

FIBER OPTIC MEDICAL & SENSOR SOLUTIONS

Booklet



FOREWORD

Timbercon has been a leader in engineered fiber optic solutions for over two decades.

- One-stop custom fiber optic solutions, from development to delivery
- High-quality custom fiber optic cable assemblies and equipment
- Quality and delivery performance far exceeding industry standards
- The market leader in domestically-sourced custom fiber optic solutions

When high reliability and performance is your priority, choose Timbercon manufactured fiber optic products and services.

CONTACT

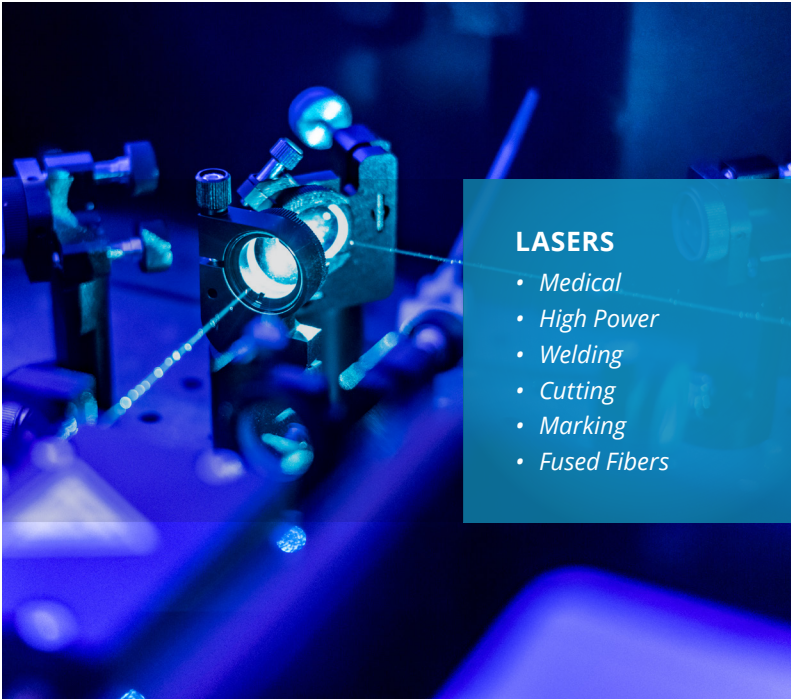
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MEDICAL

- Surgery
- Bio-medical
- Pharmaceutical
- Dental
- Communications
- Instrumentation



LASERS

- Medical
- High Power
- Welding
- Cutting
- Marking
- Fused Fibers



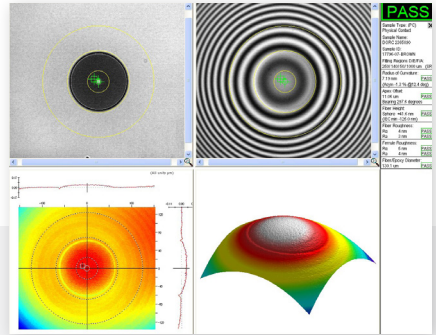
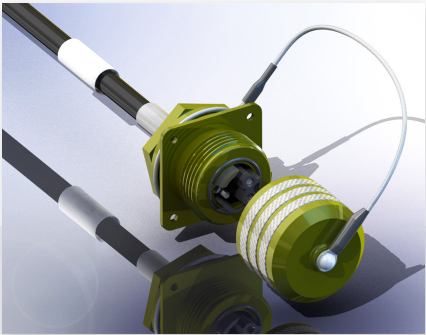
SENSORS

- Medical
- Structural
- Dynamic
- Oil and Gas
- Energy
- Automation

Timbercon provides a wide array of fiber optic design, manufacturing and testing capabilities. We partner with our customers to enable solutions for harsh environment, mission critical challenges.

CAPABILITIES

Our range of capabilities provides the seamless transition of products from development to full-scale production, reducing time-to-market and total cost. We focus on high quality custom solutions.



PRODUCT DESIGN

- Solutions that optimize cost of ownership while balancing price, performance and schedule
- Engineering services to define a custom product and development plan
- 3D modeling utilizing SolidWorks, 3D printing, precision fiber processing and testing
- Mechanical, electronic and optical design services
- Rapid prototyping capabilities

CONTRACT MANUFACTURING

- Advanced fiber optic engineering
- Final product, sub-level and integrated electrical and optical manufacturing
- New product introduction and test protocol development
- Ability to build product to customer specifications
- Custom packaging and labeling
- Repair and replacement services

TEST & ANALYSIS

- Leading edge optical metrology and interferometry
- Specialized performance and environmental tests, including tensile, load, temperature and humidity
- Testing options ranging from simple insertion loss testing to root cause failure analysis
- Expedited diagnostic and recertification services

PRODUCTS

A FIBER FOR EVERY APPLICATION

As the utility of fiber grows, Timbercon is focused on new applications that advance fiber optic technology. Timbercon's experience and capital equipment is optimized for, but not limited to, the fiber types below.

