Fiber Optics

FIBERCORE

LASER COMPONENTS

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Spun Fiber

For Faraday Effect Current Sensors

Fibercore offers SHB Spun High Birefringence (HiBi) fibers. These products are optimized for use in polarimetric sensors, including the AC and DC fiber optic Current Transformers (CT) that are now replacing conventional current transformers across a broad range of applications in electrical power generation and distribution.

Spun HiBi fibers are designed to allow long lengths of fiber to be used in small diameter coils for Faraday effect current sensors. SHB fibers are fabricated by spinning a 'Bow-Tie' polarization maintaining preform during the fiber drawing process. They preserve circular polarization by design and are therefore insensitive to the thermal and/or vibration-induced signal fade/drift caused by stress-birefringence. This gives the SHB fibers superior performance when used in sensor coils with a large number of loops.

Advantages:

- Optimized for current sensing
- Spun HiBi designed for high accuracy sensors
- Spun LoBi designed for cost reduced sensors
- Highly temperature stable variants available
- Reduced sensitivity to vibration

Typical applications:

- Current sensing
- Current transformers
- Faraday effect sensors

Related Products:

- Zing™ Polarizing Fiber (HB-Z)
- Telecoms PM Fiber (HB-T)
- PM Gyro Fiber (HB-G)
- Erbium Doped Fiber IsoGain™

Product Variants:

- **SHB1250(7.3/80) - 2.5mm** Spun HiBi fiber with an 80µm cladding diameter, designed for use around 1310nm and with a 2.5mm spin pitch.
- **SHB1250(7.3/80)** Spun HiBi fiber with an 80µm cladding diameter, designed for use around 1310nm
- **SHB1250(7.3/125)** Spun HiBi fiber with an 125µm cladding diameter, designed for use around 1310nm
- **SHB1500(8.9/125)** Spun HiBi fiber with an 125µm cladding diameter, designed for use around 1550nm

Germany & Other Countries
Laser Components GmbH
Tel: +49 8142 2864 – 0
Fax: +49 8142 2864 – 11
info@lasercomponents.com
www.lasercomponents.com

Specifications

	SHB1250(7.3/80) - 2.5mm	SHB1250(7.3/80)	SHB1250(7.3/125)	SHB1500(8.9/125)
Operating Wavelength (nm)	1260 - 1510			1510 - 1650
Cut-Off Wavelength (nm)	1100 - 1250			1360 - 1500
Numerical Aperture	0.14 - 0.17			0.13 - 0.16
Mode Field Diameter (µm)	6.2 - 8.4 @1310nm			7.9 - 9.9 @1550nm
Attenuation (dB/km)	≤5 @1310nm			≤3 @1550nm
Circular Beat-Length (mm)	63 - 125 @1310nm			72 - 144 @1550nm
Spin Pitch (mm) Nominal	2.5	4.8		
Proof Test (%)	1 (100 kpsi)			
Cladding Diameter (µm)	80 ± 1		125 ± 1	
Core Cladding Concentricity (µm)	≤1.0			
Coating Diameter (µm)	165 ± 5		245 ± 7	
Coating Type	Dual Layer Acrylate			
Operating Temperature (°C)	-55 to +85			

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