



# TOQUARTZ

## Tech Specifications

# Quartz Tube

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



# HIGH-PURITY FUSED SILICA SPIRAL TUBE



Quartz spiral tube has high temperature resistance, corrosion resistance and excellent thermal stability, and has important applications in chemical and food processing, as well as laboratory equipment and other fields.

# QUARTZ SPIRAL TUBE PROPERTIES



## ✓ Extreme Temperature Resilience

- Continuous operation at 1100°C with 1450°C peak capacity
- Ultra-low thermal expansion coefficient ( $5.5 \times 10^{-7}/^{\circ}\text{C}$ )
- Sustained structural integrity under 800°C thermal cycling



## ✓ Chemical Attack Resistance

- Stable reactivity with 98% sulfuric acid at 300°C
- Negligible metal ion leaching ( $<0.5\text{ppm}$  @ 24hr/150°C)

## ✓ Thermal-Chemical Synergy

- Zero performance degradation after 200 thermal shock cycles
- Oxidation resistance maintained in  $10^{-6}$  Torr vacuum environments





# QUARTZ SPIRAL TUBE APPLICATIONS

## + Process Reactor Temperature Control

- 1,200°C-rated thermal jackets for acid vapor condensation systems
- 102%  $\text{H}_3\text{PO}_4$  compatibility in continuous chemical cycling operations



## + Fluid Monitoring Instrumentation

- $\pm 0.025\%$  FS accuracy in 300-bar pressure sensing modules
- Non-invasive liquid level detection via refractive index matching ( $\Delta n < 0.0015$ )



## + Laboratory Measurement Systems

- Protective sheathing for 800°C molten salt electrochemical cells
- UV-Vis spectroscopy validation units with  $> 92\%$  transmittance @ 190nm



# TECHNICAL DATA SHEET



Fused Quartz Spiral Tubing ensures  $\pm 0.1\text{mm}$  dimensional accuracy and 99.98% purity compliance, with fully customizable optical and thermal parameters—submit your project specs for precision-engineered solutions.

| Property                                      | Value Range   |
|---|---|
| Chemical Composition                          | Cr: 0.1, Ge: 0.4, Fe: 1.5, Mg: 0.4, Ti: 0.1, Ga: 0.8; Al: 16, Na: 2.3, Li: 0.5, K: 2.0                      |
| Spectral Transmission<br>(at 1.0mm Thickness) | 93% transmittance (280-780nm), 93.4% peak at 780nm, UV cutoff <220nm  |
| Thermal Properties                            | Softening point: 1615~1683°C, thermal expansion: $5.5\sim 6.7\times 10^{-7}/\text{cm}\cdot^{\circ}\text{C}$ |
| Mechanical Strength                           | Compressive: $>1.1\times 10^9\text{ Pa}$ , Young’s modulus: $7.0\sim 7.5\times 10^{10}\text{ Pa}$           |
| Optical Performance                           | Refractive index: 1.456~1.460, dielectric constant: 3.75~6.0 @1MHz  |



# CUSTOM MACHINING

## Machining Precision

Precision-engineered helical quartz solutions maintain custom dimensional accuracy through material-specific CNC protocols.

## Material Options

Precision quartz helical components adapt material characteristics to operational demands with JGS3 grade achieving >85% IR transmittance across 260–3500nm spectra.



### JGS3 Optical Grade

- 85% Transmittance @2500nm
- Hydroxyl <5ppm
- 190–2800nm Cutoff