

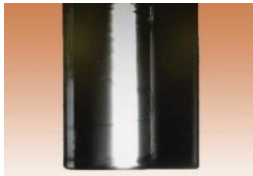
Fiber Processing Services

Improve performance, increase yield, reduce manufacturing costs

OpTek
SYSTEMS

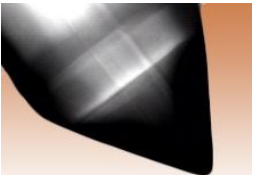
Laser Processing for precision manufacturing

- **Cleaving** – flat and angled on fibers, ribbons and arrays
- **Lensing** – conical, wedge and biconic on SM, MM and PM fibers
- **Stripping** – acrylate and polyimide coatings
- **Laser Fusing** – end-caps, beam expanders and collimators
- **Fiber Stubs** – optical grade cleave accurately referenced to ferrule



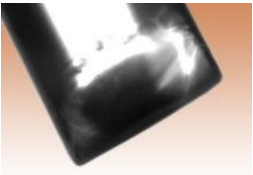
Flat & Angled Cleaves

- Used for TIR, low BR and capillary application
- Single fibers, ribbons, and arrays
- Optical-grade surface (no polishing required)
- Angle Range: 0 - 60° ($\pm 1.0^\circ$)



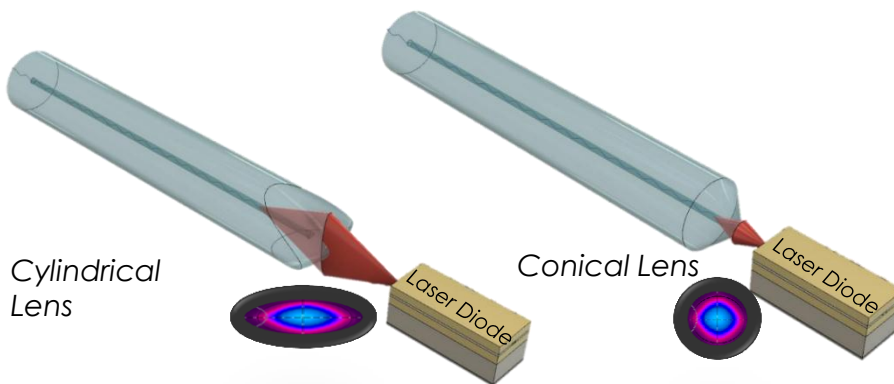
Conical Lens

- Used for LD & Waveguide coupling
- Circular Far-Field (1:1 – 2:1)
- Centration $\leq 0.5\mu\text{m}$
- Tip Radius: 3 - 20 μm ($\pm 1.0\mu\text{m}$)

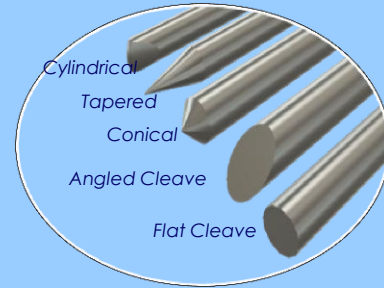


Wedge & Biconic Lens

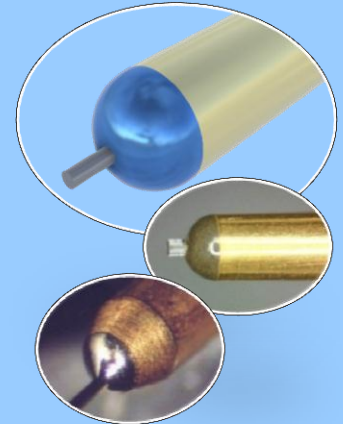
- Used for LD/Pumps & Waveguide coupling
- Elliptical Far-Field ($\geq 2:1$)
- PM stress rod orientation ($\pm 3.0^\circ$)
- Tip Radius: 3 - 20 μm ($\pm 1.0\mu\text{m}$)



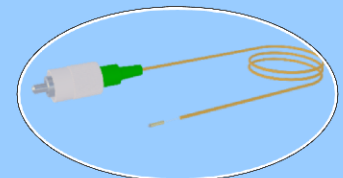
Fiber Processing



Ferrule-Attach



Turnkey Feed-thru



Solutions for precision manufacturing - To learn more contact:

