TOQUARTZ

TOQUARTZ

Tech Specifications

Quartz Tube

Integrated Engineering & Agile Production

for Demanded Specifications

OPAQUE QUARTZ TUBING

Frosted quartz glass tube delivers unparalleled performance in extreme industrial environments through three core technical advantages:

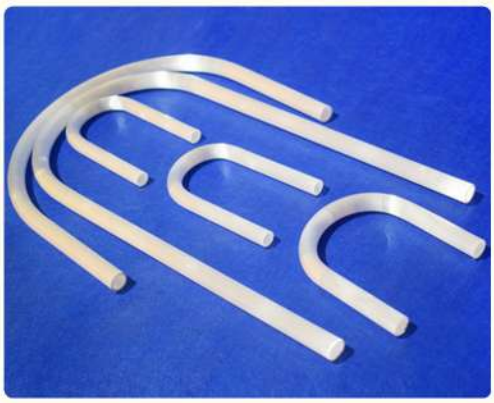
- **Superior Thermal Endurance**

  · Operational stability at 1100°C sustained + 1450°C short-term exposure
  · Ultralow coefficient thermal expansion (5.5×10^{-7}/°C) for thermal shock resistance

- **Optimized Infrared Transmittance**

  · 93% visible light transmission + 85% UV transparency (185-2500nm range)

  · 5-15μm wavelength IR radiation for precision heating systems



- **Chemical Inertness Assurance**

  · HF acid-exclusive vulnerability with 99.6% acid corrosion resistance

  · Stable molecular structure under 800°C reactive gas environments

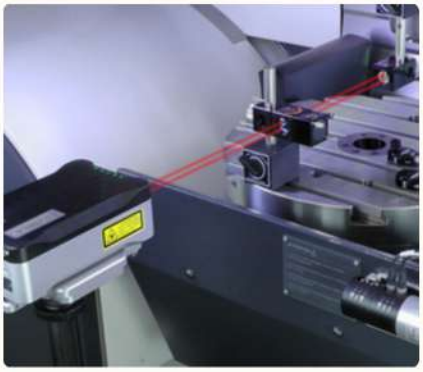
OPAQUE QUARTZ TUBING

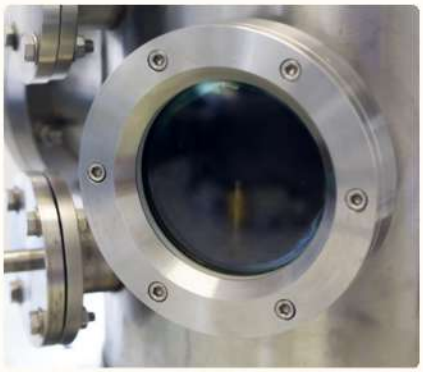
Opaque quartz tubing enables mission-critical operations in technologically demanding industries through three primary implementation areas:

- **High-precision optical equipment fabrication**

  · Laser housing components with UV transparency optimization

  · Microscope lens mounting systems requiring thermal stability





- **Advanced laboratory instrumentation systems**

  · Spectrometer chamber assemblies with low thermal expansion

  · Vacuum deposition apparatus needing chemical inertness

- **High-temperature chemical processing units**

  · Reactor viewport modules under corrosive atmospheres

  · Sensor protection sleeves for 1300°C thermal cycling

TECHNICAL DATA SHEET

Opaque quartz tubing redefines industrial performance with 99.98% SiO_2 purity, 1,100°C thermal resilience, and the milky quartz tube itself can absorb infrared spectrum with wavelengths below 4u, and the heat generated by the tube itself increases the heat radiation.

