

tDF<sup>®</sup> - FO splice to patch module 6x LC duplex MM 3U/7HP with pigtailed 50/125µ OM4 w. 5,0mm flex tube



## tDF<sup>®</sup> - tde Distribution Frame (ODF)

tDF<sup>®</sup> is a modular Central Office solution with the highest packing density. At 46U, up to 4032 fibers can be terminated with LC. In developing the tde has taken primary attention on the user-friendly installation. So the patented modules are fully fitted from the front. A 19-inch sub rack occupies three height units and is equipped with twelve splice modules. Per sub rack, up to 288 fibers can be terminated with LC. The splices will be stored in standard splice cassettes. A unique feature of the splice module is the built-in loose tube over length management, which compared to conventional solutions saves an additional rack unit for the over length tray. The trunk cables are brought to the sub rack side and splitted there. This results in very short stripping lengths for the trunk cables. Due to the tML<sup>®</sup> compatibility also MPO/MTP<sup>®</sup> modules can be equipped in the same sub rack. The modular design of the tDF rack system offers maximum flexibility. The racks can be ordered customized completely preconfigured.



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## Technical Data

Pre-mounted	6 LC duplex adapters 12 LC Fiber pigtails 50/125 $\mu$ OM4 12 Crimp Splice protectors 1 Splice cassettes 1 Splice holder 1 Splice cover 1,6m Flex tube
Alternative pre-mounted	TDF-M06-xxLCD50S4
xx	(01 - 06) quantity of adapters

Type	Front panel for 6 x LC Duplex
Color	Anodized E6 EV1
Inscription	1 - 12 Screen printing by label strips
Material	Alu- AIMG3 G22
Dimensions	3U/7HP

Type	Module slot for rack 3U/84HP
Dimensions	app. 230 x 129 x 32mm

## FO Adapters

Type	LC Duplex
Application	Multimode OM4
Design	One-Piece with Flange
Connector style	SC Simplex
Color	Magenta
Material	Plastic
Sleeve	Zirkonia Straight Split
Shutter	-
Manufacturer	tde

## FO Pigtails Standard

### FO Connectors

Connector Type	LC Unibody Simplex
Housing	Plastic, Magenta
Ferrule	Zirkonia Straight Split, Spring-loaded Axially
Ferrule Hole	126 $\mu$
Mating Cycles	1.000
Operating Temperature	-40°C up to +75°C

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Strain Relief to	100 N
Manufacturer	tde

## Optical performance

Fiber	Type	Wavelength	Insertion loss typ.	Insertion loss max.	Return loss min.
50/125 $\mu$ OM4	LC	850 nm	$\leq$ 0.25 dB	0.45 dB	30 dB

## FO Cables

Tight Buffer	Low smoke (IEC 61034 and EN 50268) and free of halogens (LSOH)
	Non corrosive after IEC 60754-2 and EN 50267
	Flame resistant after IEC 60332-3C and EN 50266-2-4
	Completely dry design
	Free from metal, no grounding problems and potential differences
	Tight Buffer for simple and direct connector mounting

## Characteristics

Fiber Count	1 (Tight Buffer)
Core- $\varnothing$	0.9 mm
Coreweight	1 kg/km
Min. Bending radius - Installation	30 mm
Min. Bending radius - Operation	30 mm
Removal	1500 mm
Fire load	0.15 MJ/m
Temperature range - Installation	-5 to +50°C
Temperature range - Operation	-20 to +60°C
Temperature range - Transport / Lagerung	-25 to +70°C

## FO Fiber

Type	Corning ClearCurve <sup>®</sup> 50/125 $\mu$ OM4 multimode fiber
Optimized Data Rate over Distance	40/100 Gb over 170 m* 10 Gb/s over 550 m 1 Gb/s over 1100 m
Standard Compliance	ISO/IEC 11801: type OM4 fiber** IEC 60793-2-10: type A1a.3 fiber** TIA/EIA: 492AAAD ITU: ITU G651.1
*	Distances specified in the 40G/100G per IEEE 802.3ba standard are 150m on OM4 and 100m on OM3; Corning fibers are manufactured to tighter dispersion specifications and thereby support the extended distances shown in the table (assuming cable attenuation $\leq$ 3.0 dB/km and same 1.0 dB of connector loss for OM3 that the standard requires for OM4)

