



TOQUARTZ
Tech Specifications

TOQUARTZ®

Quartz Optical Fiber

Preform Rods

Product Catalog

Integrated Engineering & Agile Production
for Demanded Specifications




TOQUARTZ® QUARTZ OPTICAL FIBER PREFORM RODS

TOQUARTZ® is a specialized manufacturer of high-purity quartz products based in China, serving global B2B clients in laboratory instrumentation, biomedical research, and environmental monitoring. With in-house engineering support and flexible production capabilities, we offer both standard and custom TOQUARTZ® Quartz Optical Fiber Preform Rods with fast delivery and consistent quality.



Product Overview



TOQUARTZ® high-purity quartz optical fiber preform rods are manufactured with $\geq 99.98\%$ (max. up to 99.995%) SiO_2 content, ensuring excellent optical clarity, thermal stability, and mechanical strength required for high-quality optical fiber production. Our preforms feature exceptional dimensional precision, minimal bubble content, and outstanding optical transmission characteristics across a wide wavelength range.

TOQUARTZ® QUARTZ OPTICAL FIBER PREFORM RODS



Key Features

- High Purity: $\geq 99.995\%$ SiO_2 content for superior optical performance
- Excellent Optical Transparency: $>90\%$ transmission (200-2500nm)
- Superior Thermal Stability: Softening point $\sim 1730^\circ\text{C}$, usable up to 1450°C short-term
- Low Thermal Expansion: $5.5 \times 10^{-7} / ^\circ\text{C}$ coefficient for dimensional stability
- High Mechanical Strength: Fracture modulus exceeding 350MPa
- Precise Dimensional Control: Standard tolerance of $\pm 0.1\text{mm}$
- Customizable Specifications: Available in various diameters, lengths, and specialized geometries
- Low OH Content: <20 ppm for reduced absorption in drawn fibers

TOQUARTZ® QUARTZ OPTICAL FIBER PREFORM RODS



Applications

- **Telecommunications Fiber:**
Single-mode and multi-mode fibers for data transmission
- **Specialty Optical Fibers:** For sensing, medical, and industrial applications
- **Fiber Optic Sensors:**
Temperature, pressure, and strain monitoring
- **Fiber Lasers and Amplifiers:**
High-power laser systems and optical amplifiers
- **Research & Development:**
Novel fiber designs and optical materials testing



TECHNICAL SPECIFICATIONS

I Geometric Properties

Property	Specification
Preform Outer Diameter (O.D.)	130-150 (± 5) [mm]
Tolerance of O.D.	≤ 5 [mm]
Effective Length	≥ 1600 [mm]
Effective Weight	≥ 45 [Kg]
Non-circularity	$\leq 1\%$
Core/Cladding Concentricity Error	≤ 0.5 [mm]
Bow	≤ 1.0 [mm/m]



TECHNICAL SPECIFICATIONS

II Physical Properties

Property	Value
Density	2.2 g/cm ³
Thermal Expansion Coefficient	$5.5 \times 10^{-7} / ^\circ\text{C}$
Thermal Conductivity	1.4 W/(m·K)
Softening Point	~1730°C
Annealing Point	~1215°C
Working Temperature (long-term)	≤1100°C
Working Temperature (short-term)	≤1450°C
Mechanical Strength (Fracture Modulus)	≥350 MPa



TECHNICAL SPECIFICATIONS

III Optical Properties of Drawn Fiber (G.652.D Standard)

Property	Specification
1310nm Attenuation	≤ 0.344 [dB/km]
1383nm Attenuation	≤ 0.344 [dB/km]
1550nm Attenuation	≤ 0.204 [dB/km]
1625nm Attenuation	≤ 0.244 [dB/km]
1285-1339nm Dispersion	≤ 3.5 [ps/(nm·km)]
Zero Dispersion Wavelength	1312 ± 12.4 [nm]
1310nm Mode Field Diameter (MFD)	9.2 ± 0.44 [μm]
1550nm Mode Field Diameter (MFD)	10.4 ± 0.8 [μm]



TECHNICAL SPECIFICATIONS

IV Chemical Properties

Property	Specification
SiO ₂ Content	≥99.995%
OH Content	<20 ppm
Chlorine Content	<100 ppm
Metallic Impurities (Total)	<5 ppm
Chemical Resistance	Excellent resistance to acids, alkalis, and fluorinated gases



SIZE CHART

Model	Diameter (mm)	Length (mm)	Notes
AT-SIO-OF001	130	1500~3000	Typical value
AT-SIO-OF002	150	1500~3000	Typical value
AT-SIO-OF003	180	1500~3000	Typical value
AT-SIO-OF004	200	1500~3000	Typical value
AT-SIO-OF005	80~190	1000~3000	Custom sizes



CUSTOMIZATION OPTIONS

TOQUARTZ® provides extensive customization capabilities for fused quartz optical fiber preform rod:

- Numerical aperture (NA)
- Core-cladding diameter ratio (CCDR)
- Outer diameter (80-190mm)
- Preform length (1000-3000mm)
- Refractive index profile (step or graded)
- Core doping components (GeO_2 , P_2O_5 , rare earth elements)



HANDLING & STORAGE RECOMMENDATIONS

- Store in original packaging in a clean, dry environment
- Maintain controlled temperature (20-25°C) and humidity (<50%)
- Handle with powder-free gloves to avoid contamination
- Clean with high-purity isopropyl alcohol before use
- Avoid exposure to chemicals, dust, and direct sunlight



QUALITY ASSURANCE

Each TOQUARTZ® optical fiber preform rod undergoes rigorous quality control testing to ensure consistent performance and reliability:

- Dimensional measurement and verification
- Optical inspection for defects and inclusions
- Material composition analysis
- Surface quality inspection
- Refractive index profile measurement (for specialty preform)



ABOUT TOQUARTZ®

TOQUARTZ® is a specialized manufacturer of high-quality quartz glass products for industrial, laboratory, and optical applications. Our factory-direct approach eliminates intermediaries, providing cost-effective solutions with responsive technical support. We welcome small batch orders and offer 24-hour shipping for standard items.

Contact Information

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TOQUARTZ® - Precision Quartz Solutions for Industry and Research

For technical specifications, custom requirements, or pricing information, please contact our sales team.