I . Thermal Properties

Property	Specification	Typical Applications
Continuous Working Temp	**1,100°C**	Lab furnace liners, sensor housings
Peak Short-term Temp	**1,450°C**	Semiconductor diffusion processes
Softening Point	**1,630°C**	High-temp optical assemblies

TECHNICAL DATA SHEET

II . Optical Performance

Property	Specification	Typical Applications
Visible Light Transmittance	**93%**	Laser guidance systems
UV Transmission (185nm)	**85%**	Lithography equipment

III. Mechanical Properties

Mohs Hardness	6.6	Vacuum flange interfaces
Density	**2.2 g/cm³**	Weight-sensitive R&D setups
UV Transmission (185nm)	**85%**	Lithography equipment

IV. Chemical Resistance

Property	Specification	Typical Applications
Acid Corrosion Resistance	**150× stainless steel**	HCl/HNO_3 reactor components

SIZE CHART

Frosted Quartz Glass Tube

I . Open-End Tubes

- **Critical Specs**

  Surface roughness Ra 0.8μm for 1-10mm OD models, optimal for optical alignment.

- **Customization**

  Wall thickness tolerance ±0.02mm, max working temperature 1450℃.

Model No.	OD (mm)	ID (mm)	Length (mm)	Purity (%)
AT-SY-MSG1001	1	0.25	20-2000	99%-99.98%
AT-SY-MSG1002	2	1.5	20-2000	99%-99.98%
AT-SY-MSG1003	2	5	20-2000	99%-99.98%
AT-SY-MSG1004	5	4.5	20-2000	99%-99.98%
AT-SY-MSG1005	5	4.2	20-2000	99%-99.98%

SIZE CHART

Frosted Quartz Glass Tube

I . Open-End Tubes

- **Critical Specs**

  Surface roughness Ra 0.8μm for 1-10mm OD models, optimal for optical alignment.

- **Customization**

  Wall thickness tolerance ±0.02mm, max working temperature 1450℃.

Model No.	OD (mm)	ID (mm)	Length (mm)	Purity (%)
AT-SY-MSG1006	5	4	20-2000	99%-99.98%
AT-SY-MSG1007	10	8	20-2000	99%-99.98%
AT-SY-MSG1008	15	14	20-2000	99%-99.98%
AT-SY-MSG1009	20	16	20-2000	99%-99.98%
AT-SY-MSG1010	50	45	20-2000	99%-99.98%

SIZE CHART

Frosted Quartz Glass Tube

I . Open-End Tubes

Model No.	OD (mm)	ID (mm)	Length (mm)	Purity (%)
AT-SY-MSG1011	100	80	20-2000	99%-99.98%
AT-SY-MSG1012	150	125	20-2000	99%-99.98%
AT-SY-MSG1013	200	180	20-2000	99%-99.98%
AT-SY-MSG1014	1-500	0.25-450	20-2000	99%-99.98%

- Typical Applications

Industry	Application Component	Supported OD Range	Functional Rationale
Optical Devices	Laser housing collimators	1-10mm	Precision bore alignment with UV transparency (85%+ @185nm)
Lab Instruments	Vacuum coating fixtures	10-50mm	Chemically inert for thin-film deposition processes
Chemical Machinery	Thermal probe sleeves	15-200mm	Sustained thermal cycling at 1300℃, max 0.5% deformation

SIZE CHART

Frosted Quartz Glass Tube

II . Closed-End Tubes

- **Critical Specs**

  Sealed-end concentricity 0.05mm, internal pressure rating 10bar max.

- **Customization**

  End closure curvature options (flat/hemispherical).

Model No.	OD (mm)	ID (mm)	Length (mm)	Purity (%)
AT-SY-MSG2001	6	5	20-1500	99%-99.98%
AT-SY-MSG2002	6	5.5	20-1500	99%-99.98%
AT-SY-MSG2003	10	9	20-1500	99%-99.98%
AT-SY-MSG2004	15	13	20-1500	99%-99.98%
AT-SY-MSG2005	20	18	20-1500	99%-99.98%

