



## Single Mode Optical Fibre (SMF)

Product Type: G.652.B

Coating Type: ColorLock™ and Natural

Draka Comteq Single Mode Fibre (SMF) provides optimum performance in both the 1310 nm and 1550 nm wavelength operating ranges (including the 1565-1625 nm L-band), with a low dispersion in the 1310 nm window. It can be used in all cable constructions, including loose tube, tight buffered, ribbon, and central tube designs. It supports long haul, metropolitan, access and premises applications in telecommunications, CATV, utility and intelligent traffic networks.

Draka Comteq fibres are further enhanced with the proprietary Colorlock™ coating process. This process enables optimum fibre performance, reliability and durability, even in the harshest environments. Draka Comteq's Advanced Plasma and Vapor Deposition (APVD™) manufacturing process ensures the highest quality and purity of fibres.

The fibre complies with or exceeds the ITU-T Recommendation G.652.B, the IEC Int. Standard 60793-2-50 type B.1.1 Optical Fibre Specification and Telcordia GR-20-CORE, ANSI/ICEA S-87-640 and RUS 7CFR 1755.900.

Features	Benefits
<ul style="list-style-type: none"> <li>• Low attenuation and dispersion; highly efficient for O-band(1260-1360 nm), C- and L-band (1530-1625 nm)</li> </ul>	<ul style="list-style-type: none"> <li>• Support all applications</li> </ul>
<ul style="list-style-type: none"> <li>• Fully compatible with other fibres in terms of transmission, connections and installation tools</li> </ul>	<ul style="list-style-type: none"> <li>• Open standards for multi-sourcing worldwide</li> </ul>
<ul style="list-style-type: none"> <li>• Easy to strip, using both mechanical and heat-stripping techniques</li> </ul>	<ul style="list-style-type: none"> <li>• Easier, faster and more secure connections</li> </ul>
<ul style="list-style-type: none"> <li>• Proprietary APVD™ manufacturing process</li> </ul>	<ul style="list-style-type: none"> <li>• Superior geometry, uniformity and purity</li> </ul>
<ul style="list-style-type: none"> <li>• Revolutionary ColorLock™ coating process</li> </ul>	<ul style="list-style-type: none"> <li>• Increased reliability, durability, and superior aging performance, resulting in lower maintenance and replacement costs</li> <li>• Makes color a component of the coating, thus enhancing fibre identification and colored fibre reliability</li> <li>• Consistent, vibrant color for easy-of-use and flexibility</li> </ul>

Draka Comteq | Optical Fibre

**Netherlands:**

Tel: +31 (0)40 29 58 700

Fax: +31 (0)40 29 58 710

**France:**

Tel: +33 (0)3 21 79 49 00

Fax: +33 (0)3 21 79 49 33

**USA:**

Tel: +1 800 869 3355

Fax: +1 828 459 8444

Email: [fibresales@draka.com](mailto:fibresales@draka.com)

Website: [www.drakafibre.com](http://www.drakafibre.com) | [www.draka.com](http://www.draka.com)



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### Optical Specifications (Uncabled fibre)

Attenuation	Max. Value (dB/km)
Attenuation at 1310 nm	0.33 – 0.35
Attenuation at 1383 nm	1
Attenuation at 1550 nm	0.19 – 0.22
Attenuation at 1625 nm	0.21 – 0.24

*Other values available on request*

### Attenuation vs. Wavelength

Maximum attenuation change over the window from reference

Wavelength range (nm)	Reference $\lambda$ (nm)	Difference (dB/km)
1285 - 1330	1310	$\leq 0.03$
1525 - 1575	1550	$\leq 0.02$
1550 - 1625	1550	$\leq 0.04$

### Point discontinuities

No point discontinuity greater than 0.05 dB at 1310 nm or 1550 nm.

### Attenuation with Bending

Number of Turns	Mandrel Diameter (mm)	Wavelength (nm)	Induced Attenuation (dB)
100	50	1310	$\leq 0.05$
100	50	1550	$\leq 0.05$
100	60	1625	$\leq 0.05$

### Cutoff Wavelength

Cable Cutoff wavelength ( $\lambda_{ccf}$ )  $\leq 1260$  nm

### Mode Field Diameter

Wavelength (nm)	MFD ( $\mu$ m)
1310	$9.2 \pm 0.4$
1550	$10.3 \pm 0.5$

### Chromatic Dispersion

Wavelength (nm)	Chromatic Dispersion (ps/[nm.km])
1285 – 1330	$\leq  3 $
1550	$\leq 18.0$
1625	$\leq 22.0$
Zero Dispersion Wavelength ( $\lambda_0$ ):	1300-1322 nm
Slope ( $S_0$ ) at $\lambda_0$ :	$\leq 0.090$ ps/[nm <sup>2</sup> .km]

### Polarization Mode Dispersion (PMD)

	(ps $\sqrt$ /km)
PMD Link Design Value*	$\leq 0.1$
Max. Individual Fibre	$\leq 0.20$

\* According to IEC 60794 -3, Ed 3 (Q=0.01%)

### Geometrical Specifications

#### Glass Geometry

Cladding Diameter	$125.0 \pm 1.0$ $\mu$ m
Core/Cladding Concentricity	$\leq 0.6$ $\mu$ m
Cladding Non-Circularity	$\leq 1.0$ %
Fibre Curl (radius)	$\geq 4$ m

#### Coating Geometry

Coating Diameter	$242 \pm 7$ $\mu$ m
Coating / Cladding Concentricity	$\leq 12$ $\mu$ m
Coating Non-Circularity	$\leq 5$ %

#### Lengths

Standards lengths up to 50.4 km

### Mechanical Specifications

#### Proof test

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

#### Tensile Strength

Dynamic tensile strength (0.5 meter gauge length):

Aged\*\* and unaged median  $> 3.8$  GPa (550 kpsi)

\*\* Aging at 85°C, 85% RH, 30 days

#### Dynamic and Static Fatigue

Dynamic fatigue, unaged and aged\*\*

 $n_d > 20$ 

Static fatigue, aged\*\*

 $n_s > 23$ 

#### Coating Performance

Coating strip force unaged and aged\*\*\*:

- Average strip force: 1 N to 3 N

- Peak strip force: 1.3 N to 8.9 N (0.2 lbf to 2.0 lbf)

\*\*\* Aging:

- 0°C and 45°C
- 30 days at 85°C and 85% RH
- 14 days water immersion at 23°C
- Wasp spray exposure (Telcordia)

### Environmental Specifications

Environmental Test	Test Conditions	Induced Attenuation at 1310, 1550 nm (dB/km)
Temperature cycling	-60°C to 85°C	$\leq 0.05$
Temperature-Humidity cycling	-10°C to 85°C, 4-98% RH	$\leq 0.05$
Water Immersion	14 days; 23°C	$\leq 0.05$
Dry Heat	30 days; 85°C	$\leq 0.05$
Damp Heat	30 days; 85°C; 85% RH	$\leq 0.05$

### Typical Characterisation Values

Nominal Zero Dispersion Slope	0.085 ps/(nm <sup>2</sup> .km)
Effective group index @ 1310 nm	1.467
Effective group index @ 1550 nm	1.468
Effective group index @ 1625 nm	1.468
Rayleigh Backscatter Coefficient for 1 ns pulse width:	
@ 1310 nm	-79.4 dB
@ 1550 nm	-81.7 dB
@ 1625 nm	-82.5 dB
Median Dynamic Tensile Strength	750 kpsi / 5.3 GPa
(Aged at 85°C, 85% RH, 30 days; 0.5 m gauge length)	