

Fused Silica & Quartz Products

QUARTECS Fused Silica & Quartz Products

Applied to optics, semiconductors, solar power, display panel, optical communications illuminant and etc.

Based on the independent technics of chemical deposition (CVD), QUARTECS produces high-quality synthetic fused silica by using materials of SiCl_4 , silane and etc., with various technics of purification and doping applied, QUARTECS Quartz's fused silica can meet the high-end requirements for industries, and provides products with excellent quality, performance, stability and customization.



R&D



Production



Design



Testing

☐ Fused Silica & Quartz for Semiconductor

Item	Typical Model	Typical Size (mm)	Product Features
YS-1220	Fused Silica	Φ150x100	Synthetic fused silica and quartz ingot for Semiconductor, based on a variety of synthetic quartz preparation processes, has excellent different and stable physical and chemical properties: •ppb level impurity content •Controllable hydroxyl content (0.5-1000ppm) It can fully meet the application needs of various processes in semiconductor, display panel and photovoltaic production
YS-2230/YS-1230		Φ300x50	
YS-1240		400x400x50	
YW-1804/1806/1808/1812		500x500x60	
YSM-6025/YSM-6025R	Fused Silica / Quartz Wafer	Φ1000x30	
YR-1220 / YR-1230 / YR-1240	Photomask Substrate	Φ150 ~ 300 Min Thickness: 0.05	
YT-2220 / YT-2230		152.4x152.4x6.35	
	Fused Silica Rod	Φ2 ~ 200 Max Length: 3000	
	Fused Silica Tube	OD: 15 ~ 450 WT: 1.0 ~ 30 Max Length: 2000	

Typical Impurities Content^① (ppm)

Item	Li	Na	K	Mg	Ca	Cu	Al	Cr	Fe	Ti	OH
YS-1320 / YS-1220	≤0.001	≤0.003	≤0.001	≤0.001	≤0.001	≤0.001	≤0.003	≤0.001	≤0.001	≤0.005	<1
YS-2330 / YS-2230	≤0.001	≤0.005	≤0.005	≤0.005	≤0.005	≤0.001	≤0.005	≤0.001	≤0.001	≤0.008	<250

①Test Method:ICP-MS

☐ Fused Silica for Optical Fibre & Electric Light Source

Item	Typical Size (mm)	OH Content (ppm)	Relative Refractive Index	Metal Impurity Content (ppm)	Product Characteristics
YT-2120 / YT-2420	OD: Φ15 ~ 90 WT: 1.0 ~ 30 Max Length: 2000	≤1	—	≤ 0.05	QUARTECS synthetic quartz tube, based on synthetic quartz preparation process and "non-contact method" pipe drawing process, has excellent and stable physical and chemical properties and geometric indicators: ·Excellent optical transmittance from deep ultraviolet to near infrared ·Controllable hydroxyl content (0.02-200ppm) ·Refractive index can be customized (deeply fluorinated) NA=0.22 It can meet the stringent application requirements of quartz glass in optical fiber prefabrication, light source, medical, industrial and other industries.
YT-2121 / YT-2421		≤1	-0.35% ~ 0		
YT-2110 / YT-2410		≤0.1	—		
YT-2130		50 ~ 300	—		
YT-1121*	—	≤1	-1.1% ~ 0		
YR-1120	Fused Silica Rod	≤1	—		
YR-1140		>1 (customizable)	—		

Geometric specifications and accuracy (unit: mm)

Items	Substrate Tube	Small Jacket Tube	Large Jacket Tube
Outside Diameter(OD/mm)	15 ~ 40	40 ~ 60	60 ~ 90
Wall Thickness (WT/mm)	1.0 ~ 10	2 ~ 15	10 ~ 30
OD Tolerance(mm)	± 0.80	± 0.80	± 2.00
WT Tolerance(mm)	± 0.30	± 0.30	± 3.00
Ovality(mm)	≤ 0.15	≤ 0.40	≤ 0.40
Siding(mm)	≤ 0.15	≤ 0.45	≤ 0.45
CSA Deviation	≤ 6.0%	≤ 6.0%	≤ 6.0%
Bow(mm/m)	≤ 0.70	≤ 0.70	≤ 0.70
Length(mm)	≤ 2000	≤ 2000	≤ 2000