SIZE CHART

Frosted Quartz Glass Tube

II . Closed-End Tubes

Model No.	OD (mm)	ID (mm)	Length (mm)	Purity (%)
AT-SY-MSG2006	30	27	20-1500	99%-99.98%
AT-SY-MSG2007	50	45	20-1500	99%-99.98%
AT-SY-MSG2008	80	70	20-1500	99%-99.98%

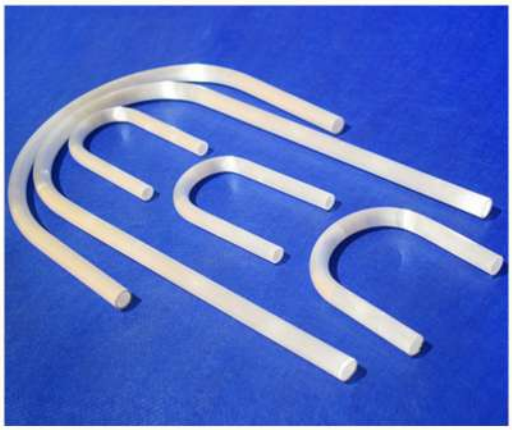
- Typical Applications

Industry	Application Component	Supported OD Range	Functional Rationale
Optical Devices	Microscopy light guides	6-20mm	Uniform light diffusion via ground-glass finish
Lab Instruments	Chromatography columns	10-50mm	Acid-resistant for aggressive solvent storage
Chemical Machinery	Reaction vessel sight glasses	20-50mm	Thermal shock resistance (-196℃ 1200℃ transitions)

SIZE CHART

Frosted Quartz Glass Tube

III. U-Bend Tubes



- **Critical Specs**

  Bend radius accuracy ±0.5mm, 90-180° bend angles.

- **Customization**

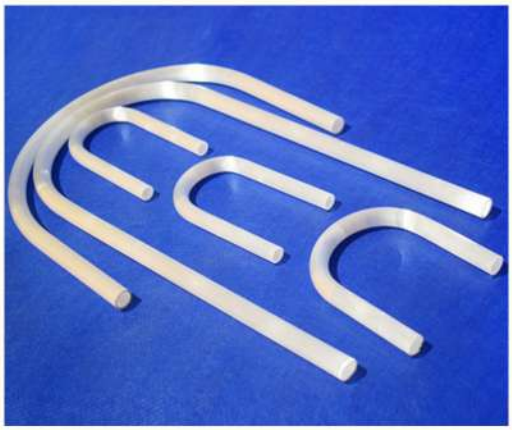
  Threaded/fused connection interfaces.

Model No.	OD (mm)	ID (mm)	Length (mm)	Purity (%)
AT-SY-MSG3001	10	9	Custom	99%-99.98%
AT-SY-MSG3002	12	11	Custom	99%-99.98%
AT-SY-MSG3003	15	13.2	Custom	99%-99.98%
AT-SY-MSG3004	18	15	Custom	99%-99.98%
AT-SY-MSG3005	20	18	Custom	99%-99.98%

SIZE CHART

Frosted Quartz Glass Tube

III. U-Bend Tubes



- **Critical Specs**

  Bend radius accuracy ±0.5mm, 90-180° bend angles.

- **Customization**

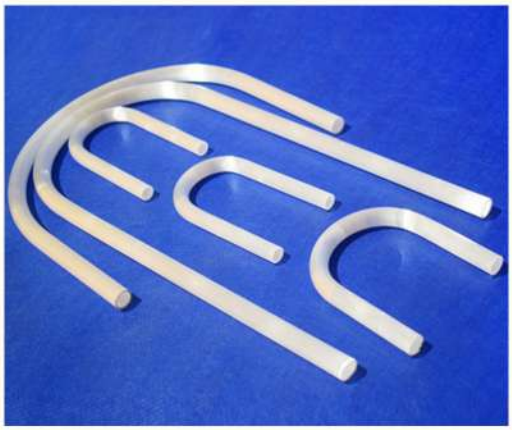
  Threaded/fused connection interfaces.

