

High Power Fiber Optic Components

OZ Optics Limited

September 2024



Table of Contents

- **Company Background**
- **Corporate Statements and Quality Policy**
- **Company Profile**
- **Core Competencies**
- **Leading Technology**
- **Industry Standards**
- **Marketing Strategy**
- **Operation Strategy**
- **OZ Optics Canada**
- **OZ Optics Türkiye**
- **OZ Optics China**

Company Background



- **Founded in 1985**
- **Corporate Headquarter Located in Ottawa, Canada**
- **Manufacturing Facility in Ottawa / Canada, Izmir / Türkiye and Jiaxing / China**
- **Ten Product Groups:**
 - Laser-to-Fiber Delivery Systems
 - High Power Fiber Optic Components
 - Polarization Maintaining Products
 - Attenuators
 - Opto-Electronic Packaging
 - Fiber Optic Test Equipment
 - Fiber Optic Sensor Systems
 - Fiber Optics Components for Gyroscope
 - OCT
 - BioPhotonics
 - Quantum
- **Sales Offices in Canada, USA, Europe, Türkiye and China**

➤ Ottawa, Canada



➤ Izmir, Türkiye



➤ Jiaxing, China



Corporate Statements and Quality Policy



Our Vision

- ✓ Capture and expand market share
- ✓ Be the preferred supplier of choice
- ✓ Maximize shareholder value

Our Mission

To become the leading provider of innovative optical products to telecom and non-telecom sectors

Our Core Values

- ✓ Leadership
- ✓ Teamwork
- ✓ Boldness
- ✓ Commitments
- ✓ Innovation
- ✓ Rewards

Our Quality Policy

Provide our Customers with a competitive advantage, leveraging performance, price and delivery, through a continuous process of Quality advancement in all areas of our Company.

Communicate effectively to our Customers, Suppliers and Shareholders our commitment to Quality, continuous improvement and to abide by any applicable requirements.

Promote opportunities of professional development for all members of our company through education, training and personal challenge.



Company Profile

Over 467 employees worldwide

OZ Canada



243+
Employees

OZ China



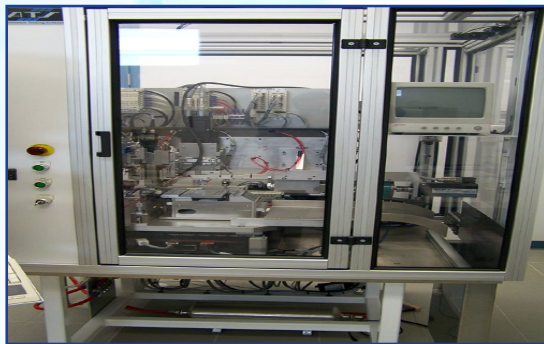
87+
Employees

OZ Türkiye



137+
Employees

Company Profile



Advanced Proprietary Processing Technology



**Canada
Certificate: FM 63463**



**China
Certificate: FM 577647**



**Turkey
Certificate: FM 601414**

ISO9001:2015 Certified



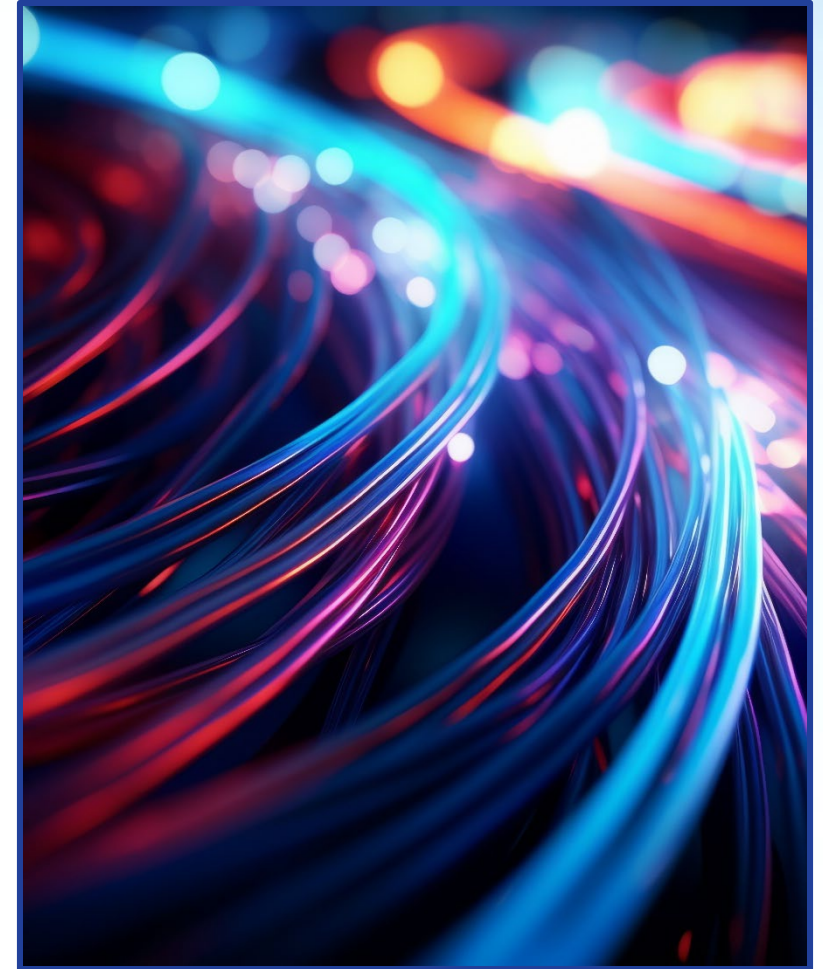
Broad Patent Portfolio



Company Profile

OZ Optics is Lead by an Experienced Team:

- **Ömür Sezerman, Chairman, President & CEO**
 - Founder and CEO since inception (40 years)
- **Zahide Sezerman, VP of Human Resources**
 - With OZ Optics since inception (40 years)
- **Garland Best, VP of Components Division**
 - 33 years at OZ Optics
- **Gordon Youle, VP of Test Equipment Division**
 - 26 years at OZ Optics
- **Saeed Pilevar, Senior VP of Business Development**
 - 3 months at OZ Optics
- **Onur Koca, General Manager of OZ Türkiye**
 - 3 year at OZ Optics
- **Bing Li, General Manager of OZ Optics China**
 - 21 years at OZ Optics



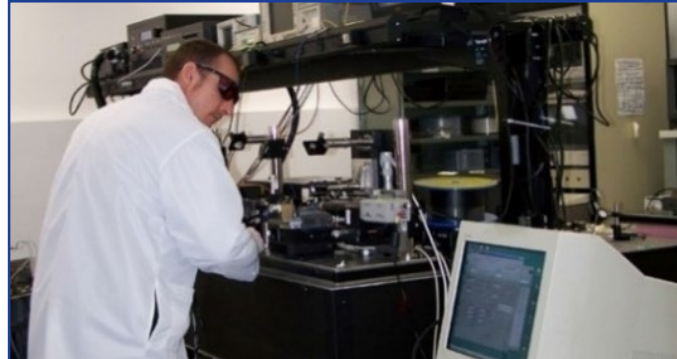
Company Profile

**Experienced and Well-Trained Staff in Following Fields:
Optical, Mechanical, Electronics & Software**

➤ CNC Machine Shop



➤ Femto-Second Laser Lab



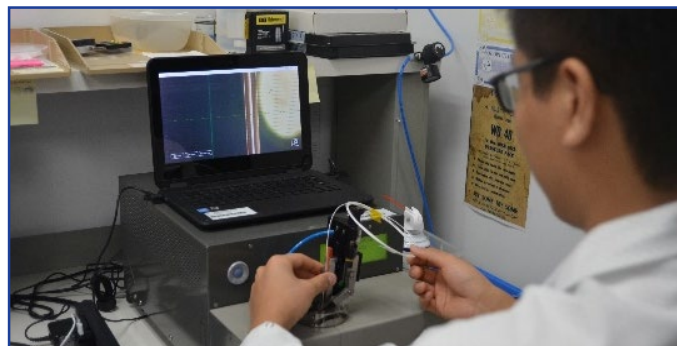
➤ AR Coating



➤ Clean Room



➤ Laser Conditioning / Cleaving





Core Competencies



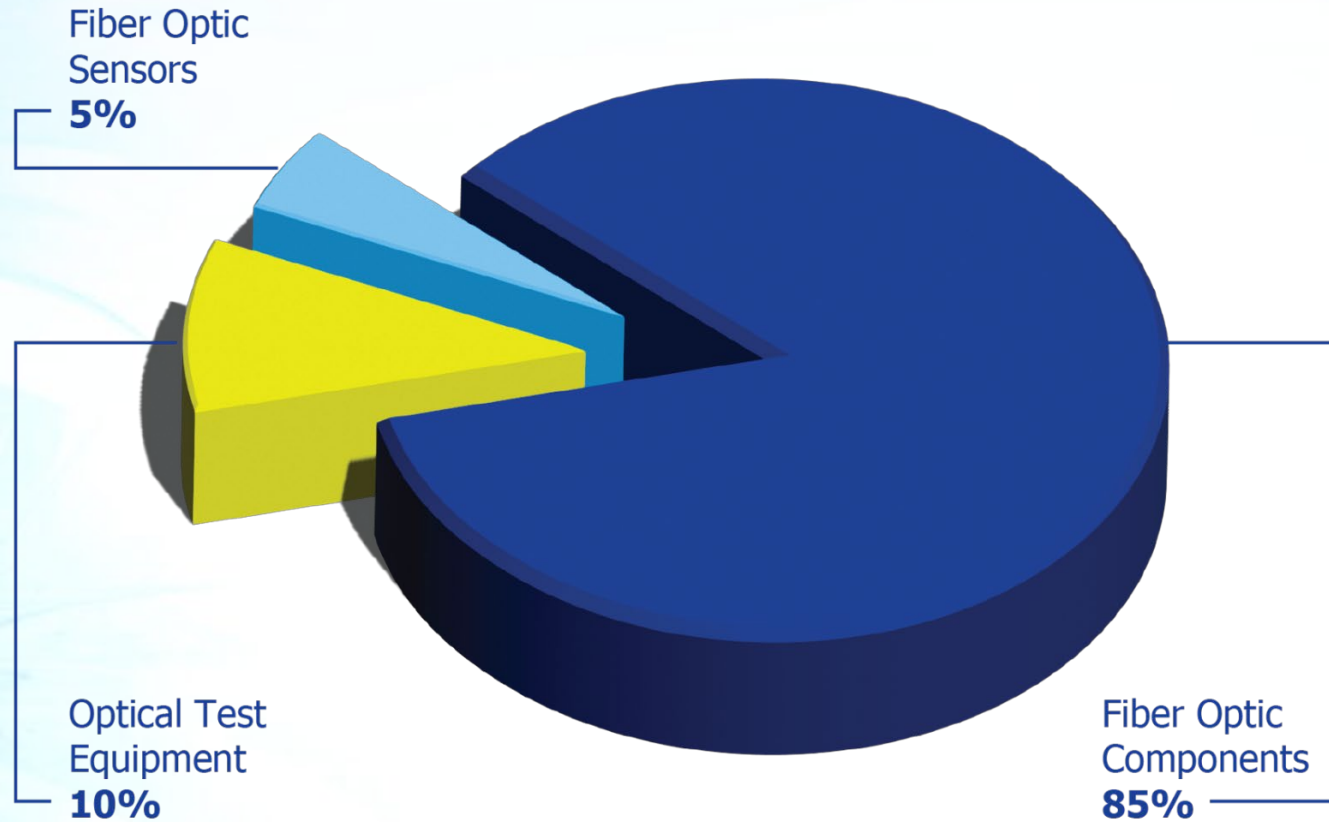
- **Pioneer in Polarization Maintaining (PM) Components & Custom Test Equipment, Including Polarization Test Equipment and FTTH Equipment**
- **Leader in Wavelength Flattened, High Power & Low PDL Components**
- **Leader in High Power Fiber Optic Delivery Systems**
- **Widest Range in Attenuator Product Offering**
- **Fiber Optic Distributed Strain and Temperature Sensors**
- **Complete product line for OCT, Gyroscope & BioPhotonics applications & 2 Micron**
- **Now available: Spectrometers and Quantum Light Sources**



Leading Technology



➤ **Three Product Groups** ➤ **Over 1,000 Products** ➤ **Leading Edge R&D**





Leading Technology

Featured Products

World's Largest Online Fiber Optic Catalog

Most Products are in Stock



Quantum Light Sources



Fiber Optic Products for Biophotonics Applications



Fiber Optic Products for Gyroscopes



Polarization Maintaining Components



Delivery Systems



High Power Components



Test Equipment




High and Low Power Patchcords

Polarization Maintaining Fiber Optic Components

Patent Numbers: USA 7058275, 7095931, 7295731, China 1672073




Polarization Maintaining Connectors and Patchcords



Polarization Maintaining and Polarizing Splitters / Combiners / Fused Couplers / Switches



