

## BendBright™ OM4 Multimode Fibre



Issue date: October 2020  
Supersedes: March 2013

### Applicable Standards

- IEC / EN 60793-2-10: type A1-OM4
- ISO / IEC 11801: Category OM4
- TIA / EIA 492 AAAF (formerly 492 AAAD)

### Optical Specifications

#### Bandwidth (OFL)

Attribute	Units	Specified Values
Overfilled Modal Bandwidth at 850 nm	MHz•km	≥ 3500
Overfilled Modal Bandwidth at 1300 nm	MHz•km	≥ 500

#### Bandwidth (EMB)

Attribute	Units	Specified Values
Effective Modal Bandwidth at 850 nm	MHz•km	≥ 4700

#### Attenuation

Attribute	Units	Specified Values
Attenuation coefficient at 850 nm	dB/km	≤ 2.4
Attenuation coefficient at 1300 nm	dB/km	≤ 0.6

#### Numerical Aperture

Numerical aperture	0.200 ± 0.015	
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#### Macrobending Loss

Conditions	Wavelength	Units	Specified Values
Mandrel Radius = 7.5 mm, 2 Turns	850 / 1300 nm	dB	≤ 0.2 / ≤ 0.5
Mandrel Radius = 15 mm, 2 Turns	850 / 1300 nm	dB	≤ 0.1 / ≤ 0.3
Mandrel Radius = 37.5 mm, 100 Turns	850 / 1300 nm	dB	≤ 0.5 / ≤ 0.5

## Multimode System Reach

IEEE Standard or MSA	Units	Transmission Distance
10GBASE-SR <sup>1</sup>	m	550
40GBASE-SR4 <sup>1</sup>	m	190
25GBASE-SR	m	100
100GBASE-SR4	m	100
400GBASE-SR4.2	m	100
40G-BiDi	m	150
100G-BiDi	m	100
40G SWDM4	m	350
100G SWDM4	m	100

<sup>1</sup> Indicated link distances require total connector loss  $\leq 1.0$  dB, and VCSEL spectral bandwidth of  $\leq 0.45$  nm

## Chromatic Dispersion

Attribute	Conditions	Units	Specified Values
Zero Dispersion Wavelength, $\lambda_0$		nm	$1295 \leq \lambda_0 \leq 1340$
Zero Dispersion Slope, $S_0$	$1295 \leq \lambda_0 \leq 1310$	ps/[nm <sup>2</sup> •km]	$\leq 0.105$
	$1310 \leq \lambda_0 \leq 1340$	ps/[nm <sup>2</sup> •km]	$\leq 0.000375 (1590 - \lambda_0)$

## Backscatter characteristics<sup>2</sup>

Attribute	Conditions	Units	Specified Values
Point Discontinuity <sup>3</sup>	850 nm, 1300 nm	dB	$\leq 0.1$
Irregularities over fibre length	850 nm, 1300 nm	dB	$\leq 0.1$
Reflections	-	-	Not allowed
Group Index of Refraction at 850 nm	-	-	1.482 (typical)
Group Index of Refraction at 1300 nm	-	-	1.477 (typical)

<sup>2</sup> OTDR measurement with 0.5  $\mu$ s pulse width.

<sup>3</sup> Mean of bi-directional measurement

## Geometrical Specifications

### Glass Geometry

Attribute	Units	Specified Values
Core Diameter	$\mu$ m	$50 \pm 2.5$
Core non-Circularity	%	$\leq 5$
Core-Cladding Concentricity Error	$\mu$ m	$\leq 1.5$
Cladding Diameter	$\mu$ m	$125.0 \pm 1.0$
Cladding non-Circularity	%	$\leq 1$

### Coating Geometry

Attribute	Units	Specified Values
Coating Diameter	$\mu$ m	$242 \pm 7$
Coating non-Circularity	%	$\leq 5$
Coating-Cladding Concentricity Error	$\mu$ m	$\leq 10$

## Mechanical Specifications

### Proof Test <sup>4</sup>

The entire spool length is subjected to a tensile proof stress  $\geq 0.7$  GPa (100 kpsi) ; 1% strain equivalent

<sup>4</sup> Higher proof test available upon request

### Coating Performance

Attribute	Units	Specified Values
Average Coating Strip Force, unaged and aged <sup>5</sup>	N	$1 \leq F_{\text{avg-strip}} \leq 3$
Peak Coating Strip Force, unaged and aged <sup>5</sup>	N	$1.3 \leq F_{\text{peak-strip}} \leq 8.9$

<sup>5</sup> Aging at 23°C, 30 days

### Fibre Strength

Attribute	Units	Specified Values
Dynamic Tensile Strength (0.5 meter gauge length), unaged and aged <sup>6</sup>	GPa	median > 3.8 (550 kpsi)
Dynamic Fatigue, unaged and aged <sup>6</sup>	-	$n_d \geq 20$

<sup>6</sup> Aging at 85°C, 85% RH, 30 days

### Environmental Specifications

Environmental test	Test Conditions	Induced attenuation at 850, 1300 nm (dB/km)
Temperature Cycling	-60°C to +85°C	$\leq 0.1$
Temperature - Humidity Cycling	-10°C to +85°C, 4-98% RH	$\leq 0.1$
Water Immersion	30 days; 23°C	$\leq 0.1$
Dry Heat	30 days ; 85°C	$\leq 0.1$
Damp Heat	30 days; 85°C; 85% RH	$\leq 0.1$

### Others

Length	Up to 17.6 km per spool
Coating	Acrylate Coating; Coloured (ink) and Clear

All measurements in accordance with ITU-T G650 recommendations