Model No.	OD (mm)	ID (mm)	Length (mm)	Purity (%)
AT-SY-MSG3006	32	28	Custom	99.0-99.98
AT-SY-MSG3007	50	45	Custom	99.0-99.98
AT-SY-MSG3008	80	70	Custom	99.0-99.98

SIZE CHART

Frosted Quartz Glass Tube

III. U-Bend Tubes



- **Critical Specs**

  Bend radius accuracy ±0.5mm, 90-180° bend angles.

- **Customization**

  Threaded/fused connection interfaces.

- Typical Applications

Industry	Application Component	Supported OD Range	Functional Rationale
Optical Devices	Fiber optic splice protectors	10-15mm	Vibration damping via textured surface
Lab Instruments	Gas-phase reactor loops	15-32mm	Zero particle shedding under vacuum (10^{-6} Torr)
Chemical Machinery	Heat exchanger manifolds	32-50mm	Corrosion protection in HCl/HNO_3 vapor environments

SIZE CHART

Frosted Quartz Glass Tube

IV. Helical Tubes

- **Critical Specs**

  Pitch tolerance ±2%, helix diameter 3x OD.

- **Customization**

  Multi-coil stacking configurations.

Model No.	OD (mm)	ID (mm)	Length (mm)	Purity (%)
AT-SY-MSG5001	15	13	Custom	99.0-99.98
AT-SY-MSG5002	30	27	Custom	99.0-99.98
AT-SY-MSG5003	50	47	Custom	99.0-99.98
AT-SY-MSG5004	60	56	Custom	99.0-99.98
AT-SY-MSG5005	80	75	Custom	99.0-99.98

SIZE CHART

Frosted Quartz Glass Tube

IV. Helical Tubes

- **Critical Specs**

  Pitch tolerance ±2%, helix diameter 3x OD.

- **Customization**

  Multi-coil stacking configurations.

- Typical Applications

Industry	Application Component	Supported OD Range	Functional Rationale
Optical Devices	Laser cooling jackets	15-50mm	Turbulent flow optimization via helical geometry
Lab Instruments	Thermal analysis cells	50-80mm	Minimized thermal gradient through uniform heating
Chemical Machinery	High-viscosity fluid heaters	50-80mm	Continuous 1450℃ operation in oxidizing atmospheres

CUSTOM MACHINING

Machining Tolerances

Translucent quartz tube achieves ±1.25% OD precision and 1.5% ovality across critical industrial dimensions – specify your tolerance thresholds for millimetric accuracy.

Outer Diameter Range (mm)	OD Tolerance (%)	Wall Thickness Tolerance (%)	Wall Thickness Variation (%)	Ovality (%)	Straightness (mm)
6.00	±2.0%	±15%	12%	2.0%	2.5
8.00–15.00	±1.25%	±8%	10%	1.5%	2.5
15.00–20.00	±1.25%	±10%	15%	1.5%	2.5
20.00–25.00	±1.25%	±10%	15%	1.5%	3.0
25.00–30.00	±1.35%	±12%	15%	1.5%	3.0
30.00–80.00	±1.5%	±14%	15%	2.0%	3.0

For Optical Devices (Laser housings, microscope mounts):

- 15mm OD tubes with 1.25% OD tolerance ensure beam alignment accuracy (deviation <0.1°).
- Wall thickness variation 12% stabilizes refractive index uniformity.

For Lab Instruments (Spectrometer chambers, vacuum coating tools):

- 15–30mm OD ranges prioritize 1.5% ovality control for vacuum sealing integrity.
- ±1.5% straightness guarantees laminar flow in deposition processes.

For Chemical Machinery (Reactor viewports, sensor sleeves):

- 25mm OD tubes focus on ±14% wall thickness tolerance for 10bar pressure resilience.
- 3.0mm straightness max prevents stress cracks during thermal cycling (ΔT=1,300°C).