

ZYS Si3N4 ceramic ball

Item		Materials class		
		I	II	III
Property	Bending strength $\sigma_{3.40}$ (Mpa)	900	800	600
	Crushing load ratio (%)	35	35	30
	Hardness (HV10)	1580	1480	1380
	Fracture toughness (Mpa.m ^{1/2})	6.0	5.0	5.0
Maximum limit of microstructure	Pore size (μ m)	10	10	25
	Porosity (%)	0.02	0.06	0.06

	Crystal phase (μm)	10	10	25
	The second ceramic phase (μm)	25	25	25
Maximum amount of inclusions per square centimeter of cross section	Range 200 (μm)	0	0	1
	Range 100 ~ 200 (μm)	0	1	2
	Range 50 ~ 100 (μm)	1	2	4
	Range 20 ~ 50 (μm)	4	8	16

Application of Si3N4 ceramic ball				
	G3	G5	G10, G16	G20, G28, G40
Class I	High speed power equipment Space machinery Aviation instrument	Liquid oxygen pump Main drive bearing	The key components of aerospace equipment	
Class II	Molecular turbo pump High precision star bearing	Vacuum equipment, high speed instrument, mechanical devices, high performance contact spherical propeller	Motor, star bearing	Testing ball, separating ball
Class III			Sport, entertainment, food processing	Mechanical devices

Si3N4 ceramic ball specifications					
Nominal diameter of steel ball		Nominal diameter of steel ball		Nominal diameter of steel ball	
mm	in	mm	in	mm	in
0.794	1/32	0.8		1	
1.588	1/16	2		2.381	3/32
2.5		3		3.969	5/32
4		4.5		4.762	3/16
5		5.5		5.556	7/32

5.953	15/64	6		6.35	1/4
6.5		6.747	17/64	7	
7.144	9/32	7.5		7.938	5/16
8.731	11/32	9.525	3/8	11.112	7/16
12.303	31/64	12.7	1/2	13.494	17/32
14.288	9/16	15.081	19/32	15.875	5/8
19.05	3/4	25.4	1	31.75	1 1/4