FO Mini Fanout MPO24 Male/2x MPO12 Female 24G50/125µ OM4 100GbE, Type A, Length: xxx



## 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 Mini Fanout MPO24 Male/2x MPO12 Female 24G50/125µ OM4 100GbE, Type A, Length: xxx

## Technical Data

The end faces of the connectors are optimized by means of Lasercleaving and machine polish. The MPO/MTP®plug has a defined fiber height of 1 - 3.5µ. The max. adjacent fiber height difference is 0.2µm and for all fibers 0.3µm.

| | |
|---|---|
| Cable | Round cable 3.6 mm, loose tube, LSOH, magenta |
| Connectors | MPO/MTP®Male/Female Push Pull (magenta) |
| Pin out | Method A |
| Tests | Interferometer, Insertion Loss, Return Loss and Visual Final Inspection; all measured values are electronically archived |
| | QS-Managementsystem ISO 9001, ISO 14001 and TL 9000 |

xxx - stands for the cable length in m (every length available)

### FO Connectors

The end faces of the connectors are optimized by means of Lasercleaving and machine polish. The MPO/MTP® plug has a defined fiber height of 1 - 3.5µ. The max. adjacent fiber height difference is 0.2µm and for all fibers 0.3µm.

#### Connector

| | |
|---|---|
| Type | MPO/MTP® Male Push Pull Locking with Elite Pins (magenta) |
| Ferrule | 24 Fiber MM Elite® ferrule, PPS |
| Boot colour | Red |
| Temperature range | -40°C to +75°C |
| Manufacturer | tde/US Conec |

#### Optical Performance

| Fiber | Type | Wavelength | Insertion loss typ. | Insertion loss max. | Return loss min. |
|---|---|---|---|---|---|
| 50/125µ OM4 | MPO/MTP® | 850 nm | ≤ 0.12 dB | 0.25 dB | 35 dB |

### FO Connectors

The end faces of the connectors are optimized by means of Lasercleaving and machine polish. The MPO/MTP® plug has a defined fiber height of 1 - 3.5µ. The max. adjacent fiber height difference is 0.2µm and for all fibers 0.3µm.

#### Connector

| | |
|---|---|
| Type | MPO/MTP® Female Push Pull Locking (Magenta) |
| Ferrule | 12 Fiber MM Elite® ferrule, PPS |
| Boot colour | Black |
| Manufacturer | tde/US Conec |


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# FO Mini Fanout MPO24 Male/2x MPO12 Female 24G50/125µ OM4 100GbE, Type A, Length: xxx

### Optical Performance

| Fiber | Type | Wavelength | Insertion loss typ. | Insertion loss max. | Return loss min. |
|---|---|---|---|---|---|
| 50/125µ OM4 | MPO/MTP® | 850 /1300 nm | ≤ 0.12 dB | 0.25 dB | 35 dB |

## FO Fan-Out

| | |
|---|---|
| Length Fan-Out | 40 mm |
| Max. Ø Fan-Out | 10 mm |
| Parallel connectors | 2 |

## FO Cables

| | |
|---|---|
| Standards | EN 50173-5 |
| | IEC 60794-2-20 |
| | ISO/IEC 24764 |

### Construction

| | |
|---|---|
| Type | IVH24G50-OM4 |
| Fiber | 24 primary coated fibres nominally 242 µm, arranged in 2 groups of 12 fibres,<br>Group 1: Red id tread<br>Group 2: Green id tread |
| Fiber colors | According to TIA/EIA 598-C also in agreement with IEC 60304:<br>1-12: Blue, orange, green, brown, grey, white, red, black, yellow, violet, pink and aqua |
| | 13-24: Blue, orange, green, brown, grey, white, red, transparent, yellow, violet, pink and aqua (with add. ring mark) |
| Strength member | Ultra high modulus Aramid yarns |
| Sheath | Halogen free, flame resistant thermoplastic sheathing compound acc. to EN 50290-2-27, UV stabilised |
| Sheath colors | Magenta, RAL 4003 |

