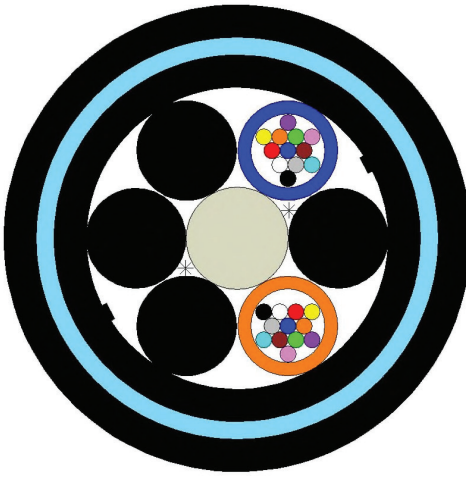
DATASHEET

External Mini Loose Tube Optical Cable with Sacrificial Sheath ›



This loose tube dielectric optical cable is designed for external underground installations in (micro) ducts by pulling, blowing or floating techniques. Polyamide provides anti-termite protection.

Made up of a multi-loose tube construction - single layer 2 to 144 fibers, the tube is made of a thermoplastic material, containing up to 12 optical fibers filled with a low viscosity, thixotropic, non-melting gel fully compatible with fiber coating and tube material, a glass GRP strength member with or without over-sheathing, the required numbers of elements (tubes and fillers) are SZ stranded around the central strength member and there are water swellable elements (dry-core) providing longitudinal water tightness. The sheath is made up of polyethylene in compliance with AS 1049. The sheath has two ripcords provided beneath for easy removal. The hard jacket is a UV stabilized polyamide (Nylon) in compliance with AS 1049 integrally bonded to PE sheath. Outside the hard jacket is a UV stabilized polyethylene sacrificial sheath, in compliance with AS 1049.

SPECIFICATIONS

Reference information

Commercial Standards:

- IEC 60794-5
- ACMA - AS/CA S008
- AS 1049
- IEC 60793-2-10: type A1a.3
- ISO / IEC 11801 Category OM4
- ITU G.651.1
- IEC/EN 60793-2-50 Category B-652.D
- ITU-T Recommendation G.652.D
- EN 50 173-1: Category OS2 and OS1a
- ISO / IEC 11801: Category OS2 and OS1a

Technical

2 to 72 fibers

Number of elements: 6
Tube diameter: 1.55mm
Cable nominal diameter: 7.3mm
Cable nominal weight: 43kg/km
Max. installation tension: 1.0kN
Max. crush resistance: 2.0kN/100mm
Min. bending radius
- At full load: 150mm x Cable OD
- At no load: 75mm x Cable OD

96 fibers

Number of elements: 8
Tube diameter: 1.55mm
Cable nominal diameter: 8.4mm
Cable nominal weight: 61kg/km
Max. installation tension: 2.0kN
Max. crush resistance: 2.0kN/100mm
Min. bending radius
- At full load: 220mm x Cable OD
- At no load: 110mm x Cable OD

144 fibers

Number of elements: 12
Tube diameter: 1.35mm
Cable nominal diameter: 9.4mm
Cable nominal weight: 75kg/km
Max. installation tension: 2.0kN
Max. crush resistance: 2.0kN/100mm
Min. bending radius
- At full load: 220mm x Cable OD
- At no load: 110mm x Cable OD

2 to 144 fibers

Temperature range

- Installation: -0°C to +50°C
- Transport & Storage: -20°C to +70°C
- Operation: -10°C to +70 °C

Physical

Fiber and Buffer Tube Colors:

1 - Blue, 2 - Orange, 3 - Green, 4 - Brown,
5 - Gray, 6 - White, 7 - Red, 8 - Black,
9 - Yellow, 10 - Violet, 11 - Pink, 12 - Aqua

www.molexces.com

DATASHEET

molex

External Mini Loose Tube Optical Cable with Sacrificial Sheath ›

SPECIFICATIONS

OM4
Attenuation & Optical

Attenuation
@ 850 nm: ≤ 2.5 dB/km
@ 1300 nm: ≤ 0.7 dB/km
Point discontinuity
@ 850 nm: ≤ 0.1 dB/km
@ 1300 nm: ≤ 0.1 dB/km
Numerical aperture: 0.200 ± 0.015

Bandwidth

Overfilled launch modal bandwidth (OFL)
@ 850 nm: ≥ 3500 MHz.km
@ 1300 nm: ≥ 500 MHz.km
Effective modal bandwidth (EMB)
@ 850 nm: ≥ 4700 MHz.km

Group index of refraction

Typical group index of refraction
@ 850 nm: 1.482
@ 1300 nm: 1.477

Geometrical properties

Core diameter: 50 ± 2.5 µm
Core non-circularity: ≤ 5 %
Cladding diameter: 125.0 ± 1.0 µm
Cladding non-circularity: ≤ 1.0 %
Core-cladding concentricity error: ≤ 1.5 µm
Primary coating diameter: 245 ± 10 µm
Primary coating non-circularity: ≤ 5%
Primary coating–cladding concentricity error: ≤10 µm

