tDF® - FO Premium splice to patch module 12x E2000 PC SM 3U/7HP with pigtails 9/125µ w. 5,0mm flex tube



tDF® - tde Distribution Frame (ODF)

tDF® 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 primarily attention on the user-friendly installation. So the patented modules are fully be 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® compatibility also MPO/MTP® 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

Dimensions	3U/7HP
Pre-mounted	12 E2000 PC adapters 12 E2000 PC Fiber pigtails 9/125µ OS2 12 Crimp Splice protectors 1 Splice cassettes 1 Splice holder 1 Splice cover 1,6m Flex tube
Alternative pre-mounted	TDF-M12-xxE2-9PS
xx	(01 - 12) quantity of adapters

FO Adapters

Standardisation	acc. to IEC61754-15, DIN EN 186270
Connector class	coupling Adapter
Number of connectors (A)	1
Connector type (A)	E2000™
Protection class (IP) connector (A)	20
Polishing connector (A)	PC
Attenuation grade IL - connector (A)	C
Delta insertion loss	≤ 0.2 dB, testing method acc. to IEC 61300-3-4
Mating cycles	min. 1000
Pull-out force	min. 70 N
Connector color (A)	blue
Lever- frame-coding connector (A)	color
Frame color connector (A)	blue
Sleeve material	ceramic
Adapter fastening method	end cap
Fiber type	Singlemode (SM)
Dimensions	74.7 / 42 x 22 x 9.35 mm
Material	plastic: PBT, fiber-glass reinforced (halogen-free)
Manufacturer	R&M

FO Pigtails Premium

FO Connectors

Type	E2000 UPC
Ferrule	Ceramic
Ferrule Hole	125.5 µ
Ferrule Concentricity	≤ 0.6 µ
Connector colour	Blue
Lever Colour	Blue

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Boot colour	Blue
Manufacturer	RDM

Optical performance

Fiber	Type	Wavelength	Insertion loss typ.	Insertion loss max.	Return loss min.
9/125µ	E2000 UPC	1550 nm	≤ 0.10 dB	0.25 dB	55 dB

FO Cables

Tight Buffer	Low smoke (IEC 61034 and EN 50268) and free of halogens (LS0H)
	Non corrosive after IEC 60754-2 and EN 50267
	Flame resistent after IEC 60332-3C and EN 50266-2-4
	Completly 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-Ø	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 Ultra SMF-28® 09/125µ OS2 singlemode fiber
Maximum Attenuation	At 1310 nm max. 0.32 dB/km At 1383 nm max. 0.32 dB/km At 1490 nm max. 0.21 dB/km At 1550 nm max. 0.18 dB/km At 1625 nm max. 0.20 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

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Macrobend Loss	Mandrel Radius: 10mm; Number of Turns: 1; Wavelength: 1550nm; Induced Attenuation: ≤ 0.50 dB Mandrel Radius: 10mm; Number of Turns: 1; Wavelength: 1625nm; Induced Attenuation: ≤ 1.5 dB Mandrel Radius: 15mm; Number of Turns: 10; Wavelength: 1550nm; Induced Attenuation: ≤ 0.05 dB Mandrel Radius: 15mm; Number of Turns: 10; Wavelength: 1625nm; Induced Attenuation: ≤ 0.30 dB Mandrel Radius: 25mm; Number of Turns: 100; Wavelength: 1310nm, 1550nm, 1625nm; Induced Attenuation: ≤ 0.01 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): 1304 nm ≤λ_0≤ 1324 nm Zero Dispersion Slope (S_0): ≤ 0.092 ps/(nm² *km)
Polarization Mode Dispersion (PMD)	PMD Link Design Value = ≤ 0.04 ps/√km Maximum Individual Fiber = ≤ 0.1 ps/√km

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 (0.69 GPa).
Length	Fiber lengths available up to 63.0 km/spool.

Performance Characterizations

Core Diameter	8.2 µm
Numerical Aperture	0.14

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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
TDF-M12-12E2-9PS-5	tDF® - FO Premium splice to patch module 12x E2000 PC SM 3U/7HP with pigtails 9/125µ w. 5,0mm flex tube
TDF-M12-12E2A9APS-5	tDF® - FO Premium splice to patch module 12x E2000 APC SM 3U/7HP with pigtails 9/125µ w. 5,0mm flex tube

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