All Fiber Manual and Electrically Driven Polarization Controllers / Serambers



Polarization Dependent Loss Emulators




Fiber Pigtailed Polarizers



PM Fiber Directional Taps and PLC Splitters



Isolators



PM Fiber Pigtailed Circulators

Laser and Laser Diode to Fiber Delivery Systems



Laser to Fiber Couplers



Pigtail, Receptacle Style Collimators and Focusers



Bulkhead Receptacles



Bare Fiber Adaptors with Magnetic Clips



Wavelength Division Multiplexers(WDMs) and RBB Combiners



OCT Modules and 2 micron Components



Evanesence Based Variable Split Ratio Fiber Splitter/Coupler



OEM Laser Diode to Fiber Couplers

High Power Fiber Optic Components

Patent Numbers: Canada 2494133, USA 7058275, 7095931, 7295731, China 1672073



High Power, High Temperature Connectors and Patchcords



OZPEN™ CO-2 Fiber Optics Cleaning Unit for High Power Components



High Power Laser to Fiber Couplers, Collimators and Focusers



High Power Mode Field Adapters



High Power Optical Taps and Power Monitors



High Power Isolators



High Power Splitters and Wavelength Division Multiplexers (WDMs)



Shutters, Receptacles and Sleeve Thru Adapters with Sensors



Leading Technology

Featured Products

Fiber Optic Attenuators

Polarization Maintaining, Single Mode and Multi-Mode Fibers



Benchtop Digital

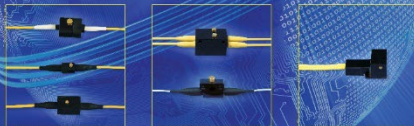
Variable Attenuators



Digital Variable Attenuators

Electrically Controlled Variable Attenuators

MEMS Variable Attenuators



PM, SM and MM Fibers Pigtailed Inline Variable Attenuators

Single and Multi Channel Miniature Variable Attenuators

Reflective Style Variable Attenuators



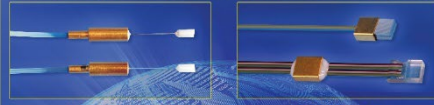
Air Gap Variable Attenuators

Plug Type Fixed Attenuators

Attenuating Fiber Patchcords

Fiber Optic Components for Optoelectronic Packaging

Hermetically Sealable Patchcords with Glass or Metal Solder



Single Channel

Multi Channel



Metalized Fibers

PM, SM and MM Fiber Pigtailed V-Groove Arrays



Polarization Measurement System for V-Grooves

Tapered, Lensed Fiber, Polished and Laser Shaped



Precision Collimator and Focuser Array

Fused Fiber Collimator

Fiber Optic Test Equipment



Quantum Entangled Photons Sources

High-Resolution Optical Spectrometers



Optical Fiber Length Meters

Back Reflection Meters

High-Speed Polarization Controller-Scrambler



Handheld and Benchtop Extinction Ratio Measurement Systems

Multichannel, Benchtop and Handheld Digital Variable Attenuators

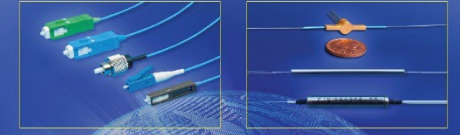


High Power Visual Fault Locators

Powermeters with Smart Detector Heads

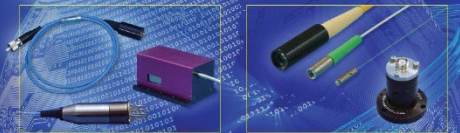
Laser Diode Stable Sources

Fiber Optic Components for 2 Micron Wavelengths



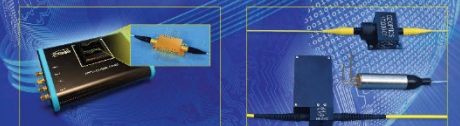
Fiber Optic Patchcords

Fused Couplers, Taps, Beam Splitters and Combiners



Fiber Pigtailed Laser Diode Sources

Pigtailed, Rectangular Style Collimators and Focusers



High Speed Electro-Optic Polarization Controllers and Scramblers

Manual and Electrically Controlled Variable Attenuators



Polarizers

Isolators



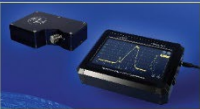
Leading Technology

Featured Products

New Fiber Optic Products



Polarization Entangled Photon Sources



High-Resolution Optical Spectrometers



High Speed Electro-Optic Polarization Controllers and Scramblers



Polarization Entanglement Tomography Analyzers



Fiber Optic Coils For Gyroscopes



Universal Optical DNA Band Detection Systems for Pathogens



Motor Driven Polarization Dependent Loss Emulators



Detector Heads and Optical Power Monitors



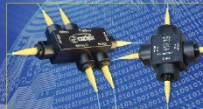
Fiber Optic Products for Gyroscopes



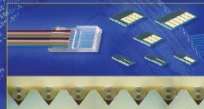
Fiber Optic Coils for Gyroscopes



ASE Sources



Wavelength Division Multiplexers



PM, SM and MM Fiber Pigtailed V-Groove Arrays



Fused Couplers, Taps, Beam Splitters and Combiners



Fiber Optic Polarizers



Fiber Optic Patchcords



SM and PM Fiber Pigtailed Circulators



Isolators

Quantum Entangled Photons Sources



Hyper-Entangled Photon Source Broadband Telecom



Polarization-Entangled Photon Source Broadband Telecom



Bright Polarization-Entangled Photon Source Broadband Telecom



Bright Polarization-Entangled Photon Source Narrowband Telecom



Correlated Photon Pair Sources



Polarization-Entangled Photon Source Narrowband at 610 nm



Polarization Entanglement Tomography Analyzer

Fiber Optic Products for OCT Applications



OCT Modules



Manual and Electrically Controlled Broadband Variable Attenuators



Manual and Electrically Controlled Fiber Optic Delay Lines



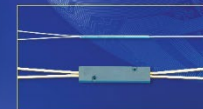
Manual and Electrically Controlled Polarization Controllers / Scramblers



Fiber Pigtailed Broadband SLED Sources



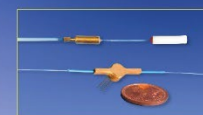
Fiber Collimators / Focusers



Broadband Fused Couplers



SM and PM Fiber Pigtailed Circulators



Polarization Entanglement Tomography Analyzer



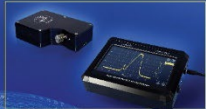
Leading Technology

Featured Products

Fiber Optic Products for Biophotonics Applications



Universal Optical DNA Rapid Detection Systems for Pathogens



High-Resolution Optical Spectrometers



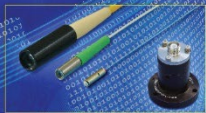
Fiber to Photodiode Couplers with Removable Filters



High and Low Power Patchcords



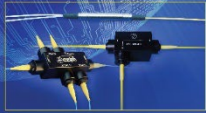
High Power Laser to Fiber Couplers



Pigtails, Rectenable Style Collimators and Focusers



Fiber Optic U-Bracket Assemblies



Wavelength Division Multiplexers and Beam Splitters



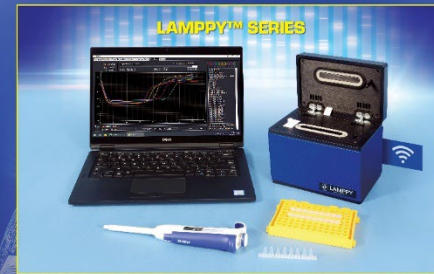
Turnkey, Ultra Stable Laser Modules



Pocket Optical Power Meter and Detectors

Universal Optical DNA Rapid Detection System

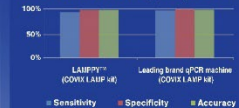
For Pathogens Including: COVID-19, SARS, EBOLA, CHOLERA, SALMONELLA, ETC.



Features:

- Use to detect viral, fungal, and bacterial DNA/RNA
- Rapid DNA/RNA detection (as little as 20 minutes)
- Highly sensitive and specific detection of low viral levels
- Intuitive software displays real time data during testing
- Melt analysis available with the included software
- Lid heater prevents evaporation and condensation
- Compact modular design allows for easy cleaning and maintenance
- Pair with an external battery for a portable and field-deployable system
- Test up to 8 samples simultaneously (higher throughput systems with up to 96 samples available upon request)
- Wireless communication with dual-band Wi-Fi and Bluetooth connectivity
- A fraction of the cost of qPCR based systems
- OZ Optics also offers private labelling for volume OEM applications

Clinical trial: LAMPY™ vs. Leading brand qPCR machine

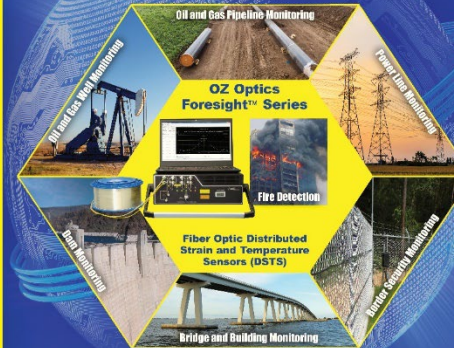


In a lab study done at Acibadem University using saliva samples taken from patients at the Acibadem Hospitals, LAMPY™ was compared to a well-known conventional qPCR machine in performance and speed. The comparison study was carried out with a sample size of 262 using the COVID LAMP-based kit on both instruments and then verified with the KrosQuant SARS-COV-2 (2019 nCoV) Real Time PCR Diagnostic Kit on a leading brand conventional qPCR machine.

Fiber Optic Distributed Strain and Temperature Sensors

USA Patent Numbers: 7499151, 7599047, and 9568307

- BOTDA only, BOTDR only, or both BOTDA and BOTDR modules in one unit
- Simultaneous measurement of strain and temperature
- Fast, dynamic measurement of strain and/or temperature up to 200 km sensing range
- Uses standard telecommunications fibers to minimize costs



Fiber Optic Sensors for Pipeline Monitoring

USA Patent Numbers: 7499151, 7599047, and 9568307

- Pipeline leakage detection
- Sensitive detection of corrosion / erosion, cracks and buckling
- BOTDA only, BOTDR only, or both BOTDA and BOTDR modules in one unit
- Simultaneous measurement of strain and temperature
- Fast, dynamic measurement of strain and/or temperature up to 200 km sensing range
- Uses standard telecommunication fiber to minimize costs



Fire Detection



Leading Technology Featured Products



Fiber Optic Sensors for Fire Detection

USA Patent Numbers: 7499151, 7599047, and 9568307

- BOTDA only, BOTDR only, or both BOTDA and BOTDR modules in one unit
- Simultaneous measurement of strain and temperature
- Fast, dynamic measurement of strain and/or temperature up to 200 km sensing range
- Uses standard telecommunications fiber to minimize costs



Fiber Optic Sensors for Bridges, Dams and Buildings

USA Patent Numbers: 7499151, 7599047, and 9568307

- BOTDA only, BOTDR only, or both BOTDA and BOTDR modules in one unit
- Simultaneous measurement of strain and temperature
- Fast, dynamic measurement of strain and/or temperature up to 200 km sensing range
- Uses standard telecommunications fibers to minimize costs



Bridge Monitoring



Dam Monitoring



Building Fire Detection

Fiber Optic Sensors for Power Line and Smart Power Generator Monitoring

USA Patent Numbers: 7499151, 7599047, and 9568307

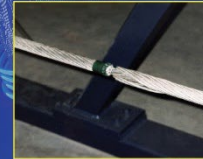
- BOTDA only, BOTDR only, or both BOTDA and BOTDR modules in one unit
- Simultaneous measurement of strain and temperature
- Fast, dynamic measurement of strain and/or temperature up to 200 km sensing range
- Uses standard telecommunication fiber to minimize costs



Underground Power Line Monitoring



Power Line Monitoring



Optical Ground Wire (OPGW)



Construction of OPSW



Gas Generator Monitoring

Fiber Optic Sensors for Security Monitoring

USA Patent Numbers: 7499151, 7599047, and 9568307

- BOTDA only, BOTDR only, or both BOTDA and BOTDR modules in one unit
- Simultaneous measurement of strain and temperature
- Fast, dynamic measurement of strain and/or temperature up to 200 km sensing range
- Uses standard telecommunication fiber to minimize costs



Border Security Monitoring



Highway Health Monitoring



Industry Standards

All Products Manufactured are in Strict Accordance with International Industry Standards:

- **ISO 9001:2015 Certified (Canada, China and Türkiye)**
- **REACH Compliance**
- **RoHS Compliance**
- **CE Compliance**
- **Telecordia Compliance**
- **Controlled Goods Directorate Registered**
- **Critical Supplier for F35 and F18 Project**
- **TSCA (Toxic Substance Control Act) Compliance**
- **CHEMSHERPA Compliance**
- **IEC 61010 Compliance**



Marketing Strategy

Application Market

Using our strong direct sales and distributors, we address the following markets:

- **Energy – Oil and Gas**
- **Military and Homeland Security**
- **Educational**
- **Industrial**
- **Telecom / Datacom**
- **Medical & Pharmaceutical**





Marketing Strategy

Application Market

By leveraging the technology and expertise gained since its inception, OZ Optics has attracted a broad range of customers in the telecom / datacom, medical, military, security, industrial, construction, aerospace, power utilities, petrochemical and educational sectors.