- Singlemode (SM) and multimode (MM) fiber
- Fiber Bragg Gratings (FBG)
- Bare fiber
- Coated fiber
- Multi-channel and hybrid cables
- Indoor/outdoor armored cables
- Polarization maintaining (PM) fiber
- Doped fiber
- Large core silica and plastic optical fiber (POF)
- Custom supplied specialty fiber

Ruggedized Connectors



D38999



TFOCA



M28876



Expanded Beam



MIL-ST/M83522

Semi-rugged Connectors



Armadillo LC



IP67/68 LC



Circular MPO



4CH Push/Pull



Hybrid Push/Pull

Standard Commercial Connectors



ST



LC



SC



FC



MTP®/MPO

SPECIALTY CONNECTORS

Timbercon is an expert in using the latest specialty connectors to enable demanding design requirements. Multi-channel connectors allow increased density in data connections and transference. These connectors are compatible with bare ribbon fiber, round loose tube jacketing, stainless steel and many other jacketing options.



MPO 12- and 16-channel Connectors

- High density channel counts enable large data connections and transference
- Stacked ribbon fiber enables lane counts up to 48 channels
- Multiple rows of 12- and 16-channel ribbon fiber
- Alignment using high precision guide pins
- Bulkhead adapters available



PRIZM® Light Turn

- Multi-fiber floating ferrule
- TIR lens in protective housing
- Unique perpendicular mating capability
- Bidirectional passive assembly
- Wide range of operational temperature: -40 °C to 80 °C

