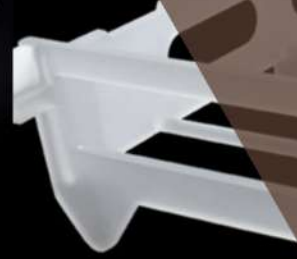
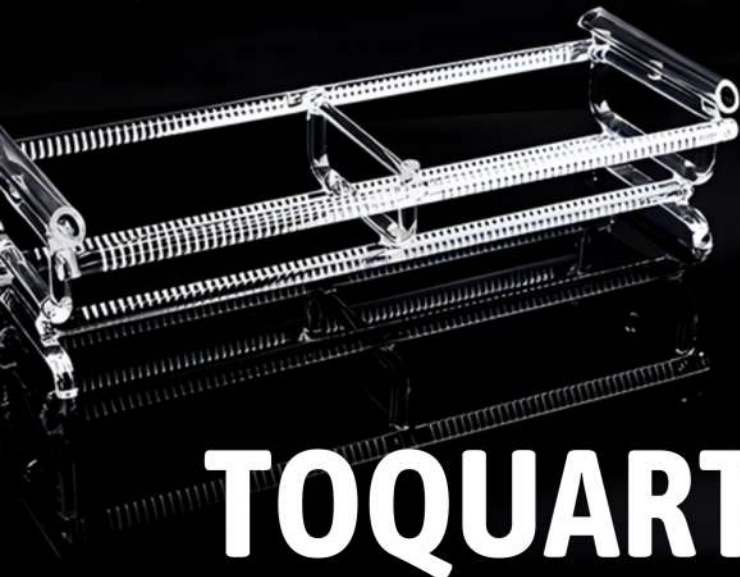




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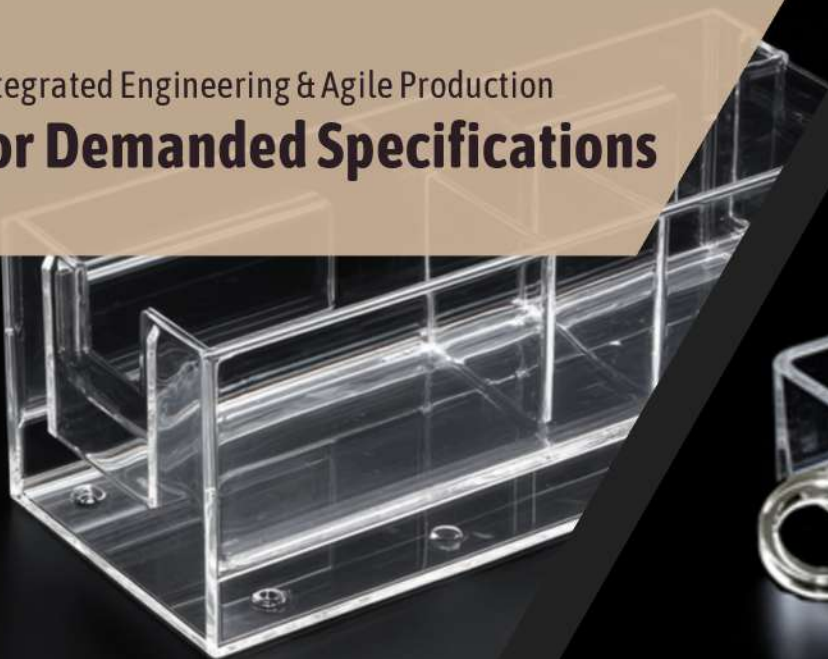


TOQUARTZ®

Quartz Boat

Product Catalog

Integrated Engineering & Agile Production
for **Demanded Specifications**





TOQUARTZ
Tech Specifications

TOQUARTZ® Quartz Combustion Boats Product Catalog

Integrated Engineering & Agile Production
for Demanded Specifications



TOQUARTZ® QUARTZ COMBUSTION BOATS

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 combustion boats are manufactured from premium 99.99% SiO₂ fused quartz material. These precision-crafted sample containers are designed for high-temperature analytical applications requiring exceptional thermal stability, chemical resistance, and dimensional precision.