Marketing Strategy

Global Sales Network

OZ Optics has resellers and distributors in over 30 Countries and Regions with over 10,000 customers worldwide:



Austria



Germany



Luxembourg



Sweden



Belgium



Greece



Netherlands



Switzerland



Brazil



Hong Kong



Norway



Taiwan



Canada



India



Poland



Thailand



China



Ireland



Portugal



Türkiye



Denmark



Italy



Singapore



United Kingdom



France



Japan



South Korea

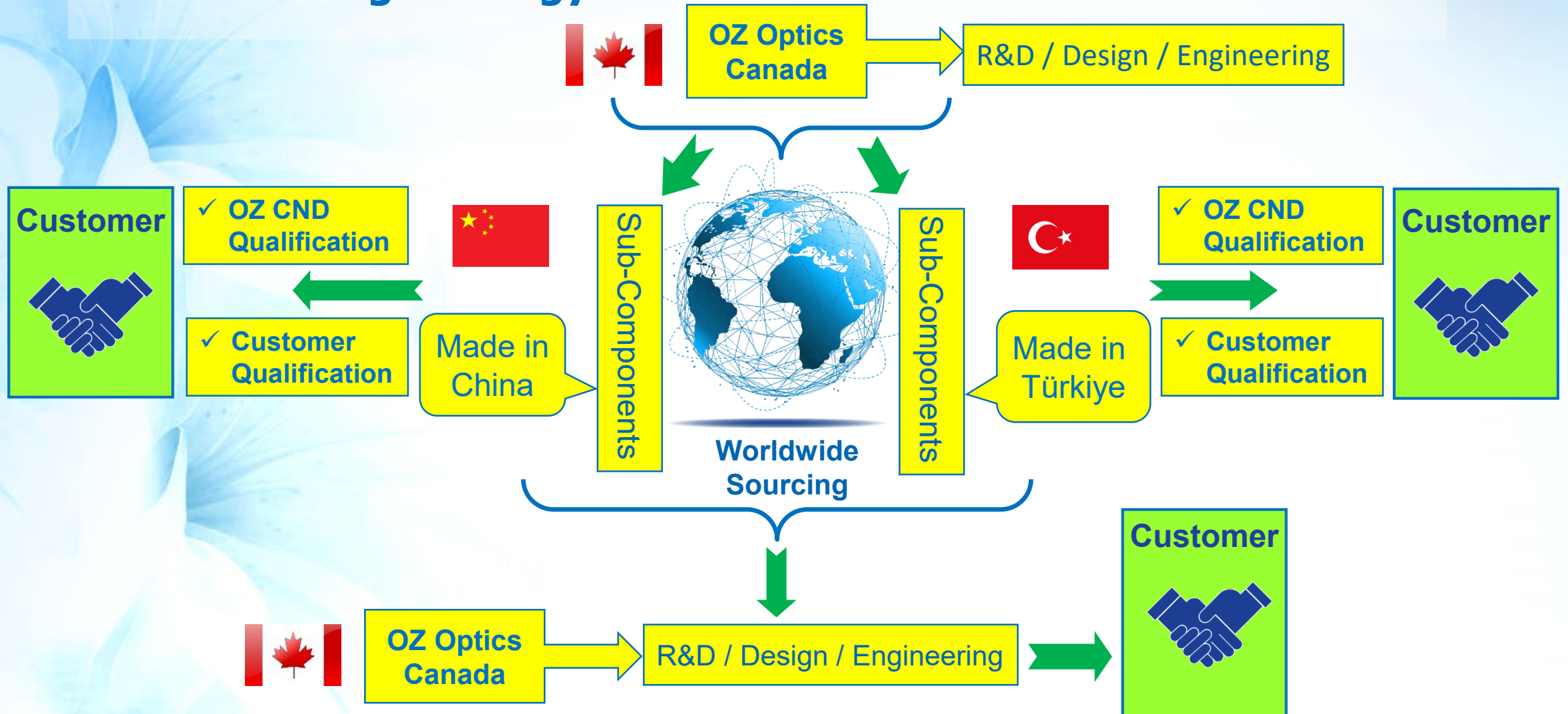


United States



Operation Strategy

Manufacturing Strategy



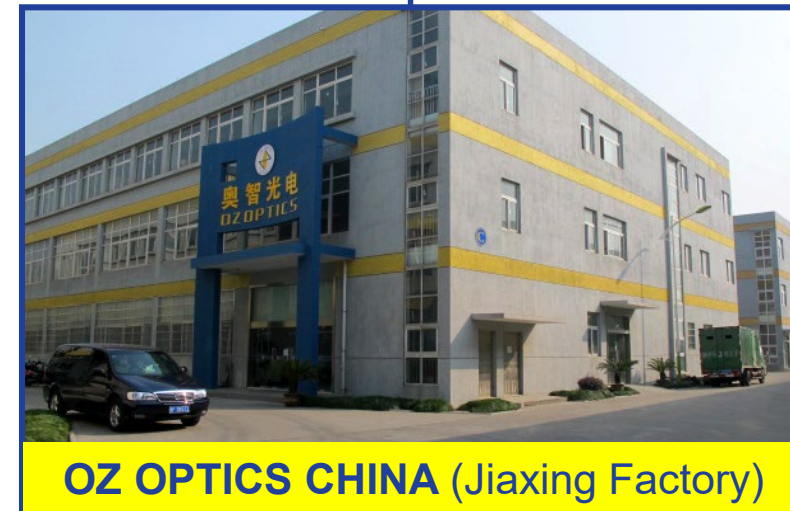
Marketing & Operation Strategy

Competitive Advantage

- Superior Technology
Innovative Engineering
- Competitive Pricing
- Global Presence
- Extensive Experience
In Fiber Optics Manufacturing
- Exceptional Quality and Service



Branch Network





Branch Network

Facility - Ottawa Headquarters

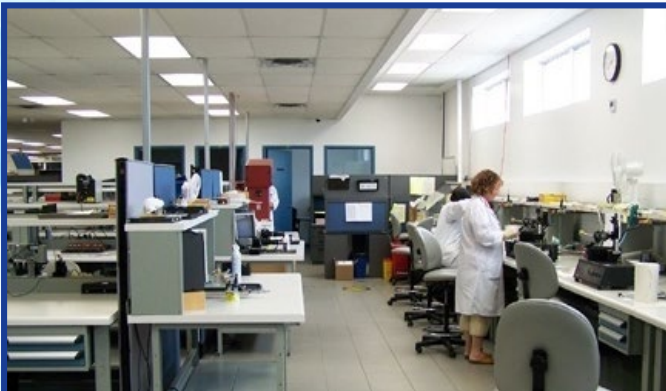
- 60,000 sq ft. - Manufacturing and R&D Facilities
- 15,000 sq ft. - Admin, Sales and Marketing
- 15,000 sq ft. - Training and Fitness Facilities





Branch Network

Facility - Ottawa Headquarters



Production Area



Training Centre Building



Meeting Room



Swimming Pool



Branch Network

Facility - Türkiye Factory (Izmir, Türkiye)

- Operational Since 2000
- 33,000 sq ft. Manufacturing Facility
- Located in Free Trade Zone
- Low Tax Rates
- Sub Component Parts Manufacturing
- High Quality Labor
- AR Coating Machine & Clean Room onsite





Branch Network

Facility - China Factory (Jiaxing, China)

- Operational Since June 2010
- Wholly Foreign Owned Enterprise
- Cost Effective Manufacturing
- High Quality Labor
- Supply Chain Integration





Branch Network

Facility - China Factory (Jiaxing, China)

- Located in Economic Development Zone
- 4000+ sq meters - Total Area
 - 500 sq meters – Administration, Sales and Marketing
 - 3500 sq meters – Manufacturing Area
 - ✓ 500 sq meter – Class 10,000 Clean Room
 - ✓ 300 sq meter – ESD Working Area





OZ Optics China

Zhejiang OZ Optics Technologies Co., Ltd

- Operational since June 2010
- Wholly Foreign Owned Enterprise
- NPI & Production Line Setup
- On-site Training by OZ CND
- Began Mass Production in September 2010
- Completed Main Facility Expansion in 2019





High Power Handling Fiber

- Power handling of optical fiber is wavelength dependent and dependent upon the structure of the optical fiber
- The shorter the wavelength, the higher the photon energy, and the lower the damage threshold
- The higher the absorption of the fiber, the lower the damage threshold.
- The smaller the core size is, the lower the power handling as damage threshold is in terms of W/mm^2

Other Damage Factors

- Pulsed or CW Light?
- Focused Spot Size
- Fiber Doping
 - Low OH vs High OH
 - Germanium Doped vs Fluorine Doped

Damage Threshold of Fused Silica



Estimated Optical Power Densities on Air / Glass Interface		
Type	Theoretical Damage Threshold	Practical Safe Level
CW (Average Power)	~1 MW/cm ²	~250 kW/cm ²
10 ns Pulsed (Peak Power)	~5 GW/cm ²	~1 GW/cm

Data given is for wavelengths of 633nm and longer.
For shorter wavelengths the power numbers have to be lower.

Typical Damage Thresholds for SM Fibers, Standard Termination



Wavelength	Singlemode Core Size	Damage Threshold
1550nm	9/125	1 Watt
1060nm	6/125	0.5 Watts
830nm	5/125	0.25 Watts
633nm	4/125	0.2 Watts
520nm	3.5/125	0.1 Watts
405nm	3/125	< 50 mW



How To Make Fiber with Higher Power Handling



- **Large Mode Area (LMA) Fibers**
- **Enlarge the Core Diameter, Reduce the NA**
 - Examples: Nufern SM-GDF-10/125, BC46585 and PM1060L, BC#37895.
 - Limited by bend sensitivity.



LMA Fibers



- If you make the fiber cores even bigger, you cannot keep reducing the NA.
- Eventually the fibers are no longer truly singlemode. They become low-order multimode (few mode) fibers.
- You need to know the Mode Field Diameter (MFD) of the fundamental mode of the LMA fiber.
- Examples:

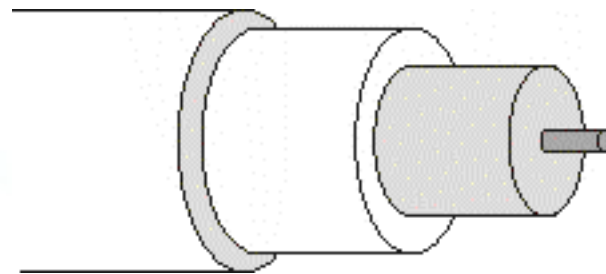
Table 1B: Large Mode Area Fibers

Bar Code	Part Number	Operating Wavelength (nm)	Core Diameter (μm)	Cladding Diameter (μm)	Attenuation (dB/km)	Numerical Aperture	Buffer Diameter (mm)	Buffer Material
36269	SMF-1060-20/125-0.25-L-LMA	1064	20	125	<10	0.10	0.25	Acrylate
35688	SMF-1060-25/125-0.25-L-LMA	1064	25	125	<10	0.10	0.25	Acrylate
35689	SMF-1060-25/250-0.4-L-LMA-DC	1064	25	250	<10	0.06	0.40	Acrylate



Double Clad Fibers

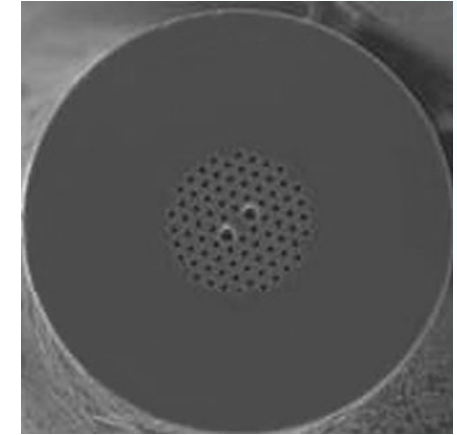
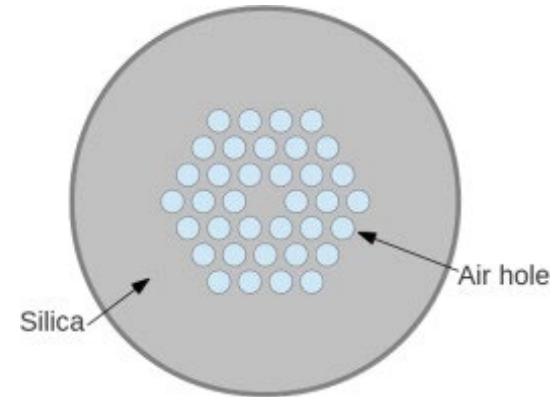
- Parts have an inner core, outer core = inner cladding, and outer cladding.
- Inner core is singlemode, active doping.
- Inner cladding acts as multimode fiber, delivers energy to inner core. Usually pure fused silica.
- Outer Cladding is usually polymer. Sometimes is the outer coating.



