Multi-Fiber 2.5mm base ferrule
For Sensors, Medical, Space and Aeronautics custom applications
Ferrule base Technology

- Ceramic – Titanium insert ferrule
- Available on all standard connector
- Preferably used with simple DMI compact connector
- Requires orientation capability similar as PM connectors
Custom Ferrule hole drilling

- Ceramic-Titanium insert ferrule
- Metal monobloc ferrule upon request (stainless steel)
- Any shape size for 50µm to 600µm fiber available
- Shape form accuracy <3µm
- Shape form concentricity <5µm
Features and Benefits

Features

- Accurate shapes
- Customizable shape for custom fibers
- Small CTE (7-10ppm/°C)

Benefits

- Compactness
- Use of standard connectors and processes
- Cost effective
Hyper spectral imaging in Space

Each pixel of an image are measured through a spectrometer

Each fiber as a pixel in the focal plane of an optical system

Fibers packed in a unique ferrule

Each fiber is an entry in the entry slit of a spectrometer
Image side

- Shape drilled to snugly fit 12 custom 70/77 fibers
- Shaped built to specification within microns of specs

12x hex. fibers
Spectrum Analyzer side

- Shaped extremely difficult. Slit of 80µm width achieved with few microns accuracy
- Designed for 12 fibers 70/77µm

12x in-line fibers
Project: NASA LRO - LOLA

- NASA Requirements
  - Multi-fiber (used for redundancy)
  - AVIM® connector (long history in space)
  - Seven large core fibers
  - Orientation adjustable

- Diamond Solution
  - AVIM® PM in Stainless steel
  - PM for rotational adjustments to orient the seven fibers with set screws
  - Complete connector and custom ferrules built in several weeks
  - Ferrule in low CTE Stainless steel

Developed for Melanie Ott, Photonics groups, NASA - Goddard SFC
Large core 7ch Low CTE steel ferrule

Custom AVIM® for alignment capabilities
Introduction

The Lunar Reconnaissance Orbiter; The Laser Ranging Mission and the Lunar Orbiter Laser Altimeter

HGAS Receiver Telescope mounted on antenna and a fiber array to route signal from HGAS to LOLA

September 20, 2007

http://photonic.gsfc.nasa.gov for more
Duplex Ferrule

- Custom application
- Telecom FTTx application
- MM validated
- SM in progress