



TOQUARTZ  
Tech Specifications

# TOQUARTZ® Quartz Hemispherical Shell Resonator Product Catalog

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



# TOQUARTZ® QUARTZ HEMISPHERICAL SHELL RESONATOR

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 Hemispherical Shell Resonator with fast delivery and consistent quality.



## Product Overview

TOQUARTZ® quartz hemispherical shell resonators are precision-engineered components manufactured from 99.995% pure fused silica. Designed for applications requiring exceptional dimensional stability, these resonators feature concentricity, roundness, and inner/outer sphere concentricity controlled to less than 1 $\mu$ m.

Our quartz glass resonator components serve as critical elements in aerospace navigation systems, scientific instruments, and precision measurement devices where stability and accuracy are paramount.

# TOQUARTZ® QUARTZ HEMISPHERICAL SHELL RESONATOR



## Key Features

- **Superior Thermal Stability:** Withstands temperatures up to 1200°C with minimal thermal expansion
- **Ultra-High Precision:** Manufactured with concentricity and roundness less than 1µm
- **Superior Material Purity:** Composed of 99.99% SiO<sub>2</sub> for excellent electrical insulation
- **Mechanical Resilience:** High strength with fracture modulus exceeding 350MPa
- **Chemical Resistance:** Exceptional resistance to acids, alkalis, and fluorinated gases



# TOQUARTZ® QUARTZ HEMISPHERICAL SHELL RESONATOR



## Applications

- **Aerospace Navigation Systems:**  
Core components in hemispherical resonator gyroscopes (HRG)
- **Scientific Instruments:** High-precision resonant cavities for quantum sensing and measurement
- **Industrial Measurement Systems:** Vibration analysis and motion control equipment
- **Precision Optical Systems:** Resonant cavities for specialized optical applications



# TECHNICAL SPECIFICATIONS

Property	Value	Unit
Material	Fused Silica (SiO <sub>2</sub> )	-
Purity	99.995	%
Density	2.2	g/cm <sup>3</sup>
Fracture Modulus	≥350	MPa
Thermal Expansion Coefficient	0.5×10 <sup>-6</sup>	/K
Thermal Conductivity	120-160	W/m·K
Maximum Operating Temperature	1200	°C



## CUSTOMIZED SIZE RANGE

Model	Diameter Range	Wall Thickness Range
AT-SIO-XZ1001	φ15~60mm	0.3~1.1mm



## MANUFACTURING PRECISION

Parameter	Value
Concentricity	$<1\mu\text{m}$
Roundness	$<1\mu\text{m}$
Inner/Outer Sphere Concentricity	$<1\mu\text{m}$
Surface Roughness	$Ra \leq 0.8\mu\text{m}$



## CUSTOMIZATION MANUFACTURING

### **TOQUARTZ offers comprehensive custom manufacturing services:**

- Technical drawing assistance
- Material selection consultation
- Prototype development
- Quality inspection and testing

Our engineering team works directly with customers to develop solutions for specific requirements, from prototyping through volume production.



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