*Size and parameter of precision can be customized *OD/ID<3

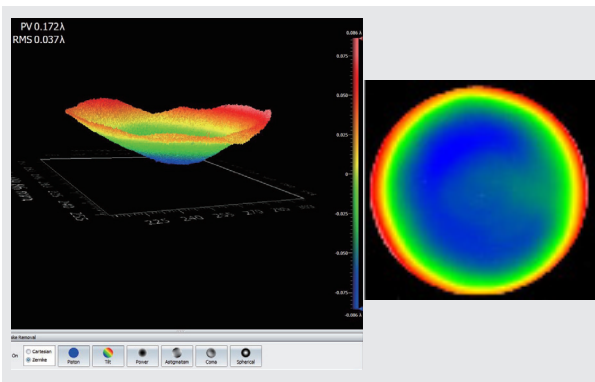
Fused Silica for Optic Application

Item	Typical Model	OH Content (ppm)	Optical Uniformity (ppm) ^①	Stress Birefringenc (nm/cm) ^①	Fringe class ^②	fluore-scence ^④	Bubble ^②	Impurities (ppb)	Product Characteristics
YS-1320	Fused Silica	<1	≤ 5	≤ 5	5	Light Blue	0	≤ 100 ^⑤	Synthetic quartz ingot for QUARTECS optics is based on a variety of synthetic quartz such as one-step method and two-part step method Preparation process, with excellent and stable physical and chemical properties: <ul style="list-style-type: none"> -Excellent optical transmittance from deep ultraviolet to near infrared -Excellent optical uniformity, stress and heat absorption control -Controllable hydroxyl content (0.5-1000ppm)
YS-2330		<250	≤ 5	≤ 5	5	/			

① For the light average and stress birefringence value, different grades of products can be provided according to demand ② Level 0 standard: the sum of the bubble cross section in every 100cm³ glass does not exceed 0.015mm², the maximum particle diameter meets 1/1*0.08③ stripe grade reference ISO-10110 ④ Use 254nm pump lamp excitation ⑤ Standard value ≤100ppb, typical value ≤20ppb

Optical Uniformity

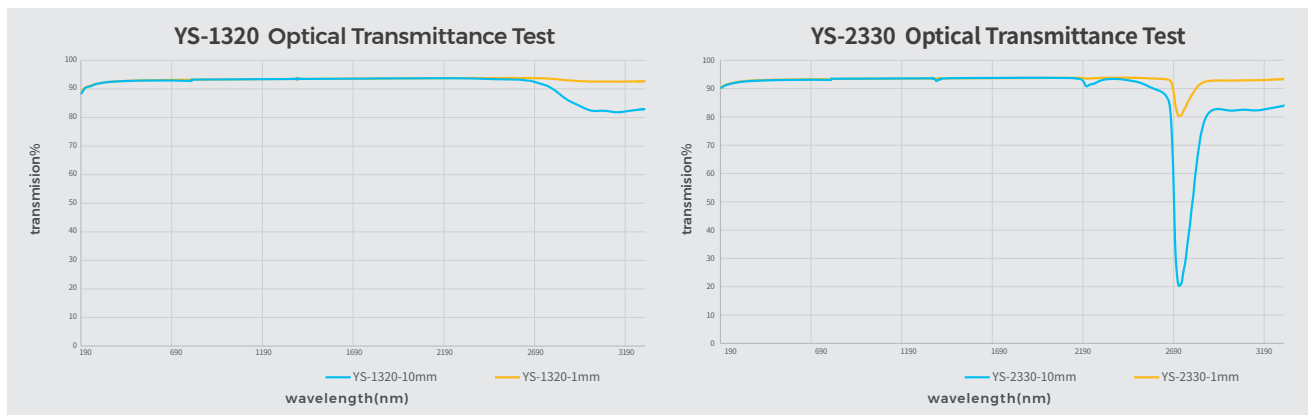
Δn Uniformity Level (Unit: ppm)



