FO Patch cord LC/LC tde 9/125µ OS2 Duplex FlatTwin LSOH Length: xxxxx

tde - Fiber Optic Assemblies

The tde patch and trunk cables are manufactured completely at the German facility in Ohrte. Production processes at tde meet the latest standards, and the company has one of the most up-to-date fiber optic assembly houses in Europe. Fiber optic patch cables and trunk cables are manufactured in many different configurations using highly automated processes on two independent mass production lines. The range of products on offer encompasses the entire spectrum of connector types available on the market. Production capacity is around 100,000 fiber optic connectors per month, and this can be ramped up easily whenever required. To guarantee consistently top quality, only the best components from renowned vendors are used. All tde production staff have the necessary qualifications and education, and have been well trained in using specialist technical equipment such as laser cleavers and glue-dispensing robots.
Each cable application is subjected to a full test procedure comprising interferometer measurements, insertion loss and return loss measurements and a final visual inspection to ensure that only 100% error-free products are shipped to the customer.

Products made by tde perform at least internationally accepted quality standards and norms. The quality management system is ISO 9001, ISO 14001 and TL9000 certified.

tde® trans data elektronik GmbH

Headquarter address:
Lingener Str. 2
D-49626 Bippen/Ohrte
Tel.: +49 5435 9511 0
Fax.: +49 5435 9511 32

Sales office address:
Prinz-Friedrich-Karl-Str. 46
D-44135 Dortmund
Tel.: +49 231 8805 61 13
Fax.: +49 231 8805 61 15

info@tde.de | www.tde.de

FO Patch cord LC/LC tde 9/125µ OS2 Duplex FlatTwin LSOH Length: xxxxx

Technical Data

FO Connectors

Connector Type	LC PC Duplex
Housing	Plastic, Blue
Ferrule	Zirkonia Staight Split, Spring-loaded Axially
Ferrule Hole	126 µ
Ferrule Concentricity	≤ 0.6 µ
Mating Cycles	500
Operating Temperature	-40°C up to +75°C
Strain Relief to	100 N
Manufacturer	tde
Simplex / Duplex Clip	with Duplex Clip

Optical performance

Fiber	Type	Wavelength	Insertion loss typ.	Insertion loss max.	Return loss min.
9/125µ	LC	1550 nm	≤ 0.20 dB	0.45 dB	45 dB

FO Cables

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		

FO Patch cord LC/LC tde 9/125µ OS2 Duplex FlatTwin LSOH Length: xxxxx

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	
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 λccf	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 mm; Ref. λ: 1310 nm; Max. Difference: 0.03 dB/km Range: 1525 - 1575 mm; Ref. λ: 1550 nm; Max. Difference: 0.02 dB/km

FO Patch cord LC/LC tde 9/125µ OS2 Duplex FlatTwin LSOH Length: xxxxx

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 (λccf)	λccf ≤ 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

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

FO Patch cord LC/LC tde 9/125µ OS2 Duplex FlatTwin LSOH Length: xxxxx

Zero Dispersion Wavelength (λ_0)	1317 nm
Zero Dispersion Slope (S_0)	0.088 ps/(nm²*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-LC/LC09TMxxxxx	FO Patch cord LC/LC tde 9/125µ OS2 Duplex FlatTwin LSOH Length: xxxxx
L-LC/LC50TM3-xxxxx	FO Patch cord LC/LC tde 50/125µ OM3 Duplex FlatTwin LSOH Length: xxxxx
L-LC/LC50TM4-xxxxx	FO Patch cord LC/LC tde 50/125µ OM4 Duplex FlatTwin LSOH Length: xxxxx
L-LC/LC50TMxxxxx	FO-Patch cord LC/LC tde 50/125µ OM2 Duplex FlatTwin LSOH Length: xxxxx
L-LC/LC62TMxxxxx	FO-Patch cord LC/LC tde 62,5/125µ OM1 Duplex FlatTwin LSOH Length: xxxxx