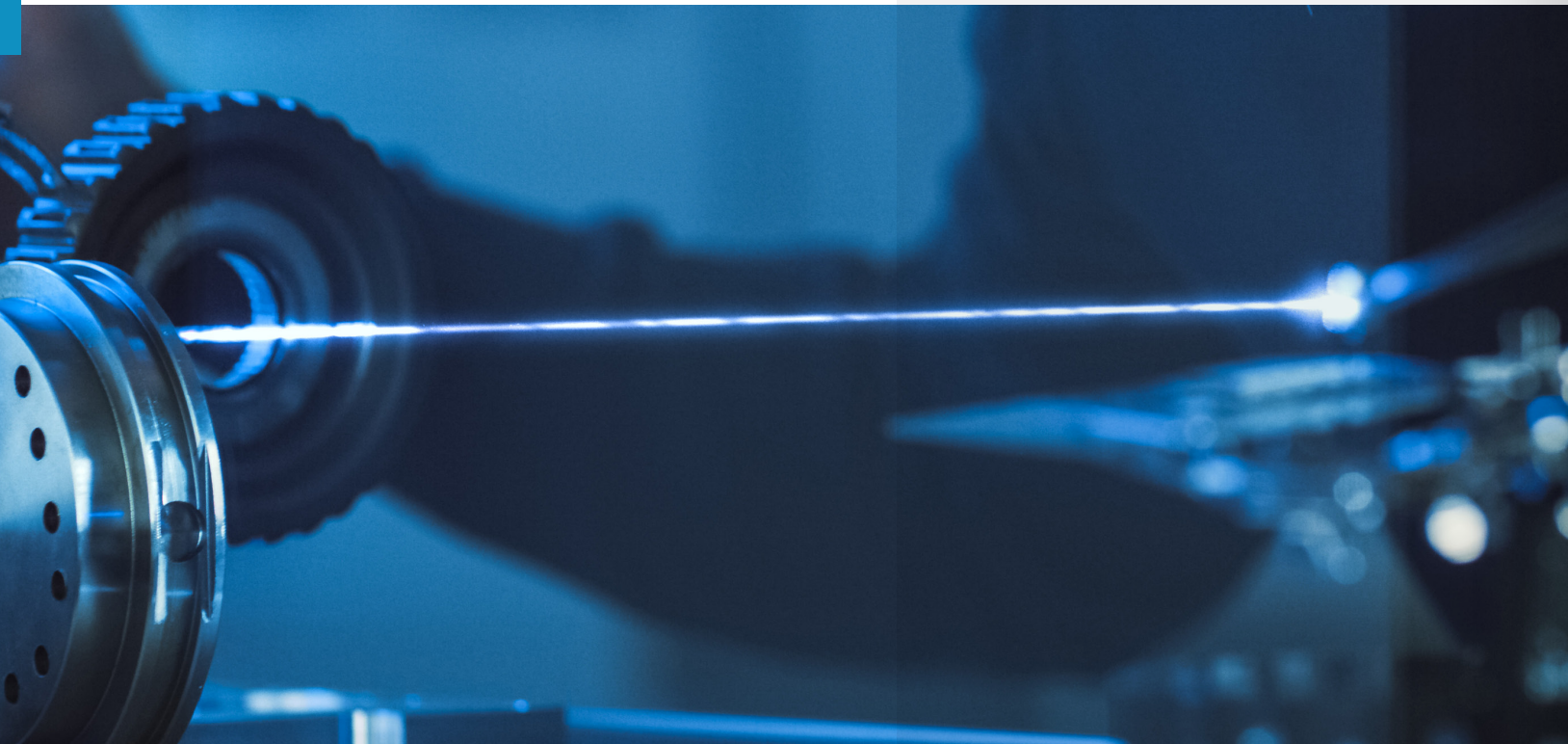


EB-LuxCis Expanded Beam Connector

- 2- to 4-channel expanded beam inserts
- Expanded beam technology greatly reduces the impact of debris interference on the connection
- Contactless design increases the product life cycle
- Easy cleaning and high resistance to shock or vibration
- Very low insertion loss (< 2dB)
- Compatible with singlemode or multimode fiber



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GLASS PROCESSING TECHNOLOGY

Timbercon offers glass processing solutions that allow you to better control beam characterization to suit your specific fiber or fiber-laser application needs. Customized ball lenses, end caps, axicon probes, tapers and more allow you to collimate, diverge or converge your beam. This gives you control of spot size, focal length, numerical aperture and power density.

Custom glass processed products include:

- Ball lenses
- Endcaps
- Axicon probes
- Side-firing
- Tapered fibers
- Offset splices
- Polarization maintaining fiber splicing
- Wedge tapers



Shaped and Fused Fiber

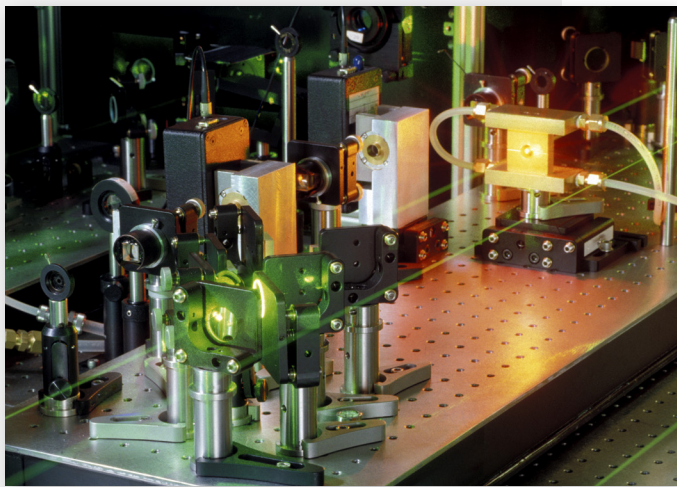


Distributed Acoustic Sensing

FIBER OPTIC SENSING TECHNOLOGY

The production of fiber optic sensing cables is a critical element for the success of any medical sensing instrument. The monitoring of distributed strain and pressure, temperature and OCT requires specific design elements. Timbercon cables and testing equipment can meet the unique operating environment and program requirements for a variety of applications: OCT, Glucose Monitoring, MRI Sensing, Cardiac Stress Monitoring and other applications.

- IP 67/68 cable assemblies
- Crush-resistant cables
- Chemical-proof connections
- Low ferromagnetic content
- Up to 192 channels
- Optical-electrical hybrid capabilities



LAB/TEST ENVIRONMENTS

The test and measurement industry is comprised of service providers, equipment manufacturers and end users. Solutions range from optical testing and simulation to diagnostics and troubleshooting of products or networks. A clear signal is mission critical to the success or failure of a given procedure, as weak or unreliable signals can skew results. Timbercon has the equipment and expertise to produce high performance assemblies, including a number of optical components.

- Polarization maintaining cable assemblies
- Couplers/splitters
- MTP®/MPO cable assemblies
- Patch cables
- Attenuated cable assemblies and bulkhead adapters
- Optical and electrical loopbacks
- Cleaning kits

CUSTOM OVERMOLDING

A variety of customer requirements have driven the need to offer molded components. Timbercon can design and produce the required tooling and mold these solutions in-house. An assortment of material types are available and render different degrees of flexibility, texture and density.



- Rugged fan-out transitions
- Flanged connectors
- Backshells
- Optical and electrical potting
- Overmolding for up to 24-fiber channels
- Multiple transition styles provide flexible mounting options
- 100% optically tested to ensure reliability and performance
- Custom molded shapes designed to fit your equipment
- Custom branded transitions for product and company names
- Molded strain relief

BRAIDED JACKETING

Our custom braided jacketing allows you to bundle multiple channels together for improved cable management. This specially braided jacketing aids in abrasion resistance, cable identification and environmental protection.



Braided sheath

Cable jacket

Kevlar® strength member

Fiber subunits

- Increased abrasion resistance and environmental protection
- Available in stainless steel, copper, monofilament, polypropylene, Kevlar®, Nomex® and nylon
- Multiple color combinations available