Item	S ^①	H2	H3	H5	H10
YS-1320	≤ 1	≤ 2	≤ 3	≤ 5	≤ 10
YS-2330	≤ 1	≤ 2	≤ 3	≤ 5	≤ 10

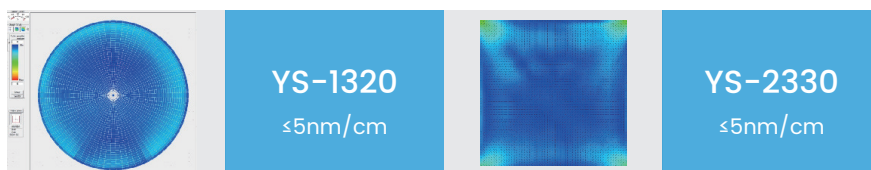
① S class can be customized according to demand
 ② Different light levels, corresponding to the corresponding size, detailed indicators can be confirmed with the YOFC.

Optical Transmittance



Stress Birefringence

Thermal Absorption Coefficient



Item	Thermal Absorption Coefficient @1064nm(ppm/cm)
YS-1320	<1
YS-2330	<3

Refractive Index^①

Line wavelength (nm)	Refractive Index		Line wavelength (nm)	Refractive Index	
	YS-2330	YS-1320		YS-2330	YS-1320
194.2	1.55907	1.55903	632.8	1.45716	1.45711
365	1.47467	1.47462	643.8	1.45685	1.45679
404.6	1.46976	1.46970	656.3	1.45651	1.45646
435.8	1.46683	1.46678	706.5	1.45529	1.45523
479.9	1.46364	1.46359	852.1	1.45261	1.45256
486.1	1.46326	1.46322	1013.98	1.45039	1.45034
546.1	1.46022	1.46016	1529.6	1.44442	1.44436
587.6	1.45860	1.45855	1970.1	1.43873	1.43867
589.3	1.45854	1.45849	2325.4	1.43303	1.43297

①Test conditions: 20.0°C, 1atm atmospheric pressure, humidity 50.0%

Sellmeier Dispersion Constant of Sellmeier Equation

Item	B1	C1	B2	C2	B3	C3	B4	C4
YS-2330	0.124307	0.006456	0.823954	0.006473	0.156097	0.017157	0.673277	74.923787
YS-1320	0.112372	0.006311	0.811965	0.006294	0.179903	0.016600	0.697481	77.351514

Fused Silica - Other Indicators

Mechanical Properties

Item	Unit	Typical Data
Density	g/cm ³	2.20
Mohs Hardness	-	7
Young's Modulus	GPa	74.20
Modulus of Rigidity	GPa	31.22
Poisson's Ratio	-	0.17
Compressive Strength	GPa	1.13
Tensile Strength	MPa	49
Bending Strength	MPa	94.3

Electrical Properties

Item	Unit	Data
Dielectric Constant(20°C, 500MHz)	-	3.90
Electrical Resistivity(20°C)	Ω·cm	0.1*10 ¹⁸
Dielectric Loss Angle(tanδ, 500MHz)	-	<0.001
Electrical Resistance	Ω	8.0*10 ¹⁵

Thermal Properties

Item	Unit	YS-1320	YS-2330
Strain Point (η=10 ^{14.5} dPa·s)	°C	1070	1000
Annealing Point (η=10 ¹³ dPa·s)	°C	1200	1160
Softening Point (η=10 ^{7.6} dPa·s)	°C	1680	1620



YOFC Quartz Technology (Wuhan) Company Limited

YOFC Quartz Technology (Wuhan) Company Limited is a wholly-owned subsidiary of Yangtze Optical Fibre and Cable Joint Stock Limited Company

Stock Code: 601869.SH 06869.HK

Add: Plot 3, Yangtze Technology Park, No.196 Optics Valley three Road, Wuhan, Hubei, China

Tell: 400-006-6869 Email: quartz@yofc.com

www.yofc.com www.quartecs.com

