

FO Breakout cable 9/125μ G.652.D LSOH 2,0mm



tde - Standard FO Cables

The standard fiber optic cable types of tde specifically for the assembling of patch and adapter cables, pigtails and trunk cables has been developed. Also the use in FTTD applications inside buildings is possible. The breakout cables have up to 24 individual elements with a 2mm diameter. The overall cable diameter is very slim.

These cables are characterized by very good termination properties. The cable jacket and the secondary coating are easy removable.

Features

- Robust, flexible fiber optic Duplex cable with a combined sheath based on 2 single fiber cables 2.8 mm with semi tight buffer 0.9mm.
- Easy handling and simple to strip off.
- Low Fire load due to the halogen free LSOH sheath.

Application

- Patch cable between terminal distributors and/or end devices
- Direct connector installation
- Can be spliced in cable terminal distributors.



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Optical characteristics

The cables are available with different types of fiber

Technical Data

Mechanical characteristics

Temperature range	Operation: -20 to +60°C IEC 60794-2-10
	-10 to +60°C for assembled patch cords
Tensile performance	IEC 60794-1-21 E1 A
Crush resistance	IEC 60794-1-21 E3
Impact	IEC 60794-1-21 E4
Repeated bending	IEC 60794-1-21 E6
Torsion	IEC 60794-1-21 E7
Bend	IEC 60794-1-21 E11 A

General characteristics

Sheath colour	E9/125 G.652.D yellow, RAL 1021
Zero halogen, no corrosive gases	IEC 60754-1/-2, EN 60754-1/-2, VDE 0482-754-1/-2
Flame propagation	IEC 60332-1-2, EN 60332-1-2, VDE 0482-332-1-2, SEV TP 20B/3C 3.4.1.1
Smoke density	IEC 61034-1/-2, EN 61034-1/-2, VDE 0482-1034-1/-2
Reaction to fire (Euroclasses)	EN 13501-6: D _{ca} -s2,d1,a1

Optical characteristics

Fibertype	SM-G.652.D, 9/125µ			
Numerical Aperture	0.14	0.14		
Core Ø	8.2 µm	8.2 µm		
Cladding Ø	125 ± 0.7 µm	125 ± 0.7 µm		
Max. Core/Cladding Concentricity Error	0.5 µm	0.5 µm		
Max. Coating Non-Circularity Coating	1.0 %	1.0 %		
Coating Ø	245 ± 5.0 µm	245 ± 5.0 µm		
Max. Cladding/Coating Concentricity Error	12 µm	12 µm		
Max. Coating Non-Circularity	6 %	6 %		
Min. Fiber Bending Radius	4.0 m	4.0 m		
Nom. Operating Temperature Range	-60 to +85 °C	-60 to +85 °C		
Proof test	100 kpsi	100 kpsi		
Wavelength	1310 nm	1383 nm	1550 nm	1625 nm
Typ. Attenuation (cabled)	0.34 dB/km	0.34 dB/km	0.22 dB/km	0.24 dB/km
Max. Attenuation (cabled)	0.36 dB/km	0.36 dB/km	0.24 dB/km	0.25 dB/km
Max. Chromatic Dispersion	3.5 ps/nm x km		18 ps/nm x km	

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Nom. Zero Dispersion Wavelength	1313 nm			
Mode Field (Petermann II)	9.2 ± 0.4 μm		10.4 ± 1.0 μm	
Max. Cable Cut off Wavelength λ _{ccf}	1260 nm		1260 nm	
Dispersion Coefficient	0.2 ps/√km	0.2 ps/√km	0.2 ps/√km	0.2 ps/√km
Max. Attenuation nonlinearity	0.05 db	0.05 db	0.05 db	
Refractive Index	1.467		1.467	

Description	Duplex I-V(ZN)HH
CableØ	4.8 x 3.2 mm
Weight	21 kg/km
Bending radius	50 mm
Tensile load	200 N
Crush resistance short term	3000 N/cm
Fire load	100 kWh/km
Fire load	360 MJ/km

