

SILICON NITRIDE (Si3N4) BALLS

Light weight ceramic material balls, they provide very good mechanical/thoughness properties and corrosion resistance. They are auto lubricant materials and good electric insulators. They have excellent resistance to thermal shocks. Balls are manufactured according to ASTM F 2094 Class II standards.

Applications

Special bearings, high-speed bearings, under vacuum pumps, compressors, centrifugal pumps, shafts/mandril, recirculating balls, flow meters, measurement instruments. They are used in aerospace and military industry.

Commercial name	Other name	Formula	Nitride %
Silicon Nitride	Nierite	Si3N4	90,0 - 95,0

Physical / mechanical / thermal / electric / magnetic properties

Property	Symbol	U.o.M.	Type	Notes	Values
Density	δ	g/cm3	Physical	Room temp.	3,26
Young's modulus	E	GPa	Mechanical	-	300
Friction coefficient	μ	-	Mechanical	Room temp.	0,1
Specific heat	c	J/kg-K	Thermal	Room temp.	740
Coefficient of linear thermal expansion	α	10 ⁻⁶ /°C	Thermal	($\Delta T=0-100^{\circ}C$)	3,4
Thermal conductivity	λ	W/(m·K)	Thermal	Room temp.	23,0
Volume resistivity	ρ	$\Omega \cdot m$	Electric	-	> 10 ¹³
Relative magnetic permeability	μ	-	Magnetic	Diamagnetic	<-1

Technical data

Property	Type	U.o.M.	Values	U.o.M.	Values
Hardness	Mechanical	HV	1400 - 1600	-	-
Ultimate compressive strength	Mechanical	MPa	2300 - 4000	psix10 ³	334 - 580
Service temperature	Thermal	°C	0 / 1200	°F	32 / 2192

Range

Diameters (min/max)	U.o.M.	Diameters (min/max)	U.o.M.	Precision Grade (ISO 3290-2)
0,4000 - 200,000	mm	1/64 - 8	"	G3-G5-10-16-20-24-28-40-60-100

Corrosion Resistance

Excellent corrosion resistance in all almost corrosive environments, apart from acids (except sulphuric acid) and basic solutions at high concentrations.