

Data sheet

Borosilicate glass

Glass sphere with high chemical and thermal stability. Electrically insulating effect, resistant to strong external loads and pressure fluctuations.

Field of application

Special/safety valves, metering pumps. Use in the pharmaceutical sector and photographic equipment.

Corrosion resistance

Resistant: Excellent chemical resistance to water, most acids, salt solutions, organic solutions and halogens
Very resistant in strongly oxidizing environments
Moderate strength against alkali solutions

Not resistant: Strong alkali solutions, hydrofluoric acid and warm concentrated phosphoric acid.

Chemical composition in %

SiO ₂	Na ₂ O	CaO	Al ₂ O ₃	B ₂ O ₃	K ₂ O	BaO
65,00 - 85,00	3,00 - 9,00	max. 2,50	1,00 - 5,00	8,00 - 15,00	max. 2,00	max. 1,00

Physical / mechanical / thermal / electrical / magnetic characteristics

Characteristic	Symbol	Unit	Type	Note	Value
Density	δ	g/cm ³	Physical	Environmental temp.	2,23
Modulus of elasticity	E	GPa	Mechanical	-	64
Refractive index	n	-	Optical	-	1,471
Softening temperature	-	°C / °F	Thermal	Umg. T. / Atm. D	821 / 1510
Linear coefficient of thermal expansion	α	10 ⁻⁶ / °C	Thermal	($\Delta T = 0 - 100^{\circ}\text{C}$)	3,30
Thermal conductivity	λ	W / (m*K)	Thermal	Environmental temp.	1,15
Volume resistivity	ρ	$\Omega \cdot \text{m}$	Electrical	-	> 10 ¹⁵
Relative magnetic permeability	μ	-	Magnetic	Diamagnetic	< ~1

Technical characteristics

Characteristic	Type	Unit	Value	Unit	Value
Hardness	Mechanical	Knoop	420 - 520	Mohs	6
Breaking load compression	Mechanical	MPa	1900 - 2100	psi * 10 ³	275 - 305
Operating temperature	Thermal	°C	0 - 200	°F	32 - 392

Available with

Diameter min / max (mm)	Diameter min / max (in)	Surface	Precision grade
1,000 - 100,000	3/64 - 4	polished / matt	G10 / 25 / 50 / 100 / 200 / 500 / 1000 / 2000

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