



HIGH BOROSILICATE GLASS 3.3

SPECIFICATION

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Description :

Name: High Borosilicate Glass 3.3

High borosilicate glass (also known as hard glass) is a type of glass that utilizes the conductivity of glass at high temperatures. It is melted by heating inside the glass and processed through advanced production processes. Due to its linear thermal expansion coefficient of $(3.3 \pm 0.1) \times 10^{-6}/K$, it is also known as "borosilicate glass 3.3". It is a special glass material with low expansion rate, high temperature resistance, high strength, high hardness, high light transmittance, and high chemical stability. Due to its excellent performance, it is widely used in industries such as solar energy, chemical industry, pharmaceutical packaging, electric light sources, and craft accessories. Its excellent performance has been widely recognized by various sectors of the world.

Size And Thickness:

Size=Max W=1800MM*Max H=1150mm(≤ 2440);

Thickness=3MM,4MM, 5MM,6MM,8MM,10MM

We can produce other specifications according to customer requirements(In Max Size), Also Cut , Polish Side;Tempered Heat Treatment

Color: Ultra Clear, Visible light transmittance over 92%

Feature:

Low coefficient of expansion, high softening point, superior fire resistance, good heat resistance and impact resistance, excellent optical performance, ultra-high chemical stability, ultra-light, and high strength.

Application:

High borosilicate glass has a very low coefficient of thermal expansion and is resistant to high temperatures, as well as drastic temperature differences of 200 degrees. High borosilicate glass is used for reflective and heat-resistant lamp cups in halogen lamps, as well as for electrical equipment that must use heat-resistant glass, such as microwave special glass turntables, microwave lampshades, stage light reflective cups, observation windows for drum washing machines, heat-resistant teapots and cups, solar collectors, Building doors, windows, and curtain walls; Daylighting roofs and partition walls without insulation requirements; Locomotive etc.

Physical and chemical parameters

Thermal properties :

Coefficient of Linear Thermal Expansion (C.T.E) α (20°C~300°C)	3.3±0.1×10-6/K
Specific heat capacity cP (20-100°C)	0.9kJ/(kg·K)
Thermal conductivity λ (90°C)	1.2 W/(M·K)
Maxinmum operaing temperatures	For short-term usage(< 10 h) 500°C No change in character For long-term usage(≥10 h) 450°C No change in character
Processing temperature (104dpas)	1220 °C
Softening Point (10 dPas)	820°C
Annealing Point (10 dPas)	560 °C
Strain Point (10 dPas)	520 °C
Transformation temperature (Tg)	505°C

Optical data:

Optical index of refraction	1.47
Visible light transmittance	92%

Mechanical properties:

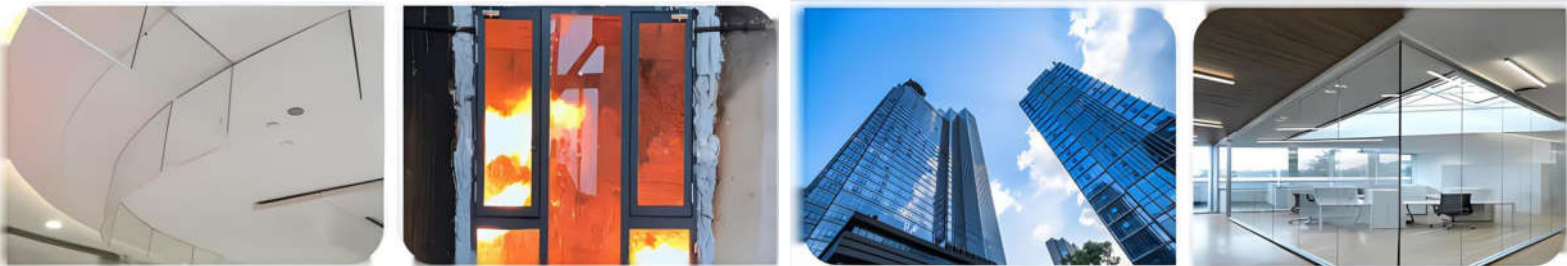
Silicon content	>80%
Density ρ (25°C)	2.23g/cm3
Young's Modulus E (according to DIN 13316)	76KNmm - 2
Poisson's Ratio μ (according to DIN 13316)	0.2
Knoop Hardness HK 0.1/20 (according to ISO 9385)	Vickers 580
Bending Strength σ (according to DIN 522922 T 1)	130MPa
Tensile strength	40- 120Nmm - 2
Glass stress optical constant	3.8 ×10-6 mm-2
Water resistance (International Organization for Standardization 719)	Level 1
Acid resistance (ISO 195)	Level 1
Alkali resistance (International Organization for Standardization 695)	Level 2

Limit Parameter

long term resistance:

500 ° C temperature for 10 hours, heat-resistant and non deformable Withstand thermal stress of main: 500 ° C (≤ 10h); (932 °F)

Thermal shock resistance:Delta 240 ° C thermal shock (464 °F)



Appearance defect of qualified(CLASS B)products

Defect item	requirements	
	Size (mm)	Allowable numberlimit
Point defects	$0.5 \leq L \leq 1.0$	2s
	$1.0 < L \leq 2.0$	1s
	$2.0 < L \leq 3.0$	0
	$L > 3.0$	0
Dot defect density	The minimum spacing for punctate defects with size $\geq 0.5\text{mm}$ is not less than 300mm; There shall be no more than 3 spot-shaped defects with diameter $\geq 0.3\text{mm}$ in a 100mm circle	
Line	not allow	
Crack	not allow	
Scratch	permissible range	Limit of allowablebars
	wide $\leq 0.5\text{mm}$	
	length $\leq 60\text{mm}$	
Bubble	$\leq 3\text{set}/\text{M}^2$ 、 $\Phi \leq 2\text{MM}$ 、 $T \leq 1\text{MM}$	
Note:S is the area of the glass plate, unit: square meters, and the value shall be reserved two or two decimal places. Defects are allowed to be modified to an integer.		

