

FO-Patch cord ST/ST tde 50/125µ OM3 Duplex 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.

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## Technical Data

### FO Connectors

|                       |                                                |
|-----------------------|------------------------------------------------|
| Connector Type        | ST                                             |
| Housing               | Metal                                          |
| Ferrule               | Zirconia Straight Split, Spring-loaded Axially |
| Ferrule Hole          | 127 μm                                         |
| Mating Cycles         | 1.000                                          |
| Operating Temperature | -40°C up to +75°C                              |
| Strain Relief to      | 150 N                                          |
| Manufacturer          | tde                                            |

### Optical performance

| Fiber       | Type | Wavelength | Insertion loss typ. | Insertion loss max. | Return loss min. |
|-------------|------|------------|---------------------|---------------------|------------------|
| 50/125μ OM3 | ST   | 850 nm     | ≤ 0.20 dB           | 0.35 dB             | 30 dB            |

### FO Cables

|                  |             |
|------------------|-------------|
| Flame resistance | IEC 60332-3 |
|                  | IEC 60754   |
|                  | IEC 61034-1 |
|                  | IEC 61034-2 |

### Cable construction

|                  |                                                                           |
|------------------|---------------------------------------------------------------------------|
| Type             | IVH02G50 OM3                                                              |
| Tight buffer     | 2x 900μ coated fibers (free movable in the compound)                      |
| Fiber type       | MM-OM3, 50/125μ, Corning ClearCurve                                       |
| Strength members | Aramid yarn (free movable in the compound)                                |
| Outer jacket     | LSZH (Halogen free, low smoke, flame retardant thermoplastic compound)    |
| Jacket color     | Aqua, RAL 6027                                                            |
| Identification   | "t d e – IVH02G50-OM3-2.4 LSZH" and sequential meter marking + Lot number |

### Physical properties

|                      |                 |
|----------------------|-----------------|
| Outer diameter cable | 2x 2.4 ± 0.1 mm |
| Temperature range    | -20°C to +70°C  |

### FO Fiber

|      |                                                 |
|------|-------------------------------------------------|
| Type | Corning ClearCurve® 50/125μ OM3 multimode fiber |
|------|-------------------------------------------------|

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|                                   |                                                                                                                                                                                                                                                                                                                                                         |
|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Optimized Data Rate over Distance | 40/100 Gb/s über 140 m*<br>10 Gb/s over 300 m<br>1 Gb/s over 1000 m                                                                                                                                                                                                                                                                                     |
| Standard Compliance               | ISO/IEC 11801: type OM3 fiber<br>IEC 60793-2-10: type A1a.2 fiber<br>TIA/EIA: 492AAAC-B<br>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 ≤3.0 dB/km and same 1.0 dB of connector loss for OM3 that the standard requires for OM4). |

### Optical Specifications

|                    |                                                                                                                                                                                                   |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Bandwidth          | High Performance EMB* (MHz.km): 2000 at 850 nm only<br>Legacy Performance EMB* (MHz.km): 1500 at 850 nm / 500 at 1300 nm                                                                          |
| Attenuation        | At 850 nm max. ≤ 2.3 dB/km<br>At 1300 nm max. ≤ 0.6 dB/km                                                                                                                                         |
| Macrobend Loss     | Mandrel Radius (mm): 37.5 / 15 / 7.5<br>Number of Turns: 100 / 2 / 2<br>Induced Attenuation (dB) at 850 nm: ≤ 0.05 / ≤ 0.1 / ≤ 0.2<br>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 10 Gb/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                  |                                              |

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## Mechanical Specifications

|            |                                                                                                    |
|------------|----------------------------------------------------------------------------------------------------|
| Proof Test | The entire fiber length is subjected to a tensile stress $\geq 100$ kpsi (0.7 GN/m <sup>2</sup> ). |
| Length     | Fiber lengths available up to 17.6 km/spool.                                                       |

## Performance Characterizations

|                                     |                                                                                                                                                        |
|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| Refractive Index Difference         | 1%                                                                                                                                                     |
| Effective Group Index of Refraction | 850 nm: 1.480<br>1300 nm: 1.479                                                                                                                        |
| Fatigue Resistance Parameter (nd)   | 20                                                                                                                                                     |
| Coating Strip Force                 | Dry: 0.6 lbs (2.7N)<br>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<br>Zero Dispersion Slope (S0): $\leq 0.101$ ps/(nm <sup>2</sup> *km) |

## Product variants & accessories

| Art.-No.          | Description                                                   |
|-------------------|---------------------------------------------------------------|
| P-ST/ST50D3-xxxxx | FO-Patch cord ST/ST tde 50/125μ OM3 Duplex LSOH Length: xxxxx |
| P-ST/ST50D4-xxxxx | FO-Patch cord ST/ST tde 50/125μ OM4 Duplex LSOH Length: xxxxx |