TOQUARTZ® QUARTZ COMBUSTION BOATS



TOQUARTZ

Key Features

Superior Heat Resistance

- Maximum working temperature: 1200°C
- Low thermal expansion coefficient: $5.5 \times 10^{-7} / ^\circ\text{C}$
- Excellent thermal shock resistance

High Chemical Resistance

- Resistant to most acids, alkalis, and molten salts
- Inert to most chemical reactions (except HF and hot phosphoric acid)
- Prevents sample contamination during analysis

Ultra-High Purity

- 99.99% SiO₂ content
- Minimal trace elements
- Consistent batch-to-batch composition

Excellent Electrical Properties

- Volume resistivity: $10^{16} \Omega \cdot \text{cm}$ at 500°C
- Superior insulation characteristics
- Suitable for applications involving electrical heating

High Thermal Conductivity

- 120-160 W/m·K thermal conductivity
- Enables efficient heat transfer
- Ensures consistent sample heating

TOQUARTZ® QUARTZ COMBUSTION BOATS



Applications

- **Carbon-Sulfur Analysis**

TOQUARTZ® quartz combustion boats are widely used in carbon-sulfur analyzers for testing metals, alloys, ores, coal, and other materials. Their high-temperature stability and chemical inertness make them ideal for accurate elemental analysis.

- **Thermal Gravimetric Analysis (TGA)**

Our boats provide stable sample containment for TGA applications, where precise weight changes during controlled temperature programs must be measured without container interference.

- **Material Testing & Research**

Research laboratories utilize our quartz boats for high-temperature experiments, sample ashing, and material decomposition studies where sample purity is critical.

- **Environmental Analysis**

Used in environmental testing laboratories for analysis of soil, waste, and other samples requiring high-temperature decomposition or combustion.



TECHNICAL SPECIFICATIONS

I Physical Properties

Property	Value	Unit
Density	2.2	g/cm ³
Maximum Working Temperature	1200	°C
Thermal Expansion Coefficient	5.5×10^{-7}	/°C
Thermal Conductivity	120-160	W/m·K
Hardness (Mohs)	5.5-6.5	-
Fracture Modulus	≥ 350	MPa



TECHNICAL SPECIFICATIONS

II Chemical Properties

Property	Value	Unit
SiO ₂ Content	≥ 99.99	%
Al ₂ O ₃	< 20	ppm
Na ₂ O	< 15	ppm
K ₂ O	< 10	ppm
Fe ₂ O ₃	< 5	ppm
Chemical Resistance	Resistant to most acids, bases, and salts (except HF and hot phosphoric acid)	



TECHNICAL SPECIFICATIONS

III Optical Properties

Property	Value	Unit
Refractive Index (589.3 nm)	1.4585	-
Transparency	Transparent to translucent	-
UV Transmission (254 nm)	> 80	%



SIZE CHART

Model	Length (mm)	Width (mm)	Height (mm)	SiO ₂ Purity (%)
AT-SY-Z1001	50	10	5	99.99
AT-SY-Z1002	50	15	7.5	99.99
AT-SY-Z1003	50	20	10	99.99
AT-SY-Z1004	50	25	10	99.99
AT-SY-Z1005	50	30	12.5	99.99
AT-SY-Z1006	50	40	15	99.99
AT-SY-Z1007	50	50	20	99.99
AT-SY-Z1008	100	10	5	99.99
AT-SY-Z1009	100	15	7.5	99.99
AT-SY-Z1010	100	20	10	99.99
AT-SY-Z1011	100	25	12.5	99.99



SIZE CHART

Model	Length (mm)	Width (mm)	Height (mm)	SiO ₂ Purity (%)
AT-SY-Z1012	100	30	12.5	99.99
AT-SY-Z1013	100	40	15	99.99
AT-SY-Z1014	100	50	20	99.99
AT-SY-Z1015	100	50	25	99.99
AT-SY-Z1016	100	60	30	99.99
AT-SY-Z1017	150	75	25	99.99
AT-SY-Z1018	200	30	15	99.99
AT-SY-Z1019	200	40	20	99.99
AT-SY-Z1020	200	50	25	99.99
AT-SY-Z1021	200	50	25	99.99
AT-SY-Z1022	200	70	35	99.99
AT-SY-Z1023	200	25	12.5	99.99
AT-SY-Z1024	200	80	40	99.99



