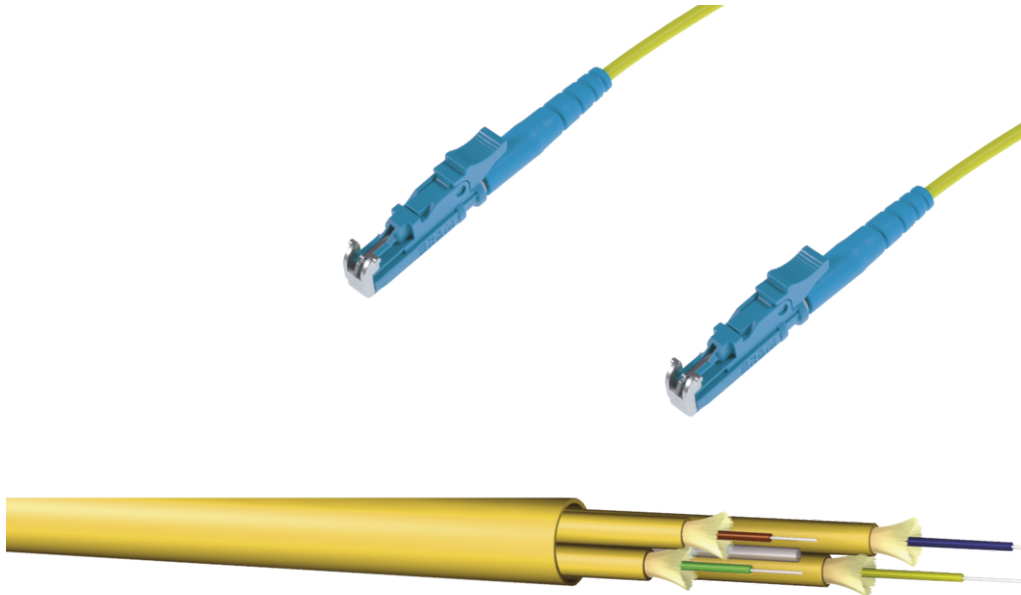


FO BreakoutI cable 4x E2000/4x E2000 4E9/125μ OS2 LSHF, Length: xxxx



## 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.



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FO Breakoutl cable 4x E2000/4x E2000 4E9/125µ OS2 LSHF, Length: xxxx

## Technical Data

### FO Connectors

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

### Cable Data

Type	IVHH04E9/125
Fiber Amount	4
Construction	4
Outer Diameter	7.0 mm
Tolerance	± 0.3 mm

Subcable Diameter	2.0 (± 0.1 mm)
Strength Members	Aramid yarns
Outer Jacket	LSOH (Halogen free, low smoke, flame retardant thermoplastic compound)
Jacket Colour	Yellow
Standard printing	"t d e – IVHH04E09 - 2.0mm Ultra LSZH" and sequential meter marking + Lot number

### Mechanical/Thermal Characteristics

Fiber Amount	4
Weight	48 kg/km
Tensile load	1000 N
Bending radius	15 x outer diameter
Operating temperature	-5°C bis +60°C IEC 60794-2-20
Fire resistance	EN 50266, IEC 60332
Halogen content	EN 50267, IEC 60754-1/-2
Smoke density	EN 50268, IEC 61034-1/-2

## FO Breakoutl cable 4x E2000/4x E2000 4E9/125μ OS2 LSHF, Length: xxxx

### Special features

Characteristics	Fiber and aramid yarn free movable in the compound
Identification	Numbers, every 2cm on subcables

### FO Fiber

Type	Corning Ultra SMF-28 <sup>®</sup> 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 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 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 (λ <sub>ccf</sub> )	λ <sub>ccf</sub> ≤ 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 <sub>0</sub> ): 1304 nm ≤ λ <sub>0</sub> ≤ 1324 nm Zero Dispersion Slope (S <sub>0</sub> ): ≤ 0.092 ps/(nm <sup>2</sup> *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

## FO Breakoutl cable 4x E2000/4x E2000 4E9/125μ OS2 LSHF, Length: xxxx

Operating Temperature Range -60°C to +85°C

### Mechanical Specifications

Proof Test	The entire fiber length is subjected to a tensile stress $\geq$ 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
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
P-E2/E2-09V04Exxxx	FO Breakoutl cable 4x E2000/4x E2000 4E9/125μ OS2 LSHF, Length: xxxx
P-E2/E2-09V08Exxxx	FO Breakoutl cable 8x E2000/8x E2000 8E9/125μ OS2 LSHF, Length: xxxx
P-E2/E2-09V12Exxxx	FO Breakoutl cable 12x E2000/12x E2000 12E9/125μ OS2 LSHF, Length: xxxx
P-E2/E2-09V24Exxxx	FO Breakoutl cable 24x E2000/24x E2000 24E9/125μ OS2 LSHF, Length: xxxx