LightPath® TECHNOLOGIES

# Fiber Delivery Systems

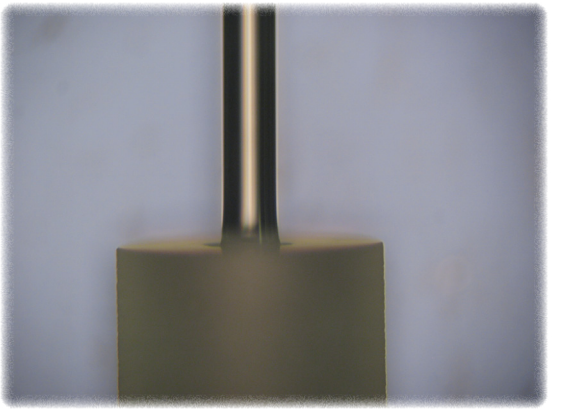
Leaders in aspheric optics and assemblies

# Fiber Delivery Systems from the Experts in Laser Fusion

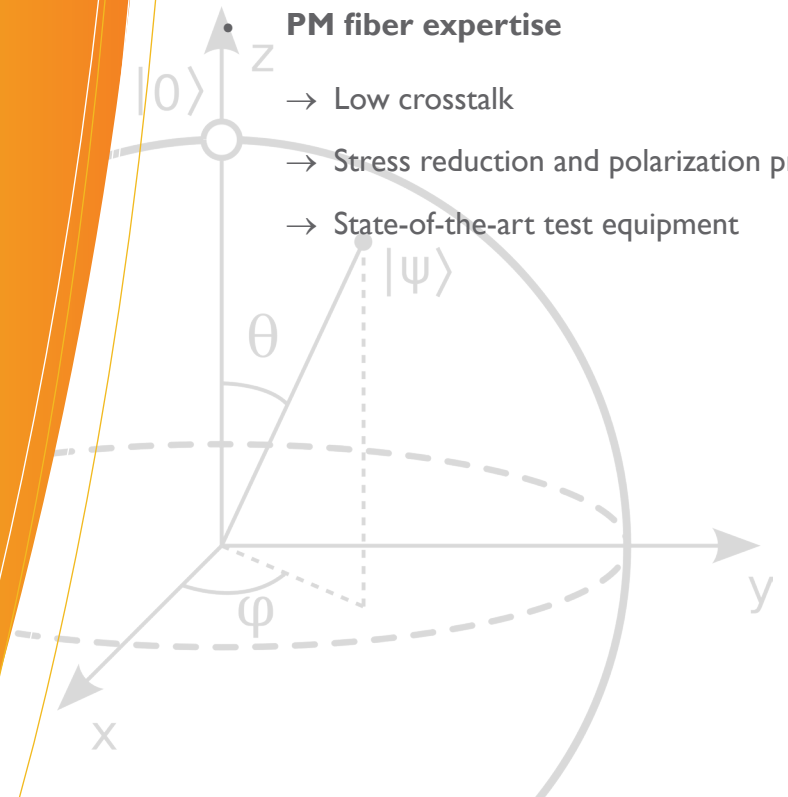
## THE LIGHTPATH FUSION ADVANTAGE

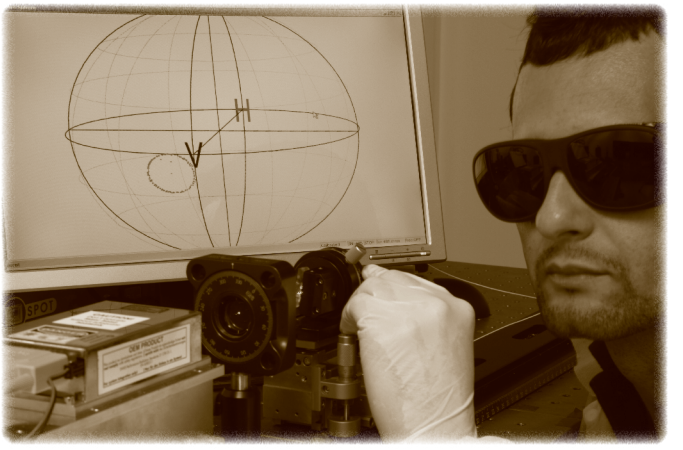
LightPath's Fusion Fiber Collimators™ utilize patented fiber fusion technology to enable the collimators to be used at very high power, and deliver unparalleled stability, in diverse environmental conditions. The fiber is laser-fused directly to a plano-plano silica rod (end-cap) or plano-convex silica lens, resulting in an index matched transition from fiber to lens without any glass to air interface to cause unwanted back-reflections. The result is a highly reliable optical system with superior performance and very low loss.