▶ Photonic Crystal Fiber

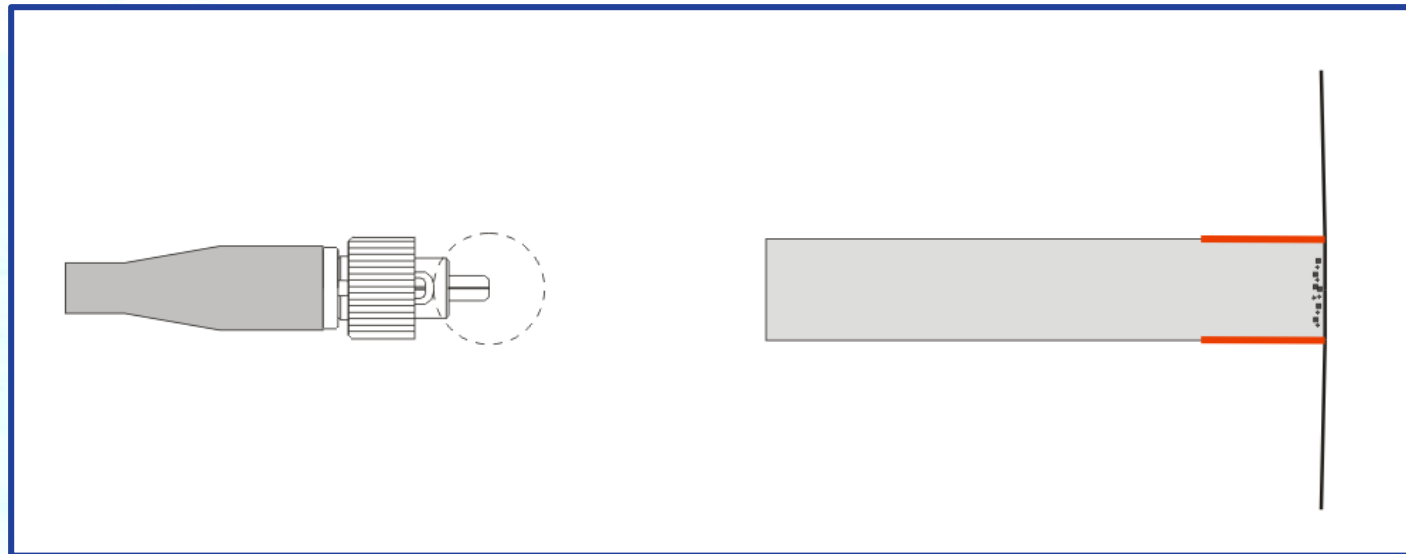


- Sometimes Called “Holey Fiber”
- Singlemode and PM Fiber Versions
- Very Broad-Band Singlemode Behavior
- Mode Field Diameter Almost Constant Versus Wavelength.



Termination Failure Modes

- Epoxy Outgassing / Burning
- Contamination
- Embedded Polishing Particles





High Power Termination Options

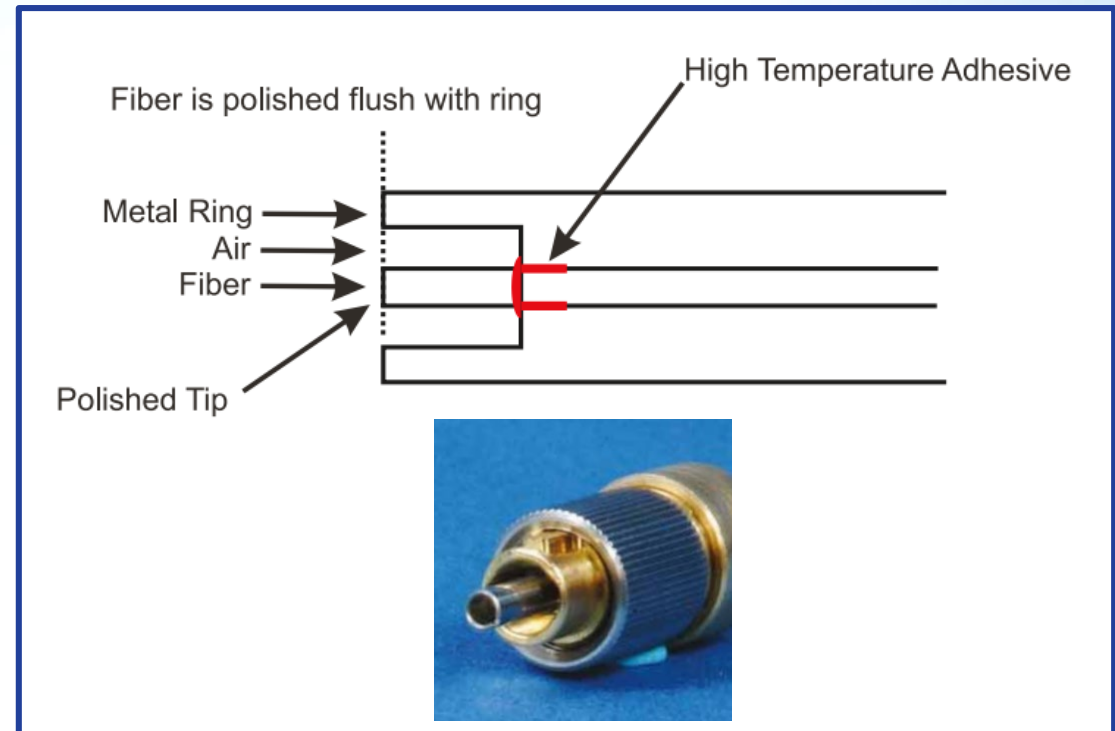


- **Regular Termination**
- **Air-gap Connectors – Polished Fibers**
- **Air Gap Connectors – Cleaved Fibers**
- **Air Gap Connectors – Laser Conditioned Fibers**
- **High Power Connectors with Heat Sinks**
- **Air Gap Connectors – Endcapped Fibers**
- **Regular Termination – Endcapped Fibers**

Air Gap Connector - Polished

DTS0037: High Power / High Temperature Fiber Optic Patchcords

- Eliminates the glue from the fiber tip
- Best for fibers >200 μm in diameter. (but can do 125 micron clad fibers)
- Cleaning afterwards is essential.
- Embedded particles still an issue

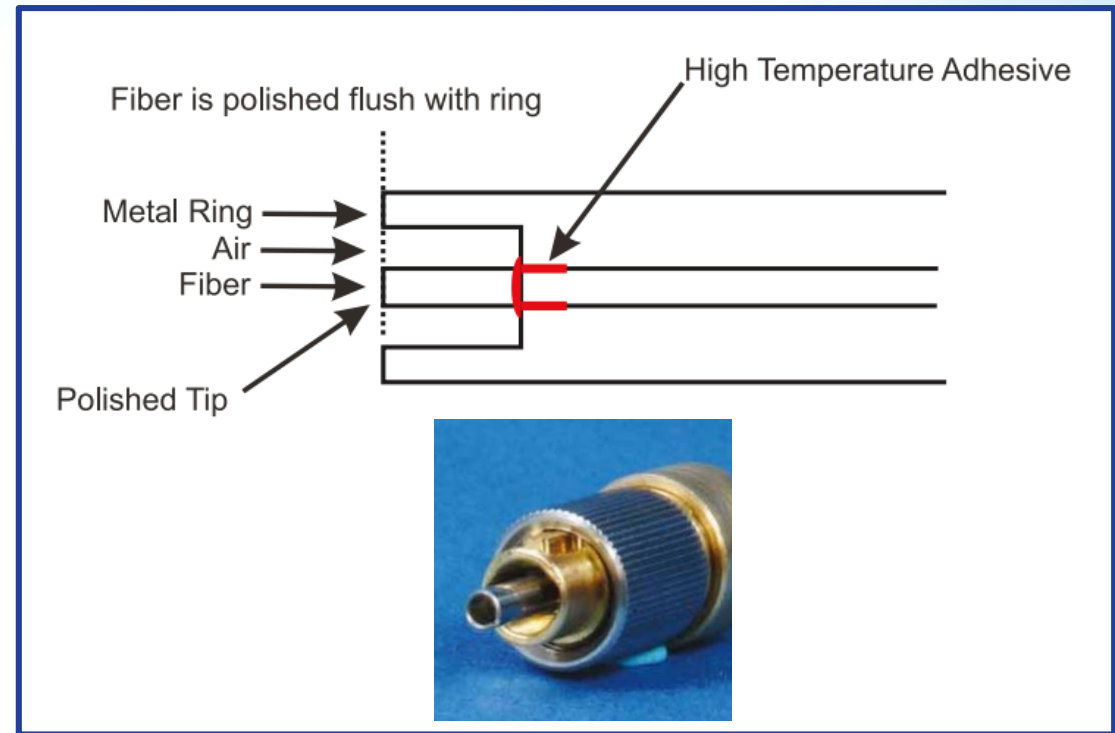


DTS0037 - High Power / High Temperature Fiber Optic Patchcords

Air Gap – Cleaved Fiber

DTS0037: High Power / High Temperature Fiber Optic Patchcords

- Eliminates the embedded particle problem.
- Need to watch out for small chips near the edge, especially for multimode fibers.