### Fire rating

| | |
|---|---|
| IEC 60332-1-2 | Pass |
| IEC 60332-2-2 | Pass |
| IEC 60754-1 | No halogens |
| IEC 60754-2 | No acid matters |
| IEC 61034-2 | No dense smoke |

### Heat of combustion

| | |
|---|---|
| 200 MJ/km | 0.5 KWh/m |


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# FO Mini Fanout MPO24 Male/2x MPO12 Female 24G50/125µ OM4 100GbE, Type A, Length: xxx

### Physical properties IEC60974-1-2

| | |
|---|---|
| Outer diameter cable | ø3.6 mm +0.1 mm -0.3 mm |
| Diameter PVC-core tube | 2.0 ± 0.1 mm |
| Wall thickness PVC-core tube | 0.35 mm – 0.40 mm |
| Weight | 11 kg/km |
| Tensile strength (dynamic) | 220 N |
| Tensile strength (permanent) | 110 N |
| Compressive strength (crush) | 400 N |
| Impact | 4 Nm, R= 12.5 mm |
| Kink | No Kink |
| Min. Bending radius | R = 20 mm |
| Temperature range | Operation and installation: -0°C to 50°C.<br>Storage: -20°C to 50°C |

## FO Fiber

| | |
|---|---|
| Type | Corning ClearCurve® 50/125µ OM4 multimode fiber |
| Optimized Data Rate over Distance | 40/100 Gb over 170 m*<br>10 Gb/s over 550 m<br>1 Gb/s over 1100 m |
| Standard Compliance | ISO/IEC 11801: type OM4 fiber**<br>IEC 60793-2-10: type A1a.3 fiber**<br>TIA/EIA: 492AAAD<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) |
| ** | 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<br>Legacy Performance EMB** (MHz.km): 3500 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): 37.2 / 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 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 |


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FO Mini Fanout MPO24 Male/2x MPO12 Female 24G50/125µ OM4 100GbE, Type A, Length: xxx

| | |
|---|---|
| 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

| Enviromental 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/m²). |
| 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) |
| Cromatic Dispersion | Zero Dispersion Wavelength ($\lambda_0$): 1295 nm ≤$\lambda_0$≤ 1315 nm<br>Zero Dispersion Slope ($S_0$): ≤ 0.101 ps/(nm²*km) |

## Product variants & accessories

| Art.-No. | Description |
|---|---|
| P-M2/MP50I24G4Axxx | FO Mini Fanout MPO24 Female/2x MPO12 Female 24G50/125µ OM4 100GbE, Type A, Length: xxx |
| P-M2/MP50I24G4Bxxx | FO Mini Fanout MPO24 Female/2x MPO12 Female 24G50/125µ OM4 100GbE, Type B, Length: xxx |
| P-M2/MPP50I24G4Axxx | FO Mini Fanout MPO24 Female/2x MPO12 Male 24G50/125µ OM4 100GbE, Type A, Length: xxx |
| P-M2/MPP50I24G4Bxxx | FO Mini Fanout MPO24 Female/2x MPO12 Male 24G50/125µ OM4 100GbE, Type B, Length: xxx |
| P-M2P/MP50I24G4Axxx | FO Mini Fanout MPO24 Male/2x MPO12 Female 24G50/125µ OM4 100GbE, Type A, Length: xxx |
| P-M2P/MP50I24G4Bxxx | FO Mini Fanout MPO24 Male/2x MPO12 Female 24G50/125µ OM4 100GbE, Type B, Length: xxx |
| P-M2P/MPP50I24G4Axxx | FO Mini Fanout MPO24 Male/2x MPO12 Male 24G50/125µ OM4 100GbE, Type A, Length: xxx |
| P-M2P/MPP50I24G4Bxxx | FO Mini Fanout MPO24 Male/2x MPO12 Male 24G50/125µ OM4 100GbE, Type B, Length: xxx |


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