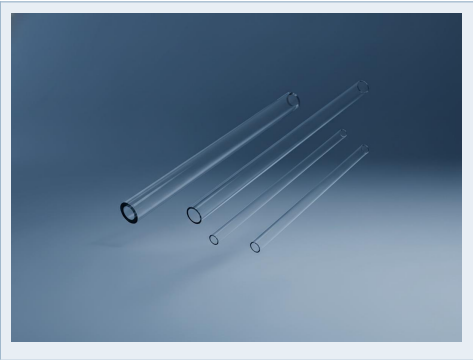


Synthetic Quartz Capillary Tube — High-UV-Transmittance Fused Silica Capillary



LUMIGLAS® Synthetic Quartz Capillary
OD ≤10 mm, for Optical Fiber & Specialty Fiber

Applications:

The LUMIGLAS® synthetic quartz capillary tube is an ultra-fine-bore fused silica tube produced from 6N-grade synthetic silica with all metallic impurities controlled below 20 ppb by ICP-MS analysis. Its combination of ultra-low metallic impurity content, high UV transmittance and low UV absorption makes it the standard substrate for precision optical fiber and specialty fiber fabrication.

- Optical fiber preform inner bore capillary tubes (MCVD, PCVD processes)
- Specialty fiber capillary components — hollow-core and photonic crystal fiber
- Polarisation-maintaining fiber capillary stress elements
- UV-grade capillary substrates for optical sensing and spectroscopy
- Precision-bore flow cells and analytical instrument components
- Micro-optical components requiring high UV transmittance fused silica

Key Advantages:

- Ultra-low metallic impurity content — all elements <20 ppb, tested by ICP-MS
- High UV transmittance — synthetic fused silica with minimal OH absorption bands
- Low UV absorption — suitable for deep-UV and UV laser applications
- Tight dimensional tolerances — OD ±0.20 mm, WT ±0.20 mm at OD ≤10 mm
- Bubble-free standard per wall thickness class; no visible surface defects

Material & Optical Properties		Dimensional Range & Ordering	
Material	Synthetic fused silica, SiO ₂ ≥99.9999% (6N)	OD Range	≤10 mm
OH Content	<1 ppm (ultra-low hydroxyl)	WT Range	≤1.5 mm
Metallic Impurities	<20 ppb total (ICP-MS tested)	OD Tolerance	±0.20 mm
UV Transmittance	High — low absorption UV-grade	WT Tolerance	±0.20 mm
Max. Service Temp.	~1200°C continuous	Max. Length	≤2000 mm
Thermal Expansion	0.55 × 10 ⁻⁶ /°C	Ordering Spec	OD × WT × Length (mm)
Certificate	Full ICP-MS impurity CoC, standard	Custom	Available on request

Major Metallic Impurity Content & Hydroxyl (ppm) — ICP-MS Tested

Grade (ppm)	Li	Na	K	Mg	Ca	Cu	Al	Cr	Fe	Ti	OH (ppm)
Capillary	<0.001	<0.005	<0.002	<0.001	<0.003	<0.001	<0.003	<0.001	<0.002	<0.001	<1

* Capillary tube is a synthetic quartz tube with ultra-low metallic impurity content (<20 ppb total). All impurity testing performed by ICP-MS. Certificate of Conformity with full ICP-MS impurity analysis supplied as standard.

Geometric Specifications & Dimensional Tolerances

Parameter	Capillary Tube
OD (mm)	≤10
WT (mm)	≤1.5
OD Tolerance (mm)	±0.20
WT Tolerance (mm)	±0.20
Out-of-Roundness (mm)	≤0.08
Wall Eccentricity (mm)	≤0.08
CSA Relative Difference	≤3.0%
Bow (mm/m)	≤0.40
Length (mm)	≤2000

* Custom OD, WT and length specifications available on request. Provide OD × WT × Length (mm) when enquiring.

Optical Quality Standard — Bubble Inclusion Count (Tube Wall)

Bubble Diameter (mm)	Wall Thickness — Max. Allowable Bubble Count (no./m)			
	≤3 mm	>3–10 mm	>10–25 mm	>25 mm
>0.2 – ≤0.5 mm	3	7	14	21
>0.5 – ≤1.0 mm	0	3	6	9

All bubbles characterised by width; length must not exceed 8 mm. Bubbles ≤0.2 mm not counted.
* WT ≤3 mm: open bubbles not permitted. No visible surface defects to naked eye.