FO Fiber

Type	Corning SMF-28e+® 09/125μ OS2 G.652.D singlemode fiber
Maximum Attenuation	At 1310 nm max. 0.33 - 0.35 dB/km At 1383 ± 3 nm max. 0.31 - 0.35 dB/km At 1490 nm max. 0.21 - 0.24 dB/km At 1550 nm max. 0.19 - 0.20 dB/km At 1625 nm max. 0.20 - 0.23 dB/km
Attenuation vs. Wavelength	Range: 1285 - 1330 nm; Ref. λ: 1310 nm; Max. Difference: 0.03 dB/km Range: 1525 - 1575 nm; Ref. λ: 1550 nm; Max. Difference: 0.02 dB/km
Macrobend Loss	Mandrel Diameter:32mm; Number of Turns: 1; Wavelength: 1550nm; Induced Attenuation: ≤0.03 dB Mandrel Diameter:50mm; Number of Turns: 100; Wavelength: 1310nm; Induced Attenuation: ≤0.03 dB Mandrel Diameter:50mm; Number of Turns: 100; Wavelength: 1550nm; Induced Attenuation: ≤0.03 dB Mandrel Diameter:60mm; Number of Turns: 100; Wavelength: 1625nm; Induced Attenuation: ≤0.03 dB
Point Discontinuity	Wavelength: 1310 nm; Point Discontinuity: ≤ 0.05 dB Wavelength: 1550 nm; Point Discontinuity: ≤ 0.05 dB
Cable Cutoff Wavelength (λ _{ccf})	λ _{ccf} ≤ 1260 nm
Mode-Field Diameter	At 1310 nm = 9.2 ± 0.4 μm At 1550 nm = 10.4 ± 0.5 μm
Dispersion	At 1550 nm = ≤ 18.0 [ps/(nm*km)] At 1625 nm = ≤ 22.0 [ps/(nm*km)]
	Zero Dispersion Wavelength (λ ₀): 1310 nm ≤ λ ₀ ≤ 1324 nm Zero Dispersion Slope (S ₀): ≤ 0.092 ps/(nm² * km)
Polarization Mode Dispersion (PMD)	PMD Link Design Value = ≤ 0.06 ps/√km Maximum Individual Fiber = ≤ 0.1 ps/√km
Norm	ITU-T Recommendation G.652 (Tables A, B, C, and D) IEC Specifications 60793-2-50 Type B1.3 TIA/EIA 492-CAAB Telcordia Generic Requirements GR-20-CORE ISO 11801 OS2

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Dimensional Specifications

Fiber Curl	≥ 4.0 m radius of curvature
Cladding Diameter	125.0 ± 0.7 μm
Core-Clad Concentricity	≤ 0.5 μm
Cladding Non-Circularity	≤ 0.7%
Coating Diameter	242 ± 5 μm
Coating-Cladding Concentricity	< 12 μm

Environmental Specifications

Environmental Test	Test Condition	Induced Attenuation 1310 nm, 1550 nm & 1625 nm
Temperature Dependence	-60°C to +85°C	≤ 0.05
Temperature Humidity Cycling	-10°C to +85°C up to 98% RH	≤ 0.05
Water Immersion	23°C ± 2°C	≤ 0.05
Heat Aging	85°C ± 2°C	≤ 0.05
Operating Temperature Range	-60°C to +85°C	

Mechanical Specifications

Proof Test	The entire fiber length is subjected to a tensile stress ≥ 100 kpsi (0.7 GPa).
Length	Fiber lengths available up to 63.0 km/spool.

Performance Characterizations

Core Diameter	8.2 μm
Numerical Aperture	0.14
Zero Dispersion Wavelength (λ ₀)	1317 nm
Zero Dispersion Slope (S ₀)	0.088 ps/(nm ² *km)
Effective Group Index of Refraction	1310 nm: 1.4676 1550 nm: 1.4682
Fatigue Resistance Parameter (nd)	20
Coating Strip Force	Dry: 0.6 lbs (3N) Wet: 14 days room temperature: 0.6 lbs (3N)
Rayleigh Backscatter Coefficient (for 1 ns Pulse Width)	1310 nm: -77 dB 1550 nm: -82 dB

Product variants & accessories

Art.-No.	Description
L-IVHH02E09	FO Breakout cable 9/125μ G.652.D LSOH 2,0mm
L-IVHH02G50	FO Breakout cable 50/125μ OM2 LSOH 2,0mm
L-IVHH02G50-OM3	FO Breakout cable 50/125μ OM3 LSOH 2,0mm
L-IVHH02G50-OM4	FO Breakout cable 50/125μ OM4 LSOH 2,0mm
L-IVHH02G62	FO Breakout cable 62,5/125μ OM1 LSOH 2,0mm