

# DIAMOND

## Fiber Optic Components

### PM - Polarization Maintaining

#### OPTICAL INTERFACE

DIAMOND supplies high-quality solutions to polarization maintaining (PM) and polarizing (PZ) fiber optical interfaces for optimal control of the signal's polarization state. Low insertion losses (IL) combined with high polarization extinction ratios (PER) and higher return losses (RL) are achieved over very broad spectral ranges thanks to a combination of accurate optical and mechanical design.

#### APPLICATION FIELDS

The field of application of PM elements has expanded beyond traditional markets to brand new ones, from research to industrial environments:

- ▶ Biomedicine
- ▶ Spectroscopy
- ▶ Metrology
- ▶ Sensorics
- ▶ Telecommunications
- ▶ Lasertechnology
- ▶ Surveillance & Security
- ▶ Lithography

#### FEATURES AND BENEFITS

- ▶ Proprietary Active Core Alignment (ACA) process for minimal eccentricity between fiber's core and ferrule to guarantee unmatched low insertion losses
- ▶ Active Polarization Orientation (APO) procedure for optimal alignment between the mechanical connector's key and the true polarization (fast or slow) axis to guarantee the highest PER in a mated configuration
- ▶ Optimized polishing techniques for excellent return losses values
- ▶ 100% front face inspection

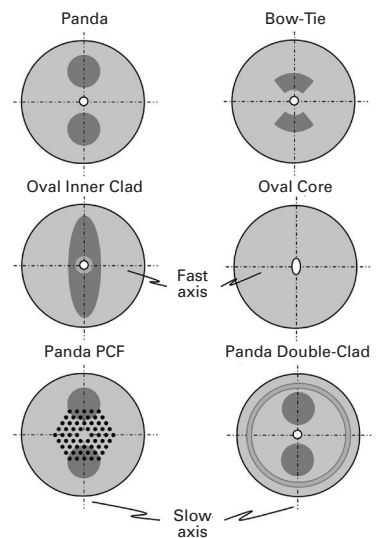
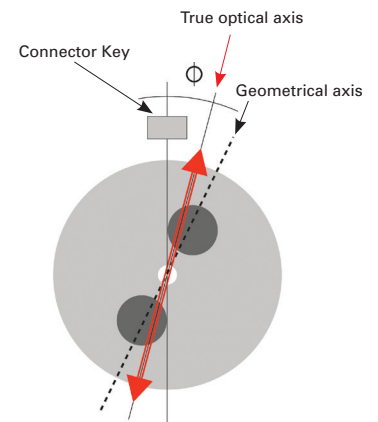
Diamond uses 0.1dB-grade ferrule with high reduced diameter tolerances < 0.2  $\mu\text{m}$ , and front face geometry that exceeds the current international standards IEC 61755-3-7/8.

- ▶ Ferrule radius 10÷20 mm
- ▶ Core apex < 62.5  $\mu\text{m}$
- ▶ Fiber height -50÷200 nm

#### STANDARD PERFORMANCES

WAVELENGTH (nm)	Angular Error $\phi$	IL (dB)		PER (dB)		RL (dB)	
		Typ	97% (TBC)	Typ	Min (TBC)	PC 0°	APC 8°
1625 - 1550 - 1310	< $\pm 2^\circ$	0.15	0.30	30	27	50*	70*
1060 - 980		0.20	0.40	30	26	50	60*
830 - 780		0.25	0.50	28	25	40	60**
680 - 635		0.30	0.60	28	25	40	60**
532 - 460		0.40	0.80	27	24	35	60**
405		0.75	1.20	23	21	35	60**
TEST CONDITIONS		IEC 61300-3-34 Random mating		IEC 61300-3-40 Low coherence		IEC 61300-3-6 *OLCR method <OCWR method **Limited by test conditions	
Lifetime	500 mate/demate cycles						

- Optical values specified at room temperature, and based upon high-quality Panda and Bow-Tie fibers qualified by Diamond (fiber's NA 0.12± 0.02).  
 - Performances based upon E-2000™ optical interfaces; other mechanical interfaces may lead to slightly different results. Please contact Diamond for details.  
 - Diamond performs PER measurements according to the crossed-polarizer method (similar to IEC 61300-3-40) that relies upon high-extinction Glan-Thomson polarizers and incoherent light sources (bandwidth > 10 nm).  
 - For any other requirement, please contact Diamond.



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Specifications subject to change without notice

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## AVAILABLE INTERFACES

DIAMOND's technology is applied to all connector interfaces with an integrated mechanical keying feature. We offer both fiber pigtails and patchcords with:

- ▶ E-2000™
- ▶ F-3000™
- ▶ DMI
- ▶ FC, narrow and wide key
- ▶ LSA(DIN)
- ▶ AVIM
- ▶ Mini-AVIM
- ▶ SC

## QUALITY & STANDARDS

Products quality is guaranteed in compliance with international standards defining PM fibers and connectors. These include the IEC 61755-3-7/8 standards (PC, resp. APC 2.5 mm and 1.25 mm composite ZrO<sub>2</sub> with Titanium ferrules) dedicated to standard single-mode fibers at conventional telecom wavelengths (1310/1550 nm bands).

## SAFETY

Push safety with E-2000™ & F-3000™ connectors with protection cap

- ▶ Enhanced eye safety
- ▶ Reliability & reproducibility of connection

## ORDER INFORMATION

**To order your connectors using PM technology, please specify:**

- ▶ Connector type (E-2000™ PM, F-3000™ PM etc.), wavelength and end-face (PC or APC).  
Example: DMI PM 635 APC or E-2000™ PM 980 APC
  - ▶ Fiber characteristics: MFD, NA, fiber type, coating structure and material, operating wavelength
  - ▶ Please refer to the individual data sheets for detailed specifications on individual connector types.
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