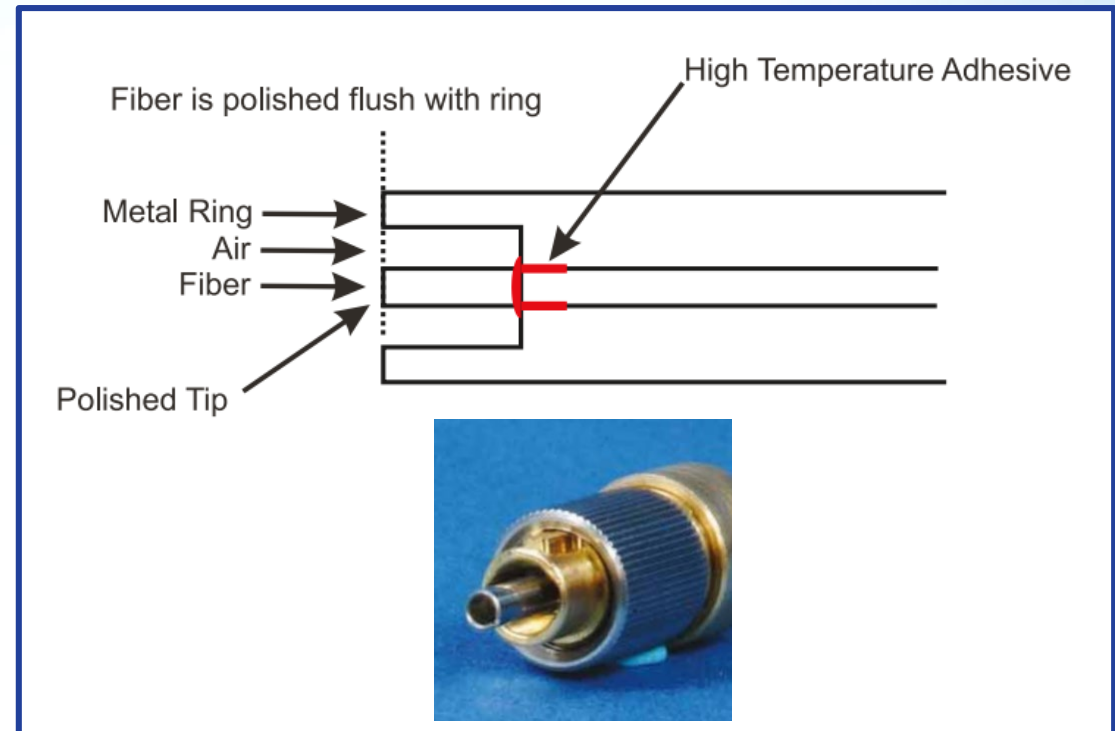


DTS0037 - High Power / High Temperature Fiber Optic Patchcords

Air Gap – Laser Conditioned

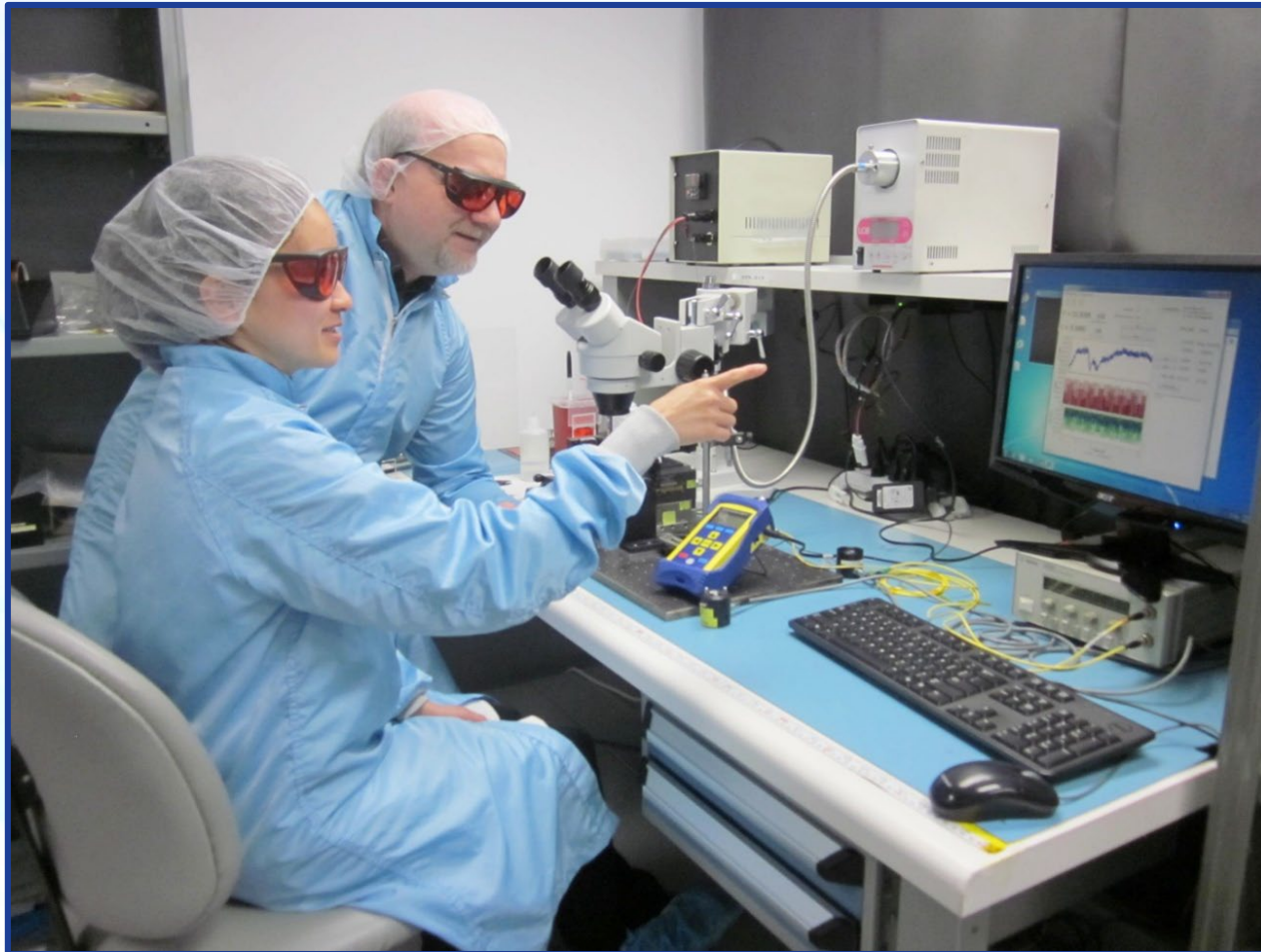
DTS0037: High Power / High Temperature Fiber Optic Patchcords

- Anneals the fiber tip, making it stronger.
- Can cause rounding of the fiber tip near the edges, May be a concern for some multimode fibers.
- Multimode Only





Clean Room for High Power Manufacturing Components



Connectors with Heat Sinks

DTS0037: High Power / High Temperature Fiber Optic Patchcords

- Useful for applications exceeding 100 W.
- Any light not captured in the fiber core is diverted to the connector housing, absorbed, generating heat.
- Special epoxies enhance diverting light in the cladding (cladding mode stripping)
- Heat Sinks / Fins radiate this heat to the environment.



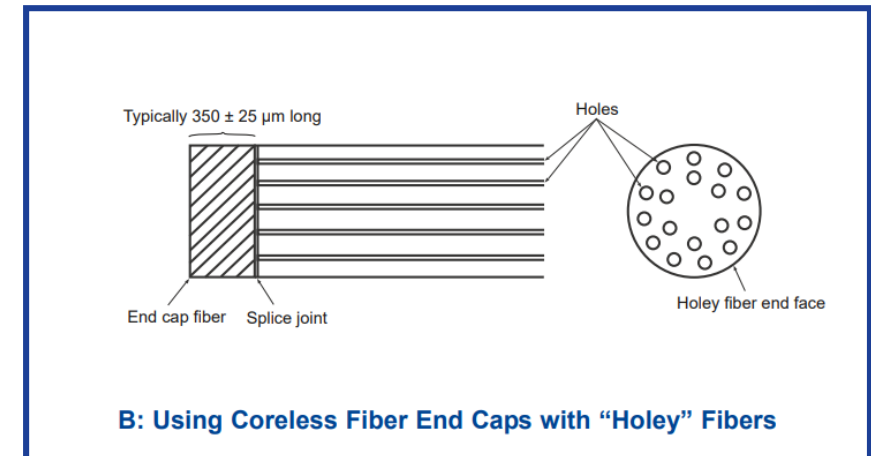
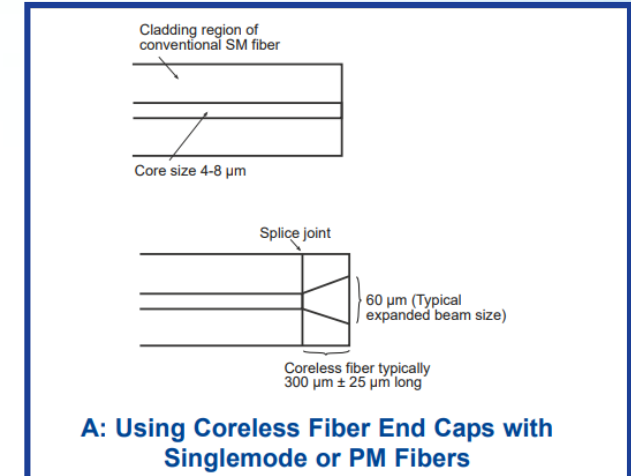
DTS0037 - High Power / High Temperature Fiber Optic Patchcords



End-capping

DTS0037: High Power / High Temperature Fiber Optic Patchcords

- Most failures occur at the glass-air interface at the end of a fiber.
- Intensity is very high in singlemode and PM fibers because of small fiber core size, so intensity (W/m^2) is large.
- Endcap acts as a protective region allowing the beam to expand before encountering the air.



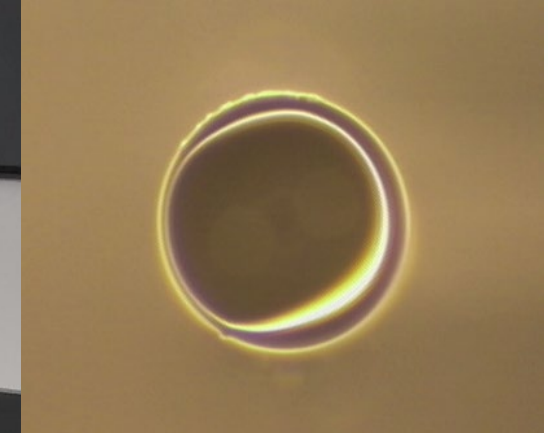
DTS0037 - High Power / High Temperature Fiber Optic Patchcords



