

## Fibre Optic Reeling and Festoon Cable

OPTOFLEX (FO)



## APPLICATION

Flexible fibre optic cable for signal and data transmission on cranes and material handling equipment; suitable for cable handling systems, such as reels, festoon systems, cable tenders, etc. High data rates at a large bandwidth have absolute immunity to electromagnetic interference.

## DESIGN

The fibres are enclosed in a buffering tube filled with an EFTE natural coloured compound type: 7Y11. For identification the fibres and buffering tube are colour coded for identification of the fibre type. The six buffering tubes are specially laid-up in one layer around a GFK supporting element (GFK = Glass fibre reinforced plastic). The core arrangement is covered by a special braid consisting of polyester threads covering approx. 80% of the surface. The black outer sheath consists of a 5GM5 PCP compound with a wall thickness of 2.6 mm.

## FIBRE-OPTICS -

The fibre elements are available in the following constructions -  
 50/125 Micron – Graded index fibre  
 62.5/125 Micron – Graded index fibre  
 E9/125 Micron – Mono mode fibre

The inner core diameter of the fibres: 50µm, 62.5µm or 9µm,  
 Diameter over cladding: 125µm. Diameter over coating: 250µm.

## CHEMICAL PARAMETERS

Resistance to oil - Given to DIN VDE 0473, Part 811-2-1 Para.10  
 Weather resistance - Unrestricted use indoors and outdoors,  
 resistant to ozone, UV and moisture.

## ATTENUATION DATA

|                             |                 |                |                     |
|-----------------------------|-----------------|----------------|---------------------|
| Fibre Transmission data     | 50/125          | 62,5/125       | E9/125<br>Mono mode |
| Attenuation at 850 nm       | 2.8 dB/km       | 3.3 dB/km      | -                   |
| Attenuation at 1310 nm      | 0.8dB/km        | 0.9 dB/km      | 0.4 dB/km           |
| Attenuation at 1550 nm      | -               | -              | 0.3 dB km           |
| Bandwidth at 850 nm         | >=400 MHz       | >=400 MHz      | -                   |
| Bandwidth at 1300 nm        | >1200 MHz       | >600 MHz       | -                   |
| Numerical aperture          | 0.200 +/- 0.200 | 0.275 +/- 0.02 | 0.14 +/- 0,02       |
| Dispersion value at 1300 nm | -               | -              | <3.5 ps/nm km       |
| Dispersion value 1550 nm    | -               | -              | <3.5 ps/nm km       |

## THERMAL PARAMETERS

- Fully flexible operation Ambient temperature -20°C to +80°C
- Fixed installation -40°C to +80°C

## MECHANICAL PARAMETERS

|   |            |
|---|------------|
| Tensile load  | Max. 500 N |
| Torsional stresses  | Max. 50°/m |
| Minimum bending radius  | 125 mm     |
| fixed installation and festoon system.                              |            |
| On reels and cable tenders.   | 250 mm     |
| Minimum distance with S-type directional changes (D=cable diameter) | 20 x D     |

**TRAVEL SPEED**

|                            |  |
|----------------------------|--|
| Gantry (reeling operation) | Up to 120 m/min (no random wound reel, cylindrical reel) |
| Trolley (festoon systems)  | Up to 240 m/min (festoon, cable tender)                  |
| Hoist                      | No application.  |

**APPROVALS/ STANDARDS**

Based on FDDI, ISO/IEC 9314 Part 3, DIN VDE 0888, MSHA-SC 189-1  
Additional tests - Bending and reversed bending test.

**Selection and ordering data**

| Number of Fibres & Fibre Type | Part No. | Minimum overall diameter | Maximum overall diameter | Approx. Net weight for 1000m | Maximum permissible tensile force |
|-------------------------------|----------|--------------------------|--------------------------|------------------------------|-----------------------------------|
|                               |          | mm                       | mm                       | kg                           | N                                 |
| <b>Multi Mode</b>             |          |                          |                          |                              |                                   |
| 6G50/125 micron               | 5DG8 004 | 14.9                     | 16.9                     | 280                          | 500                               |
| 6G62.5/125 micron             | 5DG8 002 | 14.9                     | 16.9                     | 280                          | 500                               |
| 12G50/125 micron              | -        | 14.9                     | 16.9                     | 280                          | 500                               |
| 12G62.5/125 micron            | -        | 14.9                     | 16.9                     | 280                          | 500                               |
| 18G50/125 micron              | 5DG8 014 | 14.9                     | 16.9                     | 280                          | 500                               |
| 18G62.5/125 micron            | 5DG8 012 | 14.9                     | 16.9                     | 280                          | 500                               |
| <b>Mono Mode</b>              |          |                          |                          |                              |                                   |
| 6E9/125 micron                | 5DG8 023 | 14.9                     | 16.9                     | 280                          | 500                               |
| 12E9/125 micron               | -        | 14.9                     | 16.9                     | 280                          | 500                               |
| 18E9/125 micron               | 5DG8 010 | 14.9                     | 16.9                     | 280                          | 500                               |