CUSTOMIZATION OPTIONS

Special Design Features

- Compartmentalized sections
- Handling features
- Tapered edges for specific instruments
- Surface treatments

Performance Optimization

- Enhanced thermal shock resistance
- Specialized surface finish
- Custom purity requirements
- Application-specific designs



USAGE GUIDELINES

Proper Handling

- Use clean tweezers or gloves to prevent contamination
- Distribute sample material evenly across the boat
- Avoid overfilling beyond boat walls
- Inspect for cracks or damage before use

Storage Recommendations

- Store in dust-free containers or desiccators
- Use lint-free materials for stacking
- Consider vacuum-sealed packaging for long-term storage
- Maintain inventory tracking system

Temperature Considerations

- Maximum heating/cooling rate: 5-7°C per minute
- Maximum working temperature: 1200°C
- Allow complete cooling before handling
- Consider thinner-walled options for rapid cycling applications

Cleaning Procedures

- For organic residues: Soak in acetone, rinse with deionized water
- For inorganic compounds: Use appropriate acid solutions (except HF)
- For stubborn residues: Ultrasonic cleaning or heat cleaning (800-1000°C)
- Avoid abrasive cleaners or brushes



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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Website: www.toquartz.com

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TOQUARTZ
Tech Specifications

TOQUARTZ® Quartz Wafer Boat Product Catalog

Integrated Engineering & Agile Production
for Demanded Specifications



TOQUARTZ® QUARTZ WAFER BOAT

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 Wafer Boat with fast delivery and consistent quality.



Product Overview



TOQUARTZ® High purity quartz wafer boats (max. up to 99.995% SiO₂) designed for semiconductor diffusion, solar cell manufacturing, and thermal processing applications. Our silicon wafer carrier quartz boats feature excellent thermal stability, superior corrosion resistance, and precise dimensional tolerances.

TOQUARTZ® QUARTZ WAFER BOAT



TOQUARTZ

Key Features

- **Material Excellence:** 99.995% SiO₂ content ensures minimal contamination in critical processes
- **Superior Strength:** Flexural strength up to 350 MPa withstands handling stresses
- **Chemical Stability:** Resistant to acids, alkalis, molten salts, and fluorinated gases
- **High Temperature Stability:** Maintains structural integrity at 1200°C for continuous operation
- **Low Thermal Expansion:** Coefficient of $5.5 \times 10^{-7}/^{\circ}\text{C}$ minimizes warping during thermal cycling
- **Thermal Conductivity:** 120-160 W/m·K for efficient heat transfer during processing
- **Dimensional Accuracy:** Tolerance of $\pm 0.1\text{mm}$ ensures consistent wafer positioning
- **Surface Finish Options:** Polished, ground, or as-fired surfaces available
- **Slot Precision:** Accurately machined slots with consistent spacing and depth

TOQUARTZ® QUARTZ WAFER BOAT



TOQUARTZ

Applications

- Semiconductor diffusion and oxidation processes
- Solar/photovoltaic cell manufacturing
- LED chip production
- Research and development laboratories
- High-temperature material processing



TECHNICAL SPECIFICATIONS

I Physical Properties

Property	Value	Unit
Density	2.2	g/cm ³
Flexural Strength	48	MPa
Elastic Modulus	72	GPa
Poisson's Ratio	0.14-0.17	-
Compressive Strength	1100	MPa
Bending Strength	67	MPa
Moh's Hardness	5.5-6.5	-



TECHNICAL SPECIFICATIONS

II Thermal Properties

Property	Value	Unit
Maximum Working Temperature (long-term)	1100	°C
Maximum Working Temperature (short-term)	1350	°C
Thermal Conductivity	1.4	W/m·K
Thermal Expansion Coefficient	5.5×10^{-7}	/°C



TECHNICAL SPECIFICATIONS

III Optical & Electrical Properties

Property	Value	Unit
Refractive Index	1.4585	-
Specific Resistance	7×10^7	$\Omega \cdot \text{cm}$