OpTek Systems

Europe & ROW: 12-14 Blacklands Way, Abingdon Business Park, Oxford, OX14 1DY, UK. Tel +44 1235 539182

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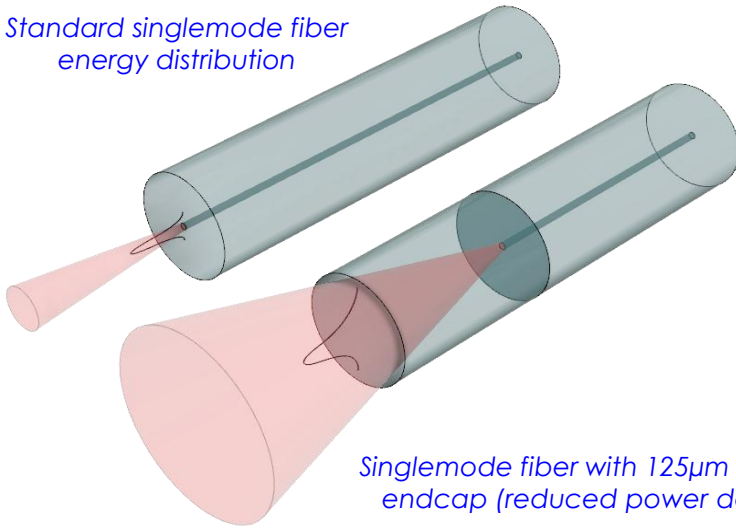
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End capping requires splicing or fusing "coreless" or GRIN fiber to SMF or MMF transmitting/gain fiber in an attempt to reduce power densities (J/cm^2). The end caps increase the damage threshold of the device and minimize undesirable Fresnel reflections from the fiber end face.

Standard singlemode fiber energy distribution



Singlemode fiber with 125µm coreless endcap (reduced power density)

Turnkey End Cap Assembly:

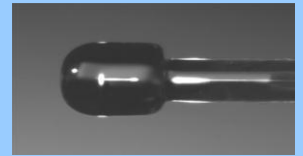
- Coreless fiber
- PM Orientation
- Kovar or Quartz Housings
- Hermetically sealed (solder or glass frit)
- AR Coated



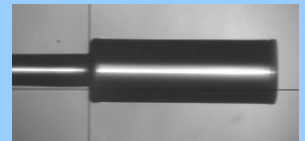
Spliced End Caps



125µm Coreless / 250µm Long



200µm Coreless / Lensed

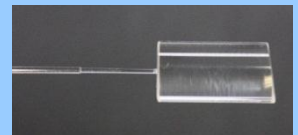


250µm Coreless / 1.0mm Long

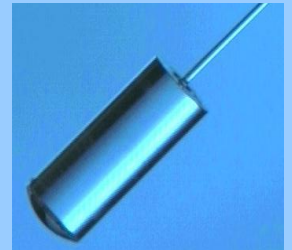
Laser-fused End Caps



2.0mm Coreless / 3.0mm Long



2.0mm GRIN / Angled



2.0mm GRIN / Lensed

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Fiber processing services based in the UK, Asia and USA to meet your production needs – from proof of concept, through qualification to volume production.

OpTek Systems your quality manufacturing partner in optical fiber packaging

OpTek provides a comprehensive range of optical fiber processing services from our facilities in the US, Asia and UK. Utilizing OpTek-proprietary LaserCleave processes, we can provide all your production needs from demonstration and qualification batches through to volume production. Capabilities include laser cleaving (flat and angled), laser lensing, laser stripping, ribbon cleaving, fiber-optic connector cleaving, array assembly, end-capping, hermetic ferrule attachment and packaging services.

