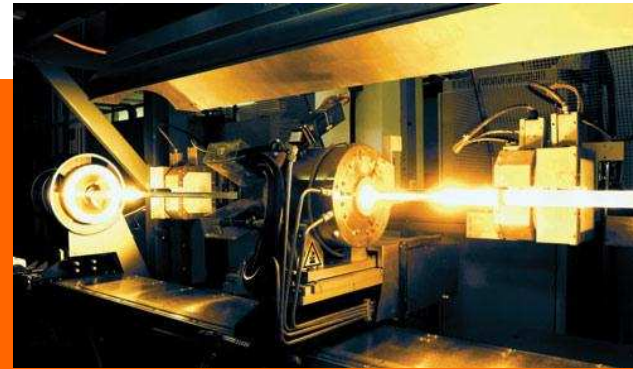




**Advanced OPTICAL Solutions**



**G.652D Single Mode Fiber**

## Fiber Element - (G.652.D) Single Mode

### Introduction

GlobalSIX (G6) G.652D dispersion un-shifted single-mode fibre is designed specially for optical transmission systems operating over the entire wavelength window from 1260 nm to 1625 nm. By suppressing the water peak that occurs near 1385 nm in conventional single-mode fibre due to hydroxyl (OH) ions absorption, G.652D fibre is able to open E-band (1360-1460 nm) for operation, and consequently provides 100 nm more usable wavelengths. G.652D fibre is comprehensively optimized for attenuation and dispersion performance across the entire wavelength window from 1260 nm up to 1625 nm and upgraded for macro-bending performance in L-band (1565-1625 nm). The fibre is fully satisfying the demand for transmitting multi-channel high-speed services over one single fibre.

The G6, G.652D fibre complies with or exceeds the ITU-T Recommendation G.652.D and the IEC 60793-2-50 type B1.3 Optical Fibre Specification.

### Application

With its broader, usable, optical spectrum and outstanding optical performance, G.652D fibre is the optimum choice that supports various applications such as Ethernet, Internet Protocol (IP), Asynchronous Transfer Mode (ATM), Synchronous Optical Network (SONET) and Wavelength Division Multiplexing (WDM). G.652D fibre provides more bandwidth for backbone, metropolitan area, access networks and FTTx. G.652D fibre enables bandwidth demanding of multi-service like voice, digital and image transmission. G.652D fibre is applicable in all cable types including ribbon cable, loose tube stranded cable, slotted core cable, unitube cable and tight-buffer cable.

### Process

G6 fibres are manufactured using the advanced, Plasma Activated Chemical Vapour Deposition (PCVD) process. Because of the inherent advantages of the process, G6 fibres show extremely refined refractive index (RI) profile control, excellent geometrical performance and low attenuation. The optical fibre is coated with a double layer UV curable acrylate, which gives the fibre a good protection. Designed for more stringent tight-buffer cable application, the fibre also performs perfectly in loose buffer constructions and demonstrates a high resistance to micro-bending. The coating offers an excellent stable coating strip force over a wide range of environmental conditions and the coating stripping leaves no residues on the bare glass fibre. Ribbon tests show excellent performance in 60°C water soak tests, exceeding 100 days. G6's fibres show high and stable values for dynamic stress corrosion susceptibility parameter (nd), which offers a greatly improved applicability to the fibre when used in harsh environments.

### Characteristics

Due to the process innovation and technical breakthrough made on the basis of the conventional single-mode fibre, G6, G.652D fibre low water peak single-mode fibre has the following characteristics:

- ◆ Designed for operation over the full optical spectrum from 1260-1625 nm, which provides 50% more usable wavelengths and hence the transmission capacity is increased
- ◆ Outstanding optical performance supporting high-speed transmission technologies such as DWDM and CWDM
- ◆ Being compatible with existing 1310 nm equipment
- ◆ Good protection and excellent strip force stability
- ◆ Accurate geometrical parameters that insure low splicing loss and high splicing efficiency



**Fiber Element - (G.652.D) Single Mode**

Characteristics	Conditions	Specified Values	Units
<b>Optical Character</b>			
Attenuation	1310 nm	≤0. 35	[db/km]
	1383 nm (after H2-aging)	≤0. 35	[db/km]
	1550 nm	≤0. 22	[db/km]
	1625 nm	≤0. 24	[db/km]
Attenuation vs. Wavelength Max. a difference	1285-1330 nm	≤0. 03	[db/km]
	1525-1575 nm	≤0. 02	[db/km]
Dispersion coefficient	1285-1340 nm	≥-3 . 0 ≤ 3 . 0	[ps/(nm <sup>2</sup> ·km)]
	1550 nm	≤ 18	[ps/(nm <sup>2</sup> ·km)]
	1625 nm	≤ 22	[ps/(nm <sup>2</sup> ·km)]
Zero dispersion wavelength		1312+/-10	[nm]
Zero dispersion slope Typical value		≤0. 090	[ps/(nm <sup>2</sup> ·km)]
		0. 086	[ps/(nm <sup>2</sup> ·km)]
PMD Maximum Individual Fibre Link Design Value (M=20,Q=0.01%) Typical Value		≤0. 2	[ps/ km]
		≤0. 1	[ps/ km]
		0. 04	[ps/ km]
Cable cut-off wavelength?cc		≤1260	[nm]
Mode field diameter (MFD)	1310 nm	9. 2+/- 0. 4	[?m]
	1550 nm	10. 4+/- 0. 5	[?m]
Effective group index of refraction (Neff)	1310 nm	1.466	
	1550 nm	1.467	
Point discontinuities	1310 nm	≤0. 05	[db]
	1550 nm	≤0. 05	[db]
<b>Geometrical Characteristics</b>			
Cladding diameter		124.8+/-0. 7	[?m]
Cladding non-circularity		≤0. 7	[%]
Coating diameter		245+/- 5	[?m]
Coating-cladding Concentricity error		≤12.0	[?m]
Coating non-circularity		≤6 . 0	[%]
Core-cladding concentricity error		≤0 . 5	[?m]
Curl (radius)		≤ 4	[m]
Delivery length		2. 1 to 50. 4	[km/reel]
<b>Environmental Characteristics (1310 nm, 1550 nm &amp; 1625 nm)</b>			
Temperature dependence Induced attenuation at	-60°C to + 85°C	≤0 . 05	[db/km]
Temperature-humidity cycling Induced attenuation at	-10°C to + 85°C, 98%RH	≤0 . 05	[db/km]
Watersoak dependence Induced attenuation at	23°C, for 30 days	≤0 . 05	[db/km]
Damp heat dependence Induced attenuation at	85°C and 85% RH,for 30days	≤0 . 05	[db/km]
Dry heat aging at	85°C	≤0 . 05	[db/km]
<b>Mechanical Specification</b>			
Proof test	Off line	≥9.0	[N]
		≥1.0	[%]
		≥100	[kpsi]
Macro-bend induced attenuation I turn around a mandrel of 32mm diameter 100 turns around a mandrel of 50mm diameter 100 turns around a mandrel of 60mm diameter	1550 nm	≤0 . 05	[dB]
	1310 nm & 1550 nm	≤0 . 05	[dB]
	1625 nm	≤0 . 05	[dB]
Coating strip force	Typical average force	1.7	[N]
	Peak force	≥1. 3	[N]
Dynamic stress corrosion susceptibility parameter nd (typical)		≥20	