CUSTOMIZATION OPTIONS

- Custom length, width, and height specifications
- Specialized wall thickness for thermal requirements
- Custom slot count from 5 to 200+ positions
- Variable slot spacing for different wafer thicknesses
- Specialized slot geometries for edge protection
- Surface treatments (polished, ground, as-fired)

USAGE GUIDELINES

- Handle with clean gloves to prevent contamination
- Avoid impact or dropping to prevent chipping
- Do not exceed maximum operating temperature (1100°C long-term)
- Avoid rapid thermal cycling; use ramp rates of 5-8°C/minute
- Keep away from alkaline compounds at high temperatures
- Clean using appropriate methods based on process requirements



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TOQUARTZ
Tech Specifications

TOQUARTZ®
Quartz Wafer Boat
Holder
Product Catalog

Integrated Engineering & Agile Production
for Demanded Specifications



TOQUARTZ® QUARTZ WAFER BOAT HOLDER

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 Wafer Boat Holder with fast delivery and consistent quality.



Product Overview



TOQUARTZ® Quartz Wafer Boat Holder is a precision-engineered component designed for semiconductor and photovoltaic manufacturing processes. Made from high-purity quartz (99.995% SiO₂), our quartz boat supports provide exceptional thermal stability, dimensional accuracy, and chemical resistance for critical high-temperature applications.

TOQUARTZ® QUARTZ WAFER BOAT HOLDER



Key Features

- High Purity Material: 99.995% SiO₂ for minimal contamination risk
- Superior Thermal Stability: Operational up to 1200°C (continuous) and 1350°C (short-term)
- Precision Dimensions: Standard tolerance of $\pm 0.1\text{mm}$ for critical positioning
- Chemical Resistance: Exceptional stability against acids, alkalis, and fluoride gases

TOQUARTZ® QUARTZ WAFER BOAT HOLDER



Applications

- **Semiconductor wafer processing in diffusion furnaces**
- **Photovoltaic cell manufacturing thermal processes**
- **Research and development applications requiring precise wafer positioning**
- **High-temperature material processing in controlled atmospheres**



TECHNICAL SPECIFICATIONS

I Physical Properties

Property	Value	Unit
Density	2.2 g/cm ³	Standard
Flexural Strength	48 MPa	ASTM C158
Elastic Modulus	72 GPa	At room temperature
Poisson's Ratio	0.14-0.17	Standard range
Compressive Strength	1100 MPa	High structural integrity
Bending Strength	67 MPa	For load-bearing applications
Mohs Hardness	5.5-6.5	Scratch resistant



TECHNICAL SPECIFICATIONS

II Thermal Properties

Property	Value	Unit
Max Working Temperature (Long-term)	1100°C	Continuous operation
Max Working Temperature (Short-term)	1350°C	Brief processing cycles
Thermal Conductivity	1.4 W/m·K	At room temperature
Thermal Expansion Coefficient	$5.5 \times 10^{-7} / ^\circ\text{C}$	Low expansion for dimensional stability



TECHNICAL SPECIFICATIONS

III Optical & Electrical Properties

Property	Value	Unit
Specific Resistance	$7 \times 10^7 \Omega \cdot \text{cm}$	Excellent electrical insulation
Refractive Index	1.4585	Optical quality



CUSTOM DESIGN SERVICES

- Engineering support and technical drawing assistance
- Rapid prototyping with 2-3 week delivery
- Special surface treatments and finishes
- No minimum order quantities for custom designs
- Complete quality control documentation

HANDLING & MAINTENANCE GUIDELINES

- Always handle with clean, powder-free gloves
- Avoid rapid temperature changes exceeding 5°C/minute
- Clean with ultrapure water or semiconductor-grade solvents
- Store in clean, dust-free containers with appropriate cushioning
- Regularly inspect for microcracks or surface damage



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TOQUARTZ
Tech Specifications

TOQUARTZ® Quartz Acid Cleaning Tank Product Catalog

Integrated Engineering & Agile Production
for Demanded Specifications



TOQUARTZ® QUARTZ ACID CLEANING TANK

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 Acid Cleaning Tank with fast delivery and consistent quality.