Fusion Splicer for End Capping



Laser Cleaving System

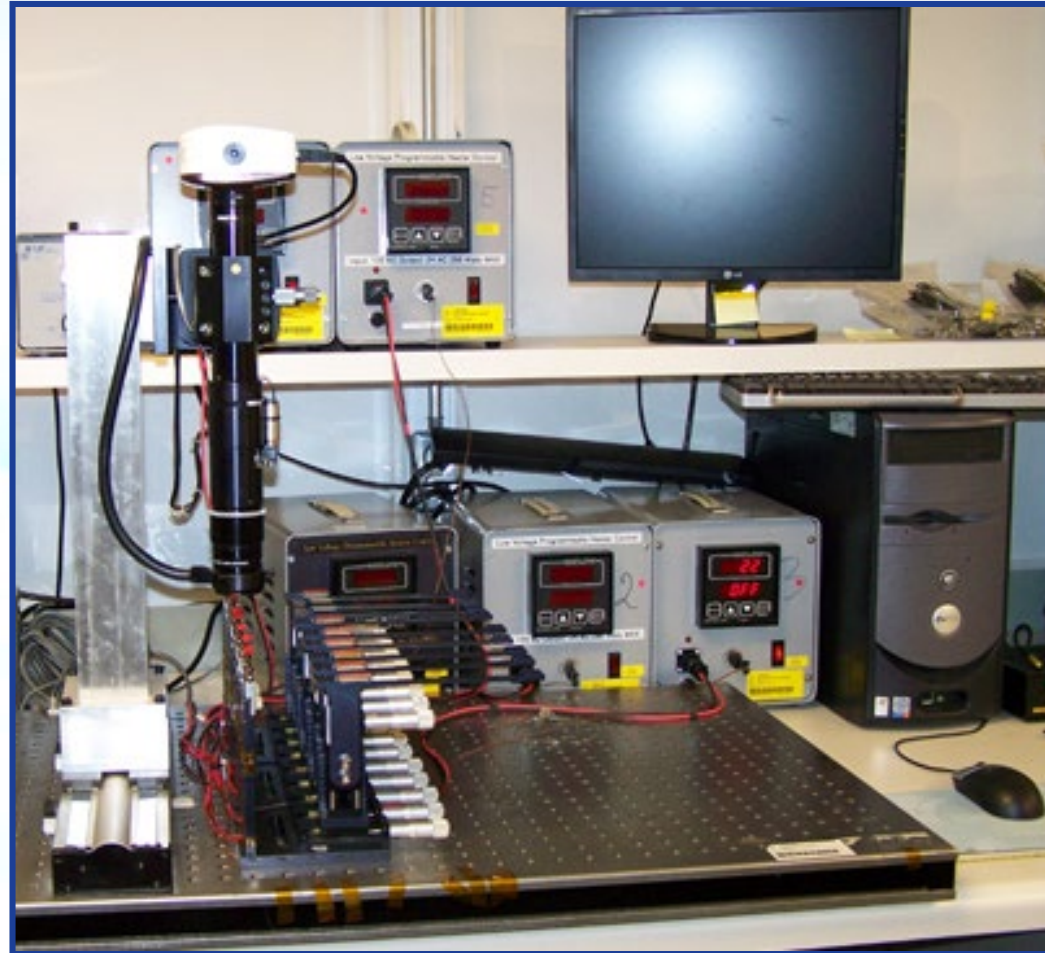




High Power Inspection Station



▶ High Power Gluing Station for Patchcords

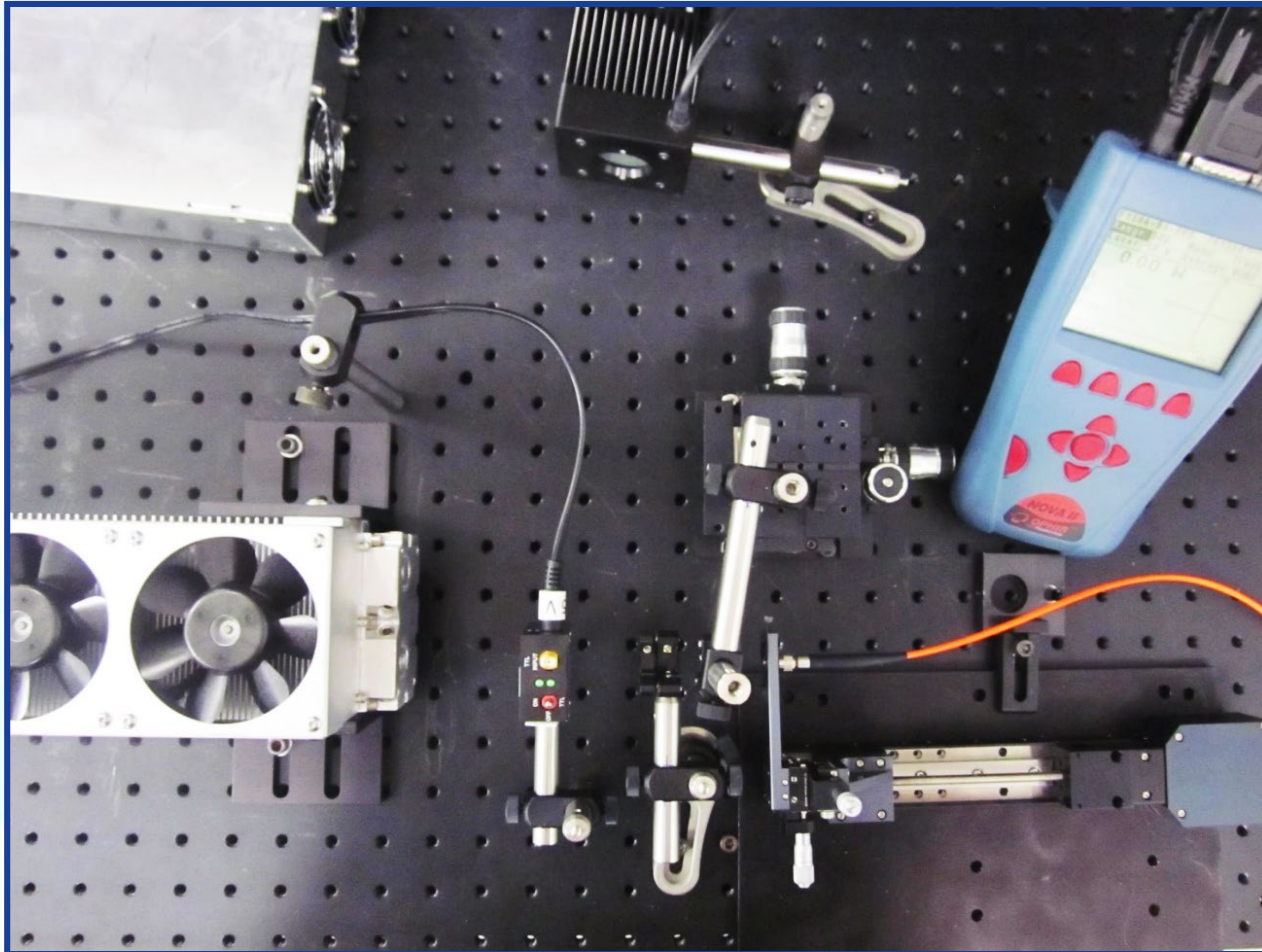


▶ High Power AR Coating Machine





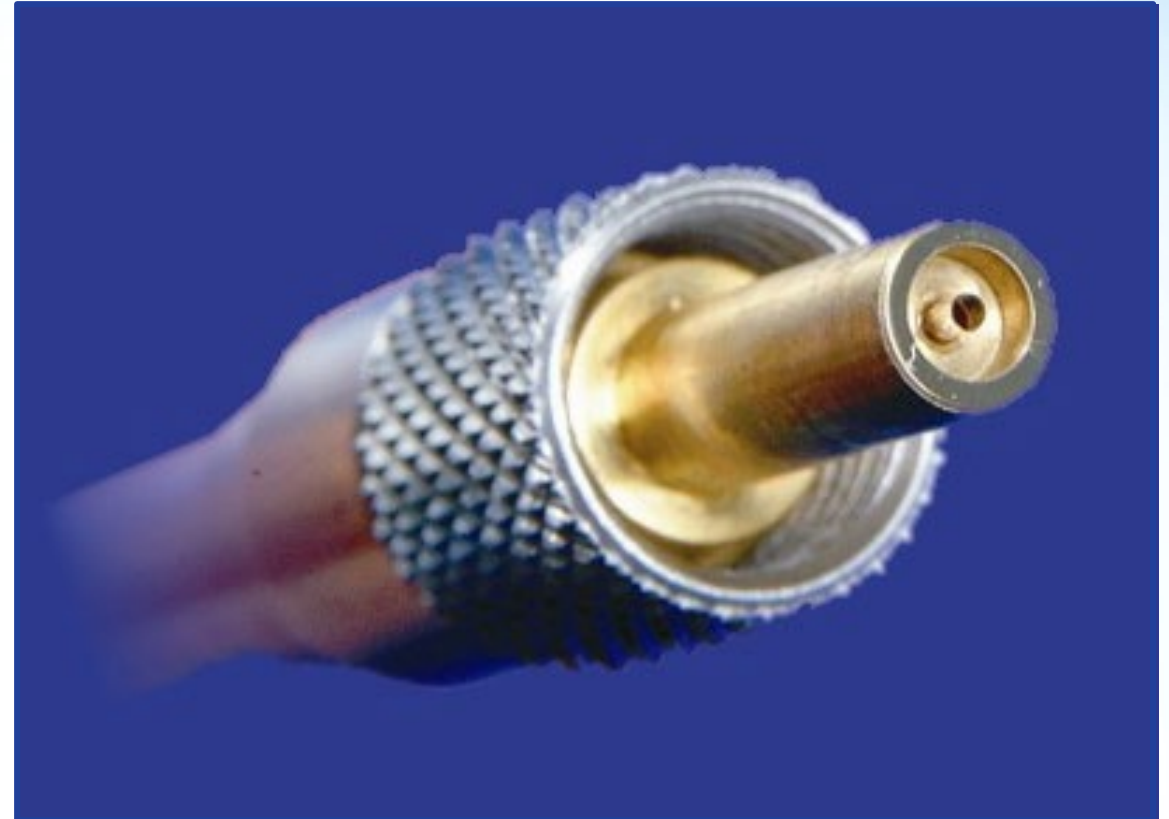
Laser Conditioning Station



High Power Patchcords & Connectors



- **Able to Transmit Over 100 W of Optical Power**
- **Operating Wavelengths from 200 nm to 2000 nm**
- **PMF, SMF, and MMF High Power AR Coatings**



High Power Patchcords & Connectors



- Able to Transmit Over 100 W of Optical Power
- Operating Wavelengths from 200 nm to 2000 nm
- PMF, SMF, and MMF High Power AR Coatings



High Power Patchcords & Connectors



- Able to Transmit Over 100 W of Optical Power
- Operating Wavelengths from 200 nm to 2000 nm
- PMF, SMF, and MMF High Power AR Coatings



OZPEN™ CO₂ Fiber Optic Cleaning Unit



DTS0126: OZPEN™ CO₂ Fiber Optic Cleaning Unit for High Power Components

- Superior Removal of Contaminants on Fiber Optics and Other Components
- Quick and Dry Solvent Free Cleaning Process
- Cleans Variety of Substrates
- Designed to Clean Small Surface Area
- Ideal for High Power Applications



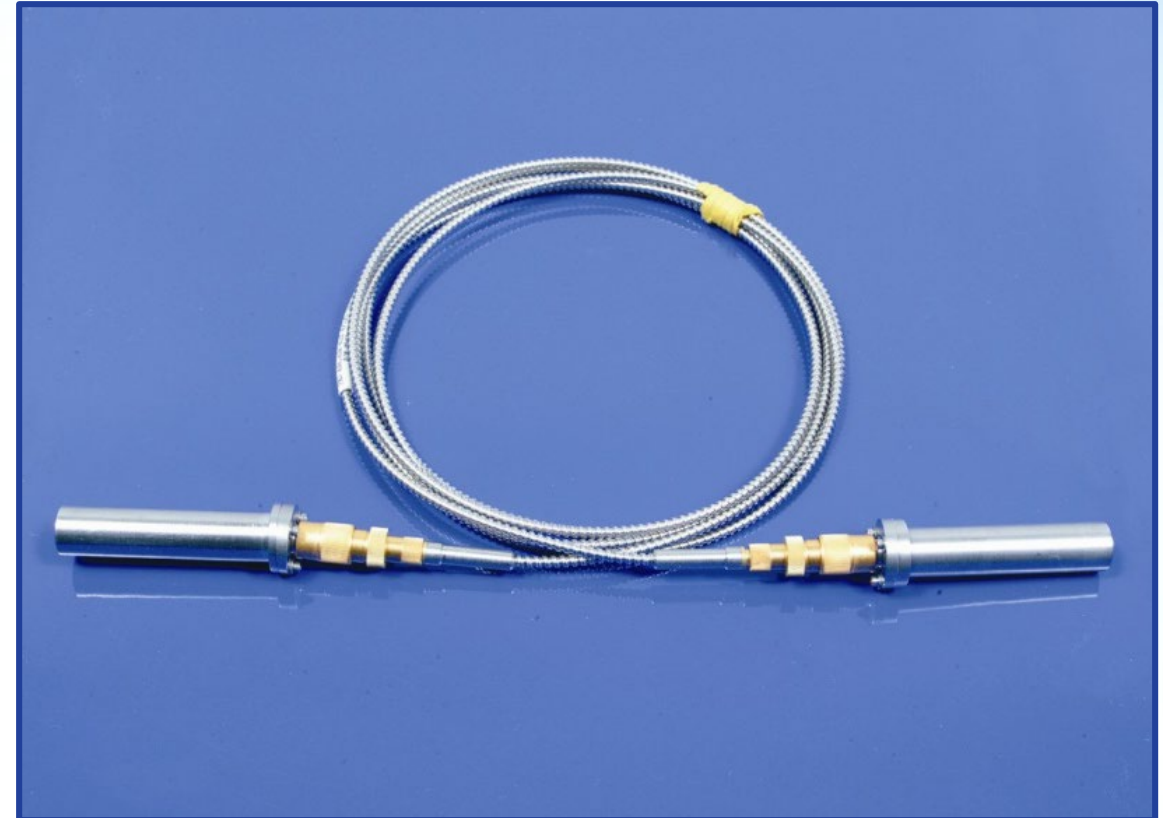
DTS0126 – OZPEN™ CO₂ Fiber Optic Cleaning Unit for High Power Components



High Power Collimators / Focusers

DTS0145: High Power Collimators and Focusers – Pigtail Style

- Up to 100 Watts CW Power Handling
- Available for 180 nm to 2000 nm Wavelengths
- Receptacle and Pigtailed Versions



DTS0145 - High Power Collimators and Focusers – Pigtail Style

Fused High Power Fiber Collimators

DTS0157: Fused Fiber Collimator

- No air-glass interfaces for maximum power handling
- Over 1 kW power handling
- Singlemode, multimode, polarization maintaining and large mode area fiber versions available



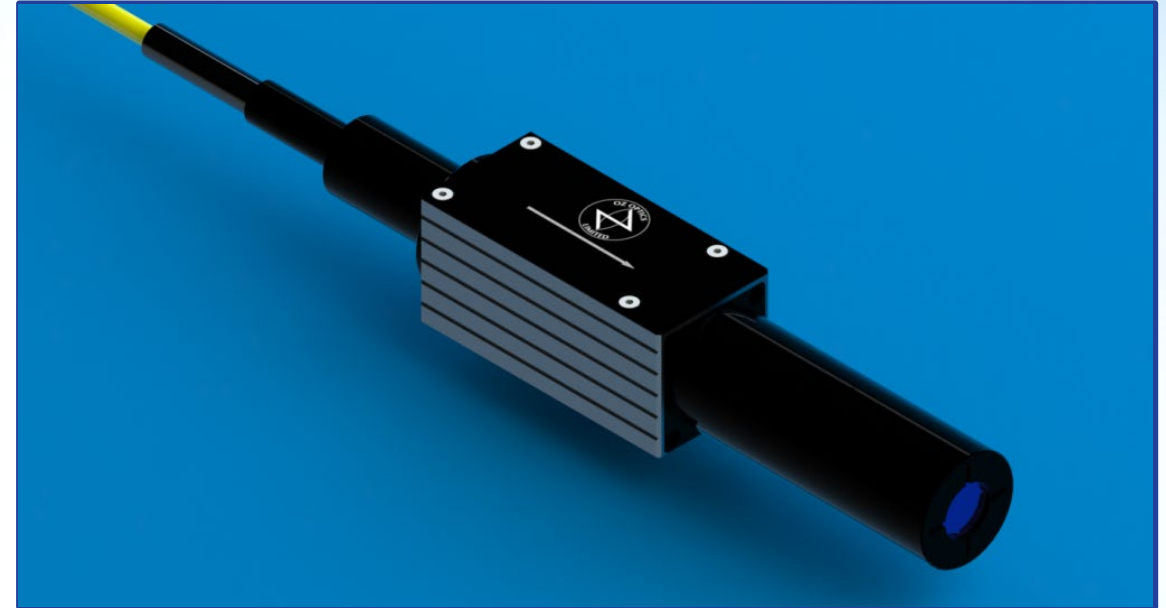
DTS0157 – Fused Fiber Collimator

High Power Fiber Pigtailed Isolators



DTS0123: High Power Free Space and Fiber Pigtailed Isolators

- Low Insertion Loss, Up to 100 Watts
- Available from 400 – 2000 nm
- Polarization Independent, High Isolation



