

Transparent Quartz Tube

Applications

**Process chambers, tubes and parts
for semiconductor,
photovoltaic and industrial applications**

Characteristics

High purity, temperature stability, corrosion resistant, transparent



JNC Quarzglas' material grades are qualified at major players in the semiconductor and light industry, heater industry. JNC offers quartz glass tubes in a very broad diameter range from 2 mm up to 500 mm. It is a specialty of JNC to be able to supply tubes made by various production routes and of different material grades. Quartz glass tubes are either drawn in a cost efficient single step process (NC-100) or a very flexible multi step process.

In the single step process (NC-100), very pure and tightly controlled raw material is continuously electrically fused to form quartz glass tubes.

The range of direct-drawn tubes covers an outer diameter of 2–350 mm with a wall thickness from 1 mm up to 10 mm depending on the outer

diameter. These tubes are available with snap cut or machine cut ends. In the multi step process, batches of quartz glass are formed to the desired dimensions.

According to customer requirement using furnace to reduce the OH value of the tubes

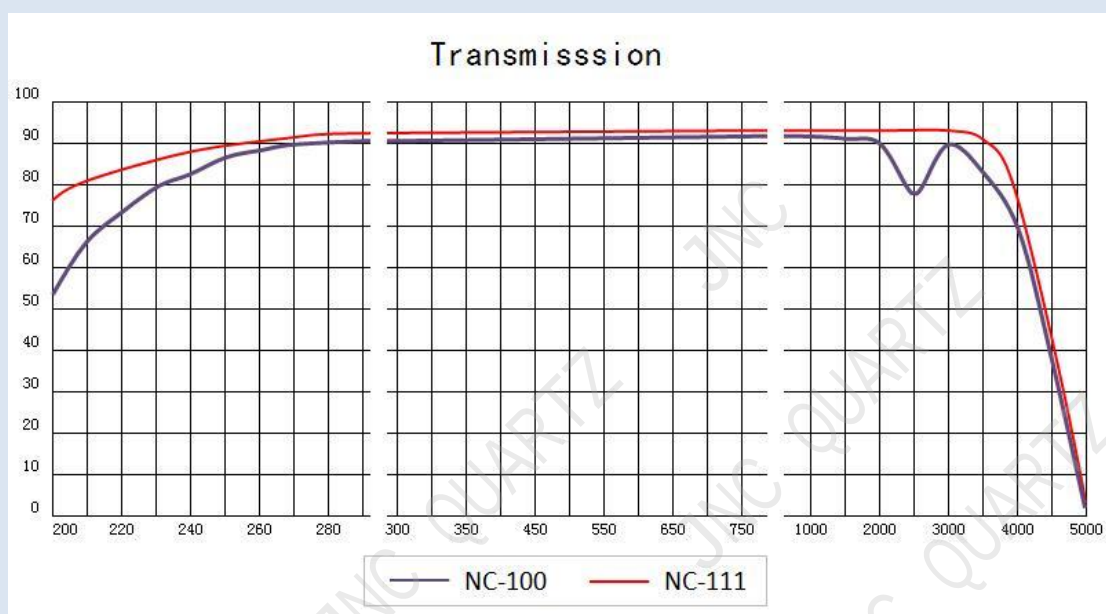


Transparent Quartz Tube Dimension and tolerance (mm)

Designation	OD	Thickness	Length	Max Side	Max Ovality	Max Bow
<10	±0.15	±0.10	±1.0	0.10	0.15	2‰
10-15	±0.20	±0.10	±1.0	0.12	0.20	2‰
15-20	±0.30	±0.15	±1.0	0.13	0.25	2‰
20-30	±0.40	±0.15	±1.0	0.15	0.30	2‰
30-40	±0.60	±0.15	±1.0	0.25	0.40	2‰
40-50	±0.80	±0.20	±1.0	0.30	0.50	2‰
50-65	±1.00	±0.20	±2.0	0.40	0.60	2.5‰
65-85	±1.50	±0.30	±2.0	0.50	0.80	2.5‰
85-100	±1.50	±0.30	±2.0	0.60	1.00	2.5‰
100-150	±1.50	±0.30	±2.0	0.60	1.00	2.5‰
150-200	±1.50	±0.50	±2.0	0.60	1.00	2.5‰
200-250	±1.50	±0.50	±2.0	0.60	1.00	2.5‰
250-300	±1.50	±0.50	±2.0	0.60	1.00	2.5‰
300-400	±2.00	±0.50	±2.0	0.60	1.00	2.5‰
400-500	±2.00	±0.50	±2.0	0.60	1.00	2.5‰

Chemical element composition (Typical data) ppm

	Al	Fe	K	Li	Cu	Na	B	Ca	Mg	P	Ti	OH
NC-100	25	0.8	1.2	0.8	0.08	2	0.5	0.8	0.25	---	---	150
NC-110	15	0.2	0.6	0.4	0.02	0.8	0.1	0.4	0.05	0.06	1.2	120
NC-120	8	0.2	0.2	0.1	0.01	0.4	---	0.6	0.01	---	1.9	110



Tranparent quartz glass tube property

Property	NC-100	NC-111
		NC-120
Density	$2.2 \times 10^3 \text{ kg/m}^3$	$2.2 \times 10^3 \text{ kg/m}^3$
Hardness	570KHN ₁₀₀	580KHN ₁₀₀
Tensile Strength	$4.8 \times 10^7 \text{ Pa(N/m}^2\text{)}$	$4.9 \times 10^7 \text{ Pa(N/m}^2\text{)}$
Compression Strength	$>1.1 \times 10^9 \text{ Pa}$	$>1.1 \times 10^9 \text{ Pa}$
Coefficient of Thermal Expansion(20-300℃)	$5.5 \times 10^{-7} \text{ cm/cm}^\circ\text{C}$	$5.5 \times 10^{-7} \text{ cm/cm}^\circ\text{C}$
Thermal Conductivity(20℃)	$1.4 \text{ W/m}^\circ\text{C}$	$1.4 \text{ W/m}^\circ\text{C}$
Specific Heat	$660 \text{ J/kg}^\circ\text{C}$	$670 \text{ J/kg}^\circ\text{C}$
Softening Point	1630℃	1680℃
Annealing Point	1180℃	1215℃