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\*\* Assumes IEC draft standard is harmonized with 492AAAD which was approved by TIA

## Optical Specifications

Bandwidth	High Performance EMB* (MHz.km): 4700 at 850 nm only Legacy Performance EMB** (MHz.km): 3500 at 850 nm / 500 at 1300 nm
Attenuation	At 850 nm max. ≤ 2.3 dB/km At 1300 nm max. ≤ 0.6 dB/km
Macrobend Loss	Mandrel Radius (mm): 37.2 / 15 / 7.5 Number of Turns: 100 / 2 / 2 Induced Attenuation (dB) at 850 nm: ≤ 0.05 / ≤ 0.1 / 0.2 Induced Attenuation (dB) at 1300 nm: ≤ 0.15 / ≤ 0.3 / ≤ 0.5
Numerical Aperture	0.200 ± 0.015
*	Ensured via miniEMBc, per TIA/EIA 455-220A and IEC 60793-1-49, for high performance laser-based systems (up to 10Gb/s)
**	OFL BW, per TIA/EIA 455-204 and IEC 60793-1-41, for legacy and LED-based systems (typically up to 100 Mb/s)

## Dimensional Specifications

Core Diameter	50.0 ± 2.5 µm
Cladding Diameter	125.0 ± 1.0 µm
Core-Clad Concentricity	≤ 1.5 µm
Cladding Non-Circularity	≤ 1.0%
Core Non-Circularity	≤ 5.0%
Coating Diameter	242 ± 5 µm
Coating-Cladding Concentricity	< 12 µm

## Environmental

Environmental Test	Test Condition	Induced Attenuation 850 nm & 1300 nm (dB/km)
Temperature Dependence	-60°C to +85°C	≤ 0.10
Temperature Humidity Cycling	-10°C to +85°C and 4% to 98% RH	≤ 0.10
Water Immersion	23°C ± 2°C	≤ 0.20
Heat Aging	85°C ± 2°C	≤ 0.20
Damp Heat	85°C at 85% RH	≤ 0.20
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 GN/m <sup>2</sup> ).
Length	Fiber lengths available up to 17.6 km/spool.

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## Performance Characterizations

Refractive Index Difference	1%
Effective Group Index of Refraction	850 nm: 1.480 1300 nm: 1.479
Fatigue Resistance Parameter (nd)	20
Coating Strip Force	Dry: 0.6 lbs (2.7N) Wet: 14 days in 23°C water soak: 0.6 lbs (2.7N)
Chromatic Dispersion	Zero Dispersion Wavelength ( $\lambda_0$ ): 1295 nm $\leq \lambda_0 \leq$ 1315 nm Zero Dispersion Slope ( $S_0$ ): $\leq 0.101$ ps/(nm <sup>2</sup> *km)

## Product variants & accessories

Art.-No.	Description
TDF-M06-06LCAD9AS-5	tDF <sup>®</sup> - FO splice to patch module 6x LC APC duplex SM 3U/7HP with pigtails 9/125 $\mu$ w. 5,0mm flex tube
TDF-M06-06LCD9S-5	tDF <sup>®</sup> - FO splice to patch module 6x LC PC duplex SM 3U/7HP with pigtails 9/125 $\mu$ w. 5,0mm flex tube
TDF-M06-06LCD-G3S-5	tDF <sup>®</sup> - FO splice to patch module 6x LC duplex MM 3U/7HP with pigtails 50/125 $\mu$ OM3 w. 5,0mm flex tube
TDF-M06-06LCD-G4S-5	tDF <sup>®</sup> - FO splice to patch module 6x LC duplex MM 3U/7HP with pigtails 50/125 $\mu$ OM4 w. 5,0mm flex tube