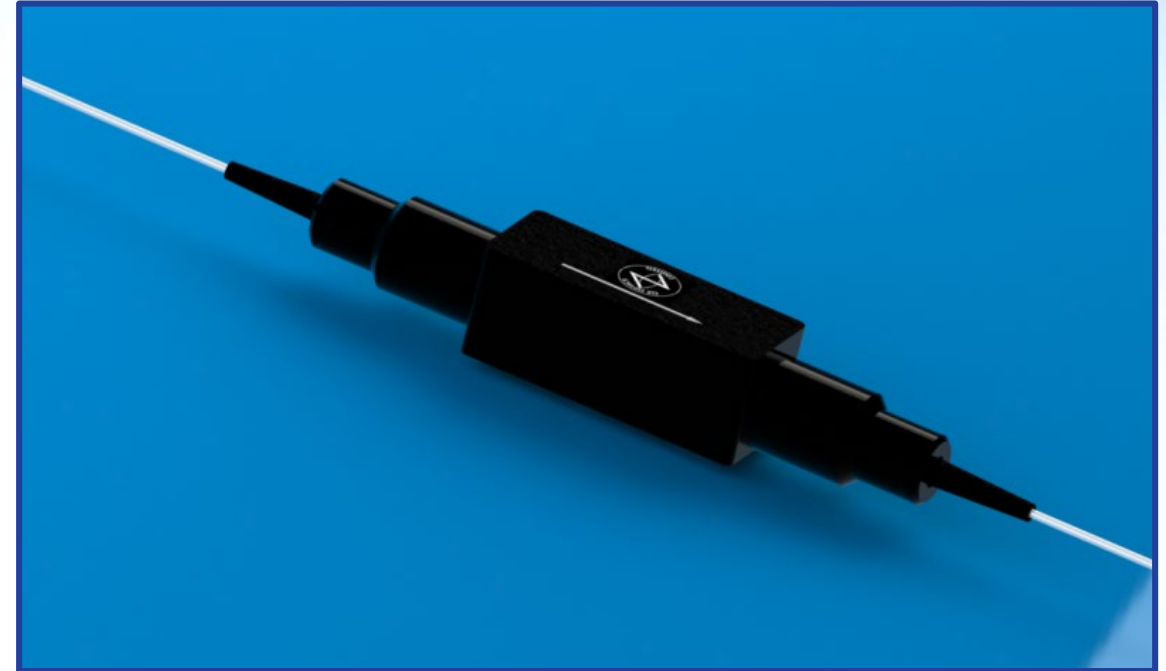
DTS0123 - High Power Free Space and Fiber Pigtailed Isolators

High Power Fiber Pigtailed Isolators



DTS0123: High Power Free Space and Fiber Pigtailed Isolators

- Multiple Watts CW Power Handling
- Shutter Speed of < 5 msec
- Temperature, Contact or Proximity Sensors for Safety Interlock
- SMA 905 or FC Receptacles



DTS0123 - High Power Free Space and Fiber Pigtailed Isolators



Mode Field Adapters

DTS0121: Mode Filed Adapters

- High Power Handling
- Adapts and Conserves Modal Content
- Singlemode and Polarization Maintaining Versions
- Custom Designs Available



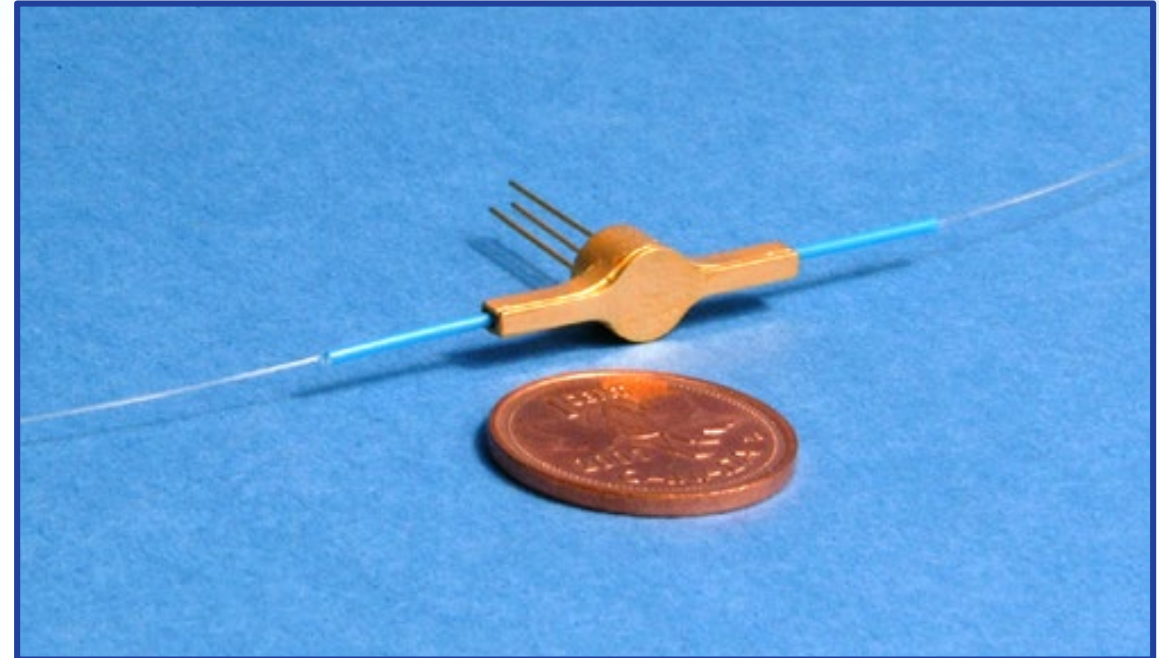
DTS0121 – Mode Field Adapters



High Power Directional Taps / Power Monitors

DTS0042: Directional Fiber Optic Power Monitors (Taps / Photodiodes)

- Up to 10 Watts Power Handling
- SM, PM and Specialty Fiber Versions, Including Photonic Crystal Fiber
- Available for 320nm to 2000nm Wavelengths



DTS0042 - Directional Fiber Optic Power Monitors (Taps / Photodiodes)

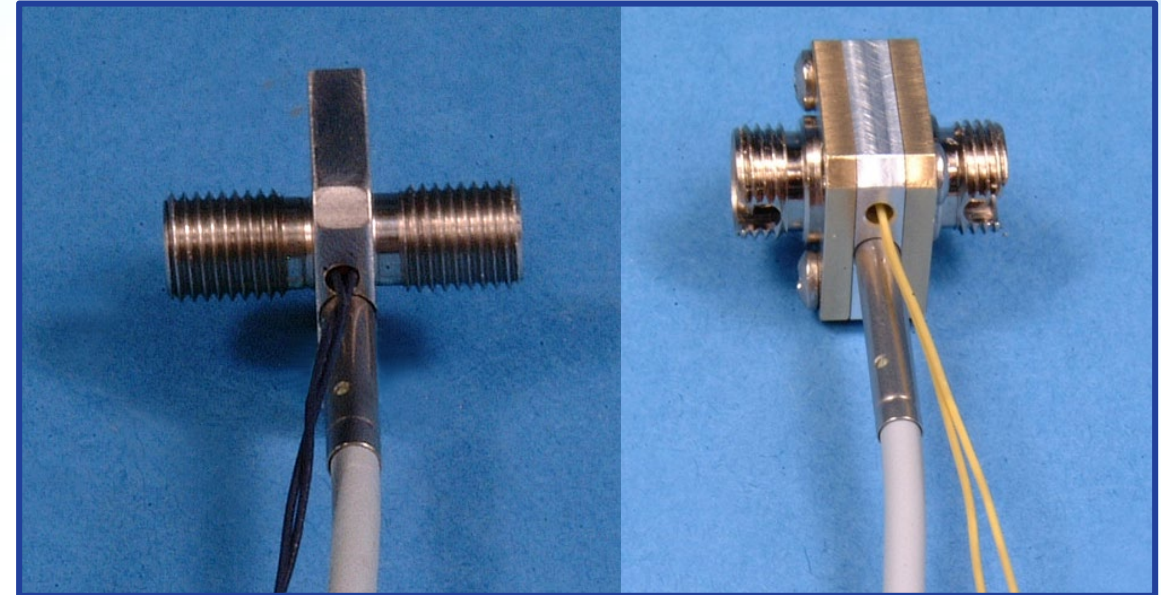


High Power Shutters / Bulkhead Receptacles with Safety Interlocks



DTS0120: High Power Shutters and Safety Interlocks

- Multiple Watts CW Power Handling
- Shutter Speed of < 5 msec
- Temperature, Contact or Proximity Sensors for Safety Interlock
- SMA 905 or FC Receptacles



DTS0120 - High Power Shutters and Safety Interlocks



High Power Shutters / Bulkhead Receptacles with Safety Interlocks



DTS0120: High Power Shutters and Safety Interlocks

- Multiple Watts CW Power Handling
- Shutter Speed of < 5 msec
- Temperature, Contact or Proximity Sensors for Safety Interlock
- SMA 905 or FC Receptacles



DTS0120 - High Power Shutters and Safety Interlocks

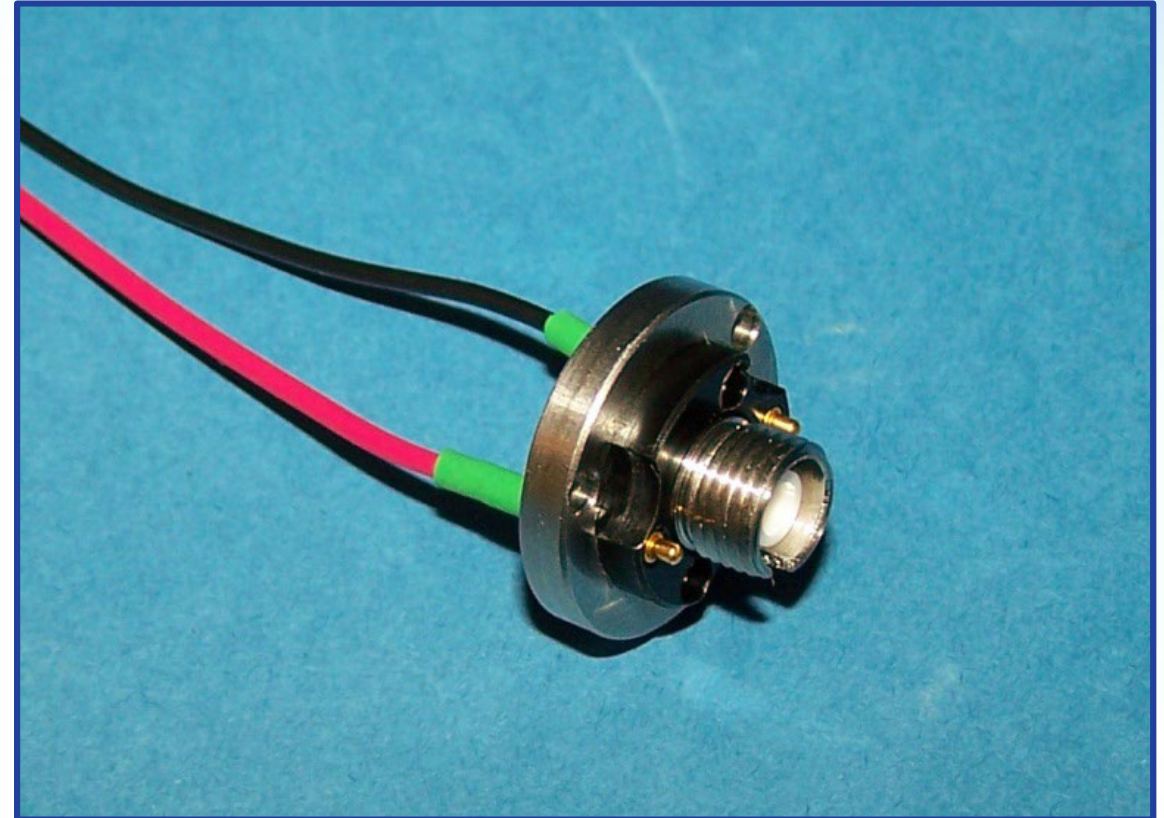


High Power Shutters / Bulkhead Receptacles with Safety Interlocks



DTS0120: High Power Shutters and Safety Interlocks

- Multiple Watts CW Power Handling
- Shutter Speed of < 5 msec
- Temperature, Contact or Proximity Sensors for Safety Interlock
- SMA 905 or FC Receptacles



