

# Datenblatt | Data sheet

## Silicon Nitride

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

### Field of application

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

### Corrosion resistance

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

#### Material

Technical name	Alternative Name	Abbreviation	% Oxide
Silicon Nitride	Nierite	Si3N4	90,0 - 95,0

#### Physical / mechanical / thermal / electrical / magnetic characteristics

Characteristic	Symbol	Unit	Type	Note	Value
Density	$\delta$	g/cm <sup>3</sup>	Physical	Environmental temp.	3,26
Modulus of elasticity	E	GPa	Mechanical		300
Friction coefficient	$\mu$	-	Mechanical	Environmental temp.	0,10
Spezific heat	C	J/kg*K	Thermal	Environmental temp.	740
Coefficient of linear thermal expansion	$\alpha$	10 <sup>-6</sup> /°C	Thermal	( $\Delta T = 0 - 100$ °C)	3,4
Thermal conductivity	$\lambda$	W/(m*K)	Thermal	Environmental temp.	23,0
Volume resistivity	$\rho$	$\Omega$ *m	Electrical	-	> 10 <sup>13</sup>
Relative magnetic permeability	$\mu$	-	Mechanical	Diamagnetic	<~1

#### Technical characteristics

Characteristic	Type	Unit	Value	Unit	Value
Hardness	Mechanical	HV	1250 - 1700	-	-
Ultimate compressive strength	Mechanical	MPa	2100 - 2600	psi * 10 <sup>3</sup>	334 - 580
Operating temperature	Thermal	° C	-100 - 1600	° F	32 - 2192

#### Available with

Diameter min/max (mm)	Diameter min/max (in)	Precision grade
0,400 - 200,000	1/64 - 8	G3 / 5 / 10 / 16 / 20 / 24 / 28 / 40 / 60 / 100