iXblue Polarizing (PZ) fiber is designed so that only one state of polarization is guided along the fiber; any other state of polarization will be lost rapidly thus yielding a high built-in polarization extinction ratio. This particular mechanism is obtained through a specific waveguide design and a careful optimization of the glass composition resulting in both high birefringence and leakage behavior. PZ fibers are available at different wavelengths with a broad polarization window (typically larger than 100 nm), low attenuation and high extinction ratio (≥ 30 dB), that can be tuned by coiling the proper fiber length at the appropriate coil diameter. If needed iXblue also offers ready to use polarizing solutions based on PZ fibers.

**Applications**
- Quantum optics, cold atoms
- All-Fiber polarizer
- Fiber optic current sensors and gyro

**Key Features**
- Polarizing wavelengths available: 780, 840, 980, 1060, 1310 or 1550 nm
- Fiber diameter: 80 or 125 µm
- Tiger design
- > 100 nm polarizing window
- > 30 dB extinction ratio

**Related Products**
- Polarization Maintaining Fibers
- Spun Fibers

**How it works**
A Polarizing Fiber selectively attenuates the light propagating along one polarization axis (Fast Axis) and preserves only the polarized light along the other principal axis (Slow Axis).

**Design wavelength ($\lambda_d$)**
- Wavelength at which the fiber is typically used

**Polarizing Bandwidth ($\Delta\lambda$)**
- 20 dB short wavelength edge
- < 3 dB long wavelength edge

Transmission spectra showing two separate cut-offs for the polarization modes in the fast and slow axes.

The concept of W-type fiber

*Very High-Birefringence Fiber*

Introduce separate HE$_m$ mode cut-offs in the fast and slow axes at different spectral positions $\lambda_{slow}$, $\lambda_{fast}$ ($\lambda_{fast} < \lambda_{slow}$)

**Main Specifications**

### Polarizing Fibers

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Operating Wavelength (nm)</th>
<th>Design</th>
<th>20 dB Fast Edge (nm)</th>
<th>3dB Slow Edge (nm)</th>
<th>Cladding Diameter (µm)</th>
<th>Coating Diameter (µm)</th>
<th>Core NA (±0.01)</th>
<th>MFD* (µm)</th>
<th>Attenuation* (dB/km)</th>
<th>Extinction Ratio* (dB)</th>
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</thead>
<tbody>
<tr>
<td>IXF-PZG-780-125</td>
<td>780</td>
<td>Tiger</td>
<td>&lt; 730</td>
<td>&gt; 850</td>
<td>125 +/- 2</td>
<td>245 +/- 15</td>
<td>0.11</td>
<td>6 +/- 2</td>
<td>&lt; 20</td>
<td>&lt; -30</td>
</tr>
<tr>
<td>IXF-PZG-840-80</td>
<td>840</td>
<td>Tiger</td>
<td>&lt; 790</td>
<td>&gt; 890</td>
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<td>&lt; 1015</td>
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<tr>
<td>IXF-PZG-1064-1064</td>
<td>1064</td>
<td>Tiger</td>
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<td>&lt; 1270</td>
<td>&gt; 1370</td>
<td>80 +/- 2</td>
<td>170 +/- 5</td>
<td>0.13</td>
<td>9 +/- 2.5</td>
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<td>&gt; 1600</td>
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* Measured at Operating Wavelength

### Polarizers

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<td>Tiger</td>
<td>&lt; 1500</td>
<td>&gt; 1600</td>
<td>80 +/- 2</td>
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* Measured at Operating Wavelength

Polarizing Fibers can be dispatched:
- IXF-PZG family as rolled on a bobbin as standard fiber
- IXS-POL family coiled and deployed in the optimum conditions

### Related Products
- Polarization Maintaining Fibers
- Spun Fibers

**How to order**
- IXF-PZG family as standard fiber for rapid use
- IXS-POL family coiled at the appropriate diameter to operate at the operational wavelength