



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% SiO<sub>2</sub> 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



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## 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% SiO<sub>2</sub> 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



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## 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 <sup>3</sup>
Maximum Working Temperature	1200	°C
Thermal Expansion Coefficient	$5.5 \times 10^{-7}$	/°C
Thermal Conductivity	120-160	W/m·K
Hardness (Mohs)	5.5-6.5	-
Fracture Modulus	$\geq 350$	MPa



# TECHNICAL SPECIFICATIONS

## II Chemical Properties

Property	Value	Unit
SiO <sub>2</sub> Content	≥ 99.99	%
Al <sub>2</sub> O <sub>3</sub>	< 20	ppm
Na <sub>2</sub> O	< 15	ppm
K <sub>2</sub> O	< 10	ppm
Fe <sub>2</sub> O <sub>3</sub>	< 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 <sub>2</sub> 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 <sub>2</sub> 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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**TOQUARTZ® - Precision Quartz Solutions for Industry and Research**

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