- **Increased fusion capabilities**
  - → Laser fusion of fiber diameters up to 400μm
  - → Active alignment for improved signal and pointing accuracy
  - → Splice-free laser fusion of end-caps or lenses directly to fiber laser
- **Expanded fiber-related product offerings and services**
  - → Patch cords
  - → Fiber end-cap FC termination
  - → Beam expanders
  - → Custom opto-mechanical assemblies
  - → Custom micro lenses down to 700μm in diameter



- **High power collimators**
  - → Available in wavelengths from 400 to 2000nm
  - → Designs in single mode, multimode and PM fiber
  - → 100W continuous power handling
- **PM fiber expertise**
  - → Low crosstalk
  - → Stress reduction and polarization preserving assemblies
  - → State-of-the-art test equipment



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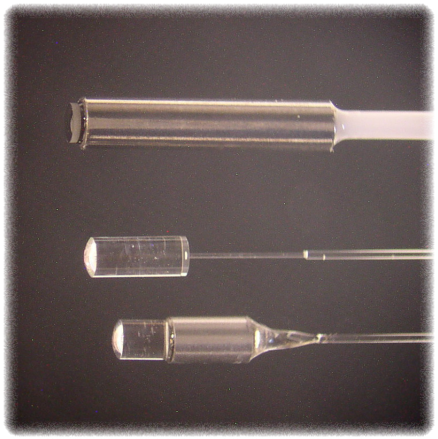
## FUSION FIBER COLLIMATORS™



### For Beam Diameters <1mm

- Patented Fiber Fusion technology
- Fiber laser-fused directly to lens
- Small form factor
- C-lens or aspheric profile
- Superior coupling efficiency
- 20W continuous power handling

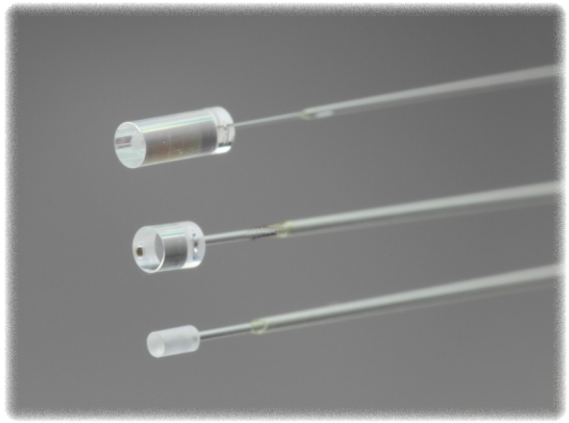
### For Beam Diameters >1mm

- Fiber laser-fused directly to end-cap optic
- Ideal for fiber laser applications
- Designed for single or multimode applications up to 100W
- Beam diameters up to 12.5mm
- Uses high performance Gradium or molded aspheric lenses
- Rugged stainless steel design

## CONNECTORIZED ASPHERIC FIBER COLLIMATORS

- Optimal performance using aspheric lenses
- Pre-aligned for popular wavelengths
- Epoxy-free optical path
- Rugged stainless steel components
- Threaded exterior for easy mounting
- Connectors include FC/PC, FC/APC, and SMA

## CUSTOM FIBER TERMINATION AND ASSEMBLIES



- End-caps
- Flexible beam expanders
- Custom patch cords
- Complex multicomponent assemblies

# Fiber Delivery Systems from the Experts in Laser Fusion

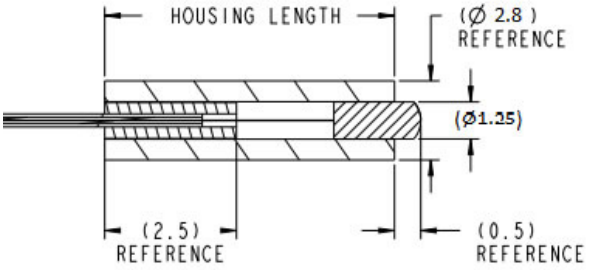
## APPLICATIONS AND CAPABILITIES

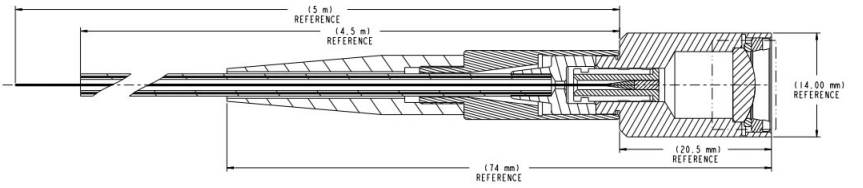
LightPath has strong capability to design and manufacture fully custom systems to the specifications of your choice. We have experience working with various fiber types, such as expanded core fibers, polarization maintaining fibers, and multi-mode fibers. Please contact LightPath to see how we can build a system to meet your specific requirements.

### Custom Options Available

- Metallic housings
- Glass housings
- Epoxy-free strain relief
- Connectors available
  - → FC/PC
  - → FC/APC
  - → SMA and others upon request
- Fiber end-cap connectors
- Examples of available fibers
  - → SMF-28
  - → Corning TB-II
  - → Nufern PMS460HP
  - → Nufern MM-GDF-25/250
  - → Fujikura SC-48-PS-U25A
  - → Coractive MM-20/125

| Typical Specifications | |
|---|---|
| Application Wavelength | 1550, 1310, 1064, 980, 780, 633, 546, 532, 408nm |
| Return Loss | <-55dB |
| Pointing Accuracy | 1° maximum |
| Beam Roundness | >90% |
| $M^2$ | ≤1.2 |
| Transmission | ≥97% |
| Power Handling | 20Watts CW |
| Operating Temperature | -20°C to +60°C |
| Storage Temperature | -40°C to +85°C |




## Contact LightPath today for your custom quote

+1-800-472-3486 or +1-407-382-4003

Providing these system requirements will help us better serve you:

- Wavelength (nm)
- Beam diameter (mm)
- Working distance (mm)
- Housing diameter (mm)
- Fiber type and length (meters)
- Cabling type
- Connector type
- Power level (W)

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