Product Overview



TOQUARTZ® high-purity quartz acid cleaning tanks are engineered for demanding semiconductor wafer processing, photovoltaic cell manufacturing, and laboratory chemical applications.

Manufactured from 99.99% SiO₂, these tanks provide exceptional resistance to aggressive chemicals including HF, HCl, and HNO₃ while maintaining dimensional stability at elevated temperatures up to 1100°C.

TOQUARTZ® QUARTZ ACID CLEANING TANK



TOQUARTZ

Key Features

Superior Chemical Resistance

- Complete resistance to all semiconductor process acids including HF, HCl, HNO₃
- No material degradation even after prolonged chemical exposure
- Prevents process contamination and extends service life

High Thermal Stability

- Operating temperature range up to 1100°C (long-term) / 1350°C (short-term)
- Low thermal expansion coefficient ($5.5 \times 10^{-7} / ^\circ\text{C}$)
- Maintains dimensional stability during thermal cycling

Ultra High Purity

- 99.99% SiO₂ content ensures minimal contamination
- Critical for semiconductor and photovoltaic manufacturing
- Prevents yield loss from impurities

Optical Transparency

- $\geq 93\%$ transmission (1mm thickness, 280-780nm)
- Enables process monitoring and visual inspection
- Compatible with optical sensors for process control

TOQUARTZ® QUARTZ ACID CLEANING TANK



TOQUARTZ

Applications

Semiconductor Manufacturing

- Wafer cleaning processes
- Wet etching operations
- Chemical processing of silicon wafers
- Specialty chemical treatments for advanced node fabrication

Photovoltaic Cell Production

- Solar cell surface texturing
- Cleaning and etching processes
- Specialty treatments for efficiency enhancement
- Multi-cell batch processing

Laboratory & Research

- Advanced materials research
- Chemical processing for specialty materials
- Sample preparation and processing
- Analytical chemistry applications



TECHNICAL SPECIFICATIONS

I Physical Properties

Property	Value
Material Composition	High purity quartz ($\geq 99.99\%$ SiO ₂)
Density	2.2 g/cm ³
Flexural Strength	48 MPa
Elastic Modulus	72 GPa
Poisson's Ratio	0.14-0.17
Compressive Strength	1100 MPa
Bending Strength	67 MPa
Mohs Hardness	5.5-6.5



TECHNICAL SPECIFICATIONS

II Thermal Properties

Maximum Working Temperature (Long-term)	1100°C
Maximum Working Temperature (Short-term)	1350°C
Thermal Conductivity	1.4 W/m·K
Thermal Expansion Coefficient	$5.5 \times 10^{-7} / ^\circ\text{C}$
Maximum Working Temperature (Long-term)	1100°C



TECHNICAL SPECIFICATIONS

III Optical & Electrical Properties

Property	Value
Refractive Index	1.4585
Optical Transmission (1mm thickness, 280-780nm)	≥93%



CUSTOMIZATION OPTIONS

Design Customization

- Custom dimensions with precision tolerances
- Specialized inlet/outlet configurations
- Internal partitions or chambers
- Reinforced edges or corners
- Custom wall thickness
- Integrated mounting features

Material Specifications

- Standard high-purity quartz (99.99% SiO₂)
- Opaque quartz options for light-sensitive applications
- Surface treatments for enhanced chemical resistance
- Precision-polished surfaces for critical sealing applications
- Fire-polished edges for improved mechanical strength

INSTALLATION & MAINTENANCE GUIDELINES

Handling and Installation

- Handle with care to avoid impacts
- Install on level, stable surfaces
- Use PTFE or compatible gaskets
- Allow clearance for thermal expansion
- Use compatible fittings for connections

Operating Conditions

- Do not exceed maximum operating temperatures
- Maintain appropriate temperature ramp rates
- Ensure even heating distribution
- Avoid alkaline solutions at high temperatures
- Verify seal integrity for wet processing

Maintenance and Cleaning

- Rinse thoroughly with deionized water after use
- Use appropriate solvents for persistent contaminants
- Inspect regularly for microcracks
- Store in clean, dust-free environments
- Cover openings for long-term storage



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