DTS0120 - High Power Shutters and Safety Interlocks

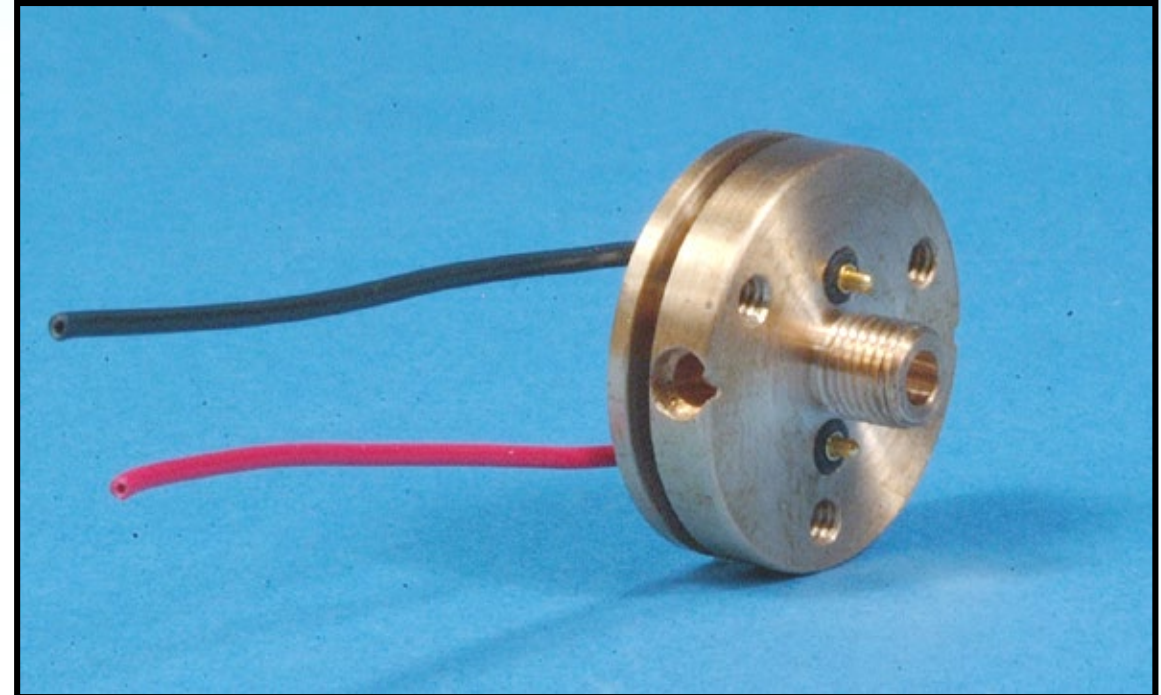


High Power Shutters / Bulkhead Receptacles with Safety Interlocks



DTS0120: High Power Shutters and Safety Interlocks

- Multiple Watts CW Power Handling
- Shutter Speed of < 5 msec
- Temperature, Contact or Proximity Sensors for Safety Interlock
- SMA 905 or FC Receptacles



DTS0120 - High Power Shutters and Safety Interlocks

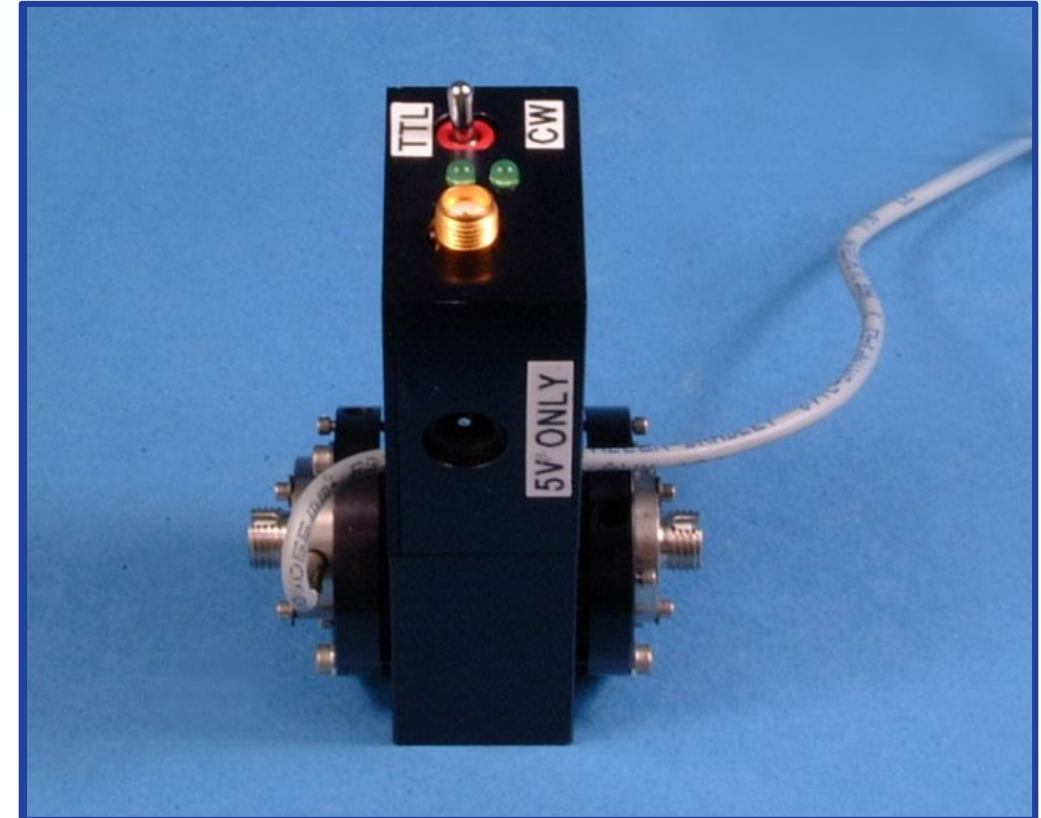


High Power Shutters / Bulkhead Receptacles with Safety Interlocks



DTS0120: High Power Shutters and Safety Interlocks

- Multiple Watts CW Power Handling
- Shutter Speed of < 5 msec
- Temperature, Contact or Proximity Sensors for Safety Interlock
- SMA 905 or FC Receptacles



DTS0120 - High Power Shutters and Safety Interlocks



High Power Shutters / Bulkhead Receptacles with Safety Interlocks



DTS0120: High Power Shutters and Safety Interlocks

- Multiple Watts CW Power Handling
- Shutter Speed of < 5 msec
- Temperature, Contact or Proximity Sensors for Safety Interlock
- SMA 905 or FC Receptacles

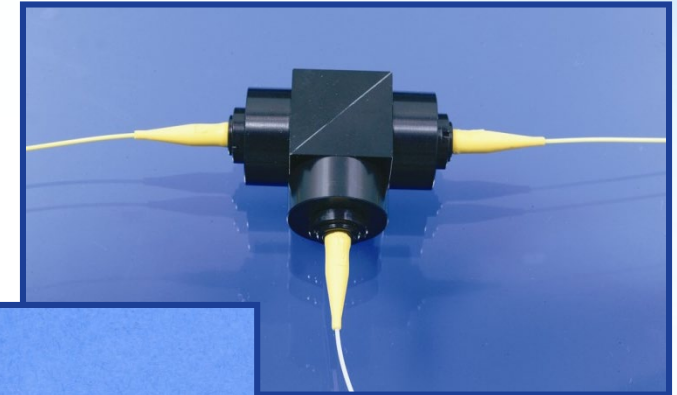


DTS0120 - High Power Shutters and Safety Interlocks

High Power Wavelength Division Multiplexer

DTS0089: Wavelength Division Multiplexers

- 0.8 dB Insertion Losses, 65 dB Isolation
- Up To 200 Watt Power Handling
- -40 dB, -50 dB, -60 dB Backreflection



DTS0089 – Wavelength Division Multiplexers

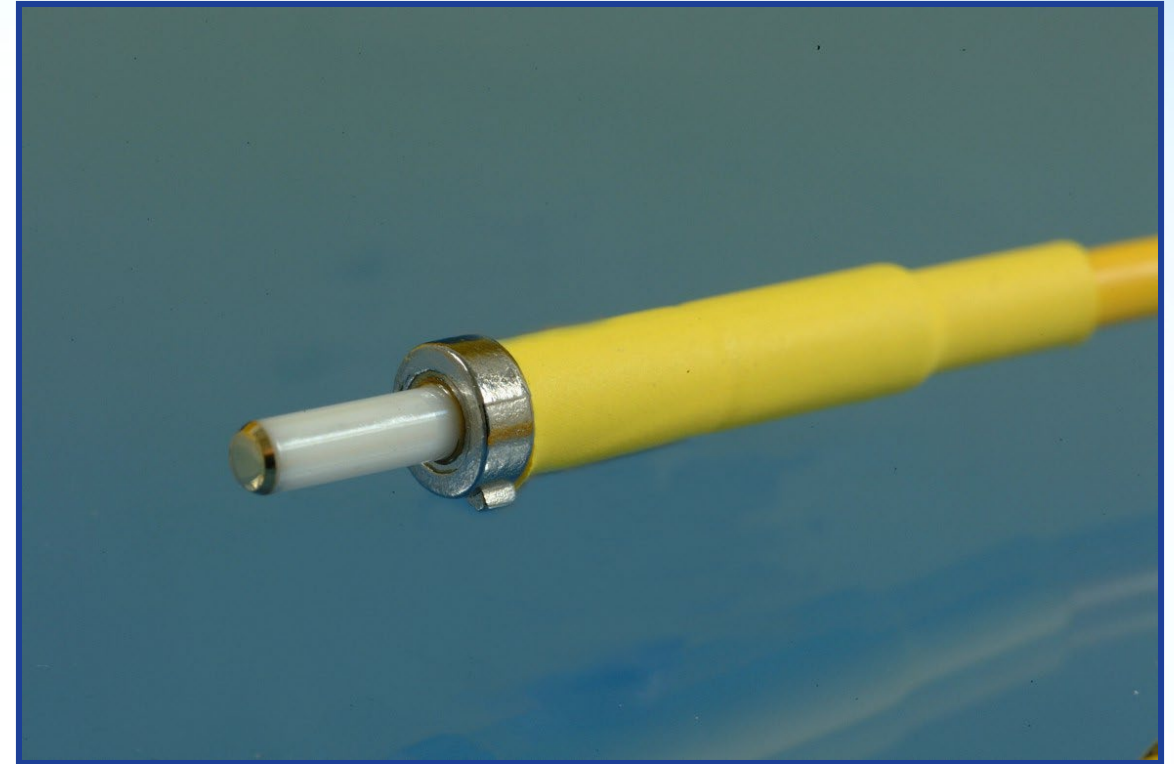


High Power Antireflection (AR) And Highly Reflective (HR) Coated Fiber Ends



DTS0020: Reflectors - Fiber Optic (Fixed or Variable)

- HR, $R > 98\%$, $AR < 0.3\%$
- 350 nm to 2000 nm
Wavelength Coatings
- SMF, MMF & PMF Versions



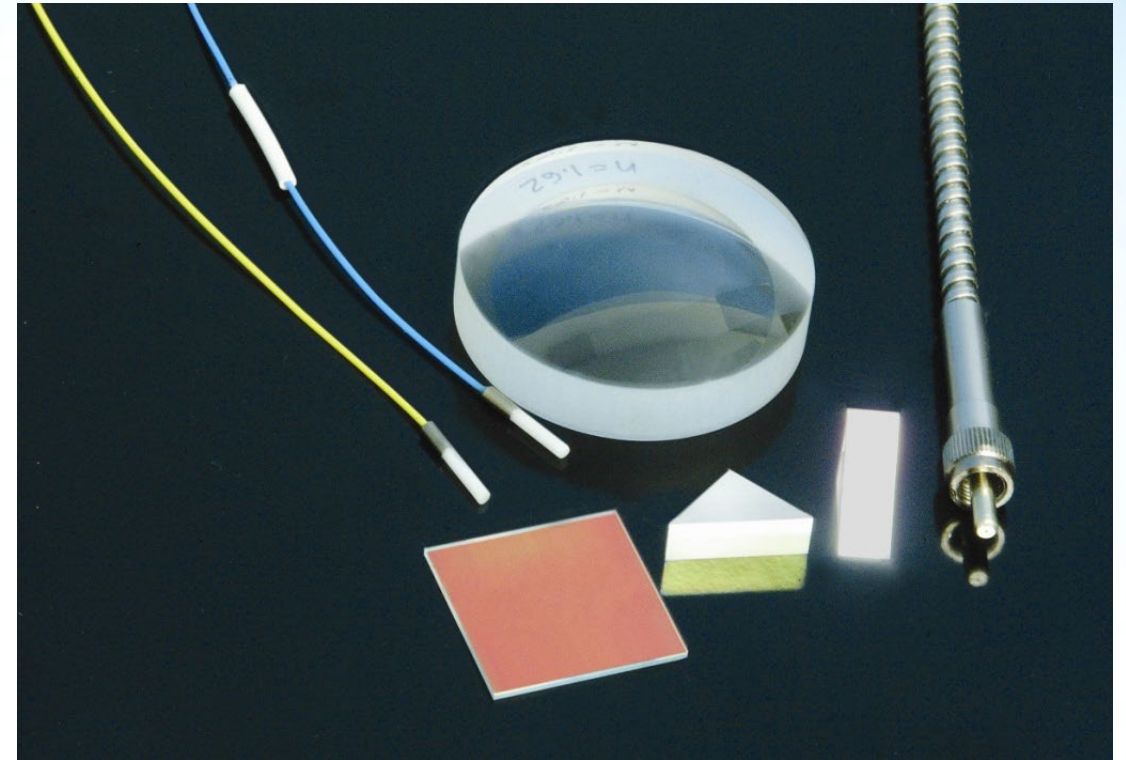
DTS0020 - Reflectors - Fiber Optic (Fixed or Variable)



High Power Optical Coatings

DTS0116: Optical Coatings

- High Power AR, Beamsplitter, Dichroic Coatings
- Fibers, Micro Optics, Lenses, Plates, Prisms Etc.
- Low Temperature High Abrasion Resistant Coatings



DTS0116 – Optical Coatings

Thank You for Choosing OZ Optics

Please Contact Our Sales Department:

Tel: 613-831-0981 ext. 3370

Toll Free: 1-800-361-5415

Email: sales@ozoptics.com