Laser Processing for precision production processing

- **Stripping** primary acrylate and polyimide coatings
- **Cleaving** flat and angled to >45 degrees on fibers, ribbons and arrays
- **Lensing** – conical, wedge and biconic on SM, MM and PM fibers
- **Laser Fusing** of fiber end-caps, beam expanders and collimators
- **Fiber Stubs** – optical grade cleave, accurately referenced to ferrule end

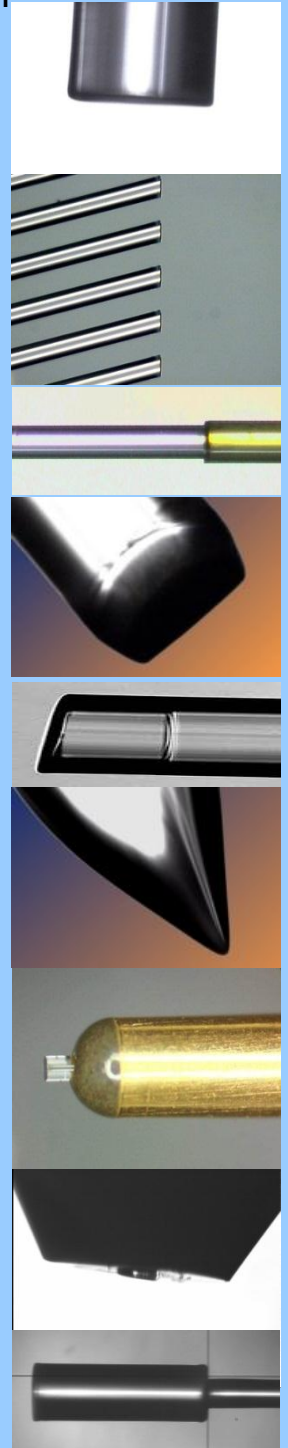
Advantages of laser processing fibers include:

- **Rapid non-contact process**
- **Accurate and repeatable** feature positioning
- **Precise control** over fiber end geometry
- **Flexibility** - broad range of end features and geometries
- **Maximized performance** through in-situ process monitoring
- **Scalable for volume** - suitable for high levels of automation

Added Value OpTek Systems is able to provide a range of additional processing steps, including:

- **Sourcing of components** through our extensive supply chain network
- **Metallization** for hermetic fiber attach
- **Connectorization** close cleaving of fiber in ferrules & connectors
- **AR Coating** of the fiber end face
- **Hermetic Ferrule Attachment** – glass and metallic solders
- **Full Turn-Key Fiber Tail Assemblies**
- **QA** – inspection and monitoring of geometry and optical performance
- **ISO9001** – fully certified service

Contact OpTek Systems today for more details on our fiber processing services or to discuss your specific production needs.



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Fiber Processing Platforms

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LaserCleave™ production tools from OpTek Systems are built around the technology that has been relied on in performance-critical, volume production of optical fiber components since the mid 1990's.

OpTek's laser-based manufacturing systems offer:

- OEM-specific, function-isolated Class I tools
- Cleaving, Lensing, Welding, and Stripping functionality
- In-situ, automated measurement feedback & monitoring

3500 Series

- Optical-grade cleave quality
- Precise positioning
- Active & Passive alignment



Lensing



Dual Port Stripping & Cleaving



EO Machine Batch Processing

1500 Series

- Connectorization
- Eliminates hackle/core cracks
- Minimizes polishing steps

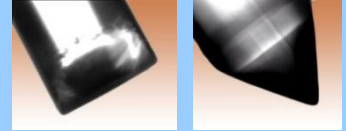


500 Series

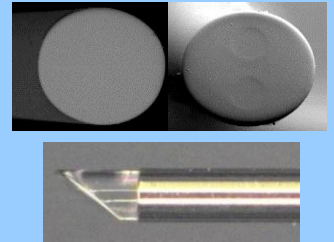
- Unprecedented compactness
- Single and dual row connectors
- Reduced manufacturing costs



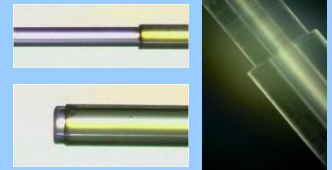
Laser Lensing



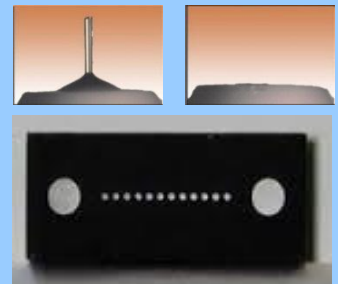
Laser Cleaving



Laser Stripping



Connectors



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