Bending loss

2 turns on a R= 7.5 mm mandrel
@ 850 nm: ≤ 0.2 dB
@ 1300 nm: ≤ 0.5 dB
2 turns on a R= 15 mm mandrel
@ 850 nm: ≤ 0.1 dB
@ 1300 nm: ≤ 0.3 dB

Mechanical

Proof stress level: ≥ 0.7 (≈ 1 %) GPa
Average strip force (F_{ave}): 1.0 ≤ Fave ≤ 3.0 N
Peak strip force (F_{peak}): 1.3 ≤ Fpeak ≤ 8.9 N

OS2
Optical

Mode field diameter
@ 1310 nm: 9.0 ± 0.4 µm
@ 1550 nm: 10.1 ± 0.5 µm
Chromatic dispersion coefficient
In the interval 1285 nm – 1330 nm: ≤ |3.5| ps/km • nm
@ 1550 nm: ≤ 18 ps/km • nm
@ 1625 nm: ≤ 22 ps/km • nm
Zero dispersion wavelength, λ0: 1302-1322 nm
Zero dispersion slope: ≤ 0.092 ps/(nm2 • km)
Cut-off wavelength: ≤ 1260 * λcc nm
Polarisation mode dispersion (PMD) coefficient: ≤ 0.1 ps/√km
PMD_Q Link Design Value (computed with Q=0.01%, N=20): ≤ 0.06 ps/√km
** guaranteed value according to ITU-T (ATM G650) method*

Attenuation

Maximum attenuation cabled fiber
@ 1310 nm: ≤ 0.35 dB/km
@ 1383 nm**: ≤ 0.35 dB/km
@ 1550 nm: ≤ 0.21 dB/km
@ 1625 nm: ≤ 0.24 dB/km
Local discontinuity at 1310 and 1550 nm: ± 0.1 dB
** * Including H2-ageing according to IEC 60793-2-50, type B.1.3, @1383 nm*

Attenuation variation vs Bending

100 Turns on a R = 25 mm mandrel
@ 1310 & 1550 nm: ≤ 0.05 dB
100 Turns on a R = 30 mm mandrel
@ 1625 nm: ≤ 0.05 dB

Group index of refraction

@ 1310 nm: 1.467
@ 1550 nm: 1.468
@ 1625 nm: 1.468

Rayleigh Backscatter coefficient (1ns pulse width)

@ 1310 nm: -79.4 dB
@ 1550 nm: -81.7 dB
@ 1625 nm: -82.5 dB

Geometrical properties

Cladding diameter: 125.0 ± 0.7 µm
Cladding non-circularity: ≤ 0.7%
Core-cladding concentricity error: ≤ 0.5 µm
Coating nominal diameter - ColorLock^{XS}: 245 µm
Coating non-circularity: ≤ 5%
Coating-cladding concentricity error: ≤ 12 µm

Mechanical

Proof stress level: GPa ≥ 0.7 (≈ 1 %)
Strip force (average): 1 ≤ $F_{average\ strip}$ ≤ 3 N
Strip force (peak): 1.2 ≤ $F_{peak.strip}$ ≤ 8.9 N
Dynamic Fatigue Resistance aged and unaged: n_d ≥ 20

www.molexces.com

External Mini Loose Tube Optical Cable with Sacrificial Sheath ›

ORDERING INFORMATION

Order No.	SAP No.	Description
AFOLS006OS1-BK-D	Consult Molex	External Mini Loose Tube with Sacrificial Sheath, 6 Core OS1 Singlemode Optical Fiber Cable - Black
AFOLS012OS1-BK-D	Consult Molex	External Mini Loose Tube with Sacrificial Sheath, 12 Core OS1 Singlemode Optical Fiber Cable - Black
AFOLS024OS1-BK-D	Consult Molex	External Mini Loose Tube with Sacrificial Sheath, 24 Core OS1 Singlemode Optical Fiber Cable - Black
AFOLS048OS1-BK-D	Consult Molex	External Mini Loose Tube with Sacrificial Sheath, 48 Core OS1 Singlemode Optical Fiber Cable - Black
AFOLS072OS1-BK-D	Consult Molex	External Mini Loose Tube with Sacrificial Sheath, 72 Core OS1 Singlemode Optical Fiber Cable - Black
AFOLS096OS1-BK-D	Consult Molex	External Mini Loose Tube with Sacrificial Sheath, 96 Core OS1 Singlemode Optical Fiber Cable - Black
AFOLS012OM4-BK-D	Consult Molex	External Mini Loose Tube with Sacrificial Sheath, 12 Core OM4 Multimode Optical Fiber Cable - Black
AFOLS024OM4-BK-D	Consult Molex	External Mini Loose Tube with Sacrificial Sheath, 24 Core OM4 Multimode Optical Fiber Cable - Black
AFOLS048OM4-BK-D	Consult Molex	External Mini Loose Tube with Sacrificial Sheath, 48 Core OM4 Multimode Optical Fiber Cable - Black

