FIBER BRAGG GRATINGS (FBGS)

Fibercore offers two types of Fiber Bragg Gratings (FBGs):

- Femtosecond laser written FBGs for high mechanical strength and reduced hydrogen, radiation and Ultra Violet (UV) photodarkening effects, suitable for use in harsh environments.
- Standard UV written FBGs for spectrally demanding applications, suitable for use in standard sensor and telecommunications environments.

The femtosecond laser written FBGs are written through the coating, without the need to strip and recoat the coating. This maintains the inherently high mechanical strength of the fiber, making the FBGs ideal for high strain and high reliability applications. The femtosecond inscription method also allows FBGs to be written into non-photosensitive glass, allowing FBGs to be written into pure silica core fibers, which have reduced attenuation sensitivity to hydrogen, radiation and UV. This allows the FBGs to be used in harsh environments that might be experienced in the Oil & Gas industry, nuclear environments and UV laser applications.

Standard UV written FBGs are available using the standard strip and recoat method. These FBGs offer a higher level of FBG specification with a greater flexibility on the spectral design, ideal for spectrally demanding applications in the sensing and telecommunications industries.

FEATURES

Advantages

- High mechanical strength FBGs
- Hydrogen darkening resistant
- Radiation induced attenuation resistant
- UV photodarkening resistant
- Flexible spectral characteristics

Typical Applications:

- Temperature sensing
- Strain sensing
- Hydrophone and geophone acoustic sensing
- Laser wavelength locking
- Wavelength division multiplexing

Product Variants

- Femtosecond FBG
  High reliability FBG written with a femtosecond laser
- UV written FBG
  FBG written with a UV laser

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SPECIFICATIONS

	FEMTOSECOND FBG	UV WRITTEN FBG
Central Wavelength (nm)	800 - 860 1460 - 1640	970 - 1620
Wavelength Tolerance (nm)	± 0.2 (standard) ± 0.1 (optional)	± 0.5 (standard) ± 0.25 (optional)
Reflectivity (%)	≤99	1 - 99
FWHM Bandwidth (nm)	0.3 - 3	0.1 - 3
FBG Length (mm)	≤40	1 - 25
FBG Profile	Uniform or Apodized	
Chirp	No	Not chirped (standard) Chirped (optional)
FBG Arrays	Optional	
Fiber Type	SM, MM	SM, PM
Fiber Cladding Diameters (µm)	125, 80	125, 80, 60, 50
Fiber Core Composition	Germanium Doped Pure Silica	Germanium Doped

Please note: Each parameter is inherently linked, therefore not all values are independently achievable.

RELATED PRODUCTS

- Boron Doped Photosensitive Fiber
- Highly Germanium Doped Fiber

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