

Items	Measuring method	Measuring temperature	Unit	Silicon nitride(Si <sub>3</sub> N <sub>4</sub> )		
				TSN-03NH	TSN-23HA	<b>NEW!</b> TSN-33H
Density	JIS Z8807	RT	g/cm <sup>3</sup>	3.24	3.27	3.25
Hardness (HV(196N))	JIS R1610	RT	-	1,500	1,500	1,500
Three point bending strength	JIS R1601 ASTM C1239	RT	MPa	1,000	900	850
Compression strength	JIS R1608	RT	MPa	5,500	5,000	Under measurement
Young's modulus	JIS R1602	RT	GPa	303	315	317
Poisson's ratio	JIS R1602	RT	-	0.28	0.28	0.28
Fracture toughness	ASTM F2094	RT	MPa·m <sup>1/2</sup>	6~8	5~7	5~7
Coefficient of thermal expansion	JIS R1618	RT~500°C	×10 <sup>-6</sup> /K	2.7	2.7	2.8
Volume resistivity	JIS C2141	RT	Ω·m	>10 <sup>12</sup>	>10 <sup>12</sup>	>10 <sup>12</sup>
Corrosion resistance*	Acid	RT	-	Good	Good	Under measurement
	Alkali	RT	-	Good	Good	Under measurement
ASTM F2094(Material Class)				I	II	II
Features				<b>High strength</b> Ideal for applications requiring high characteristic reliability, such as machine tools, industrial equipment, medical equipment, and aircraft.	Adopted for wind power generation.Can be used for large spheres.	<b>Low cost</b> Ideal for applications requiring low cost and large quantities, such as electric vehicles.
Main recommended applications				Bearings,Engine parts,Mechanical parts	Bearings,Engine parts,Wind power generation	Bearings

\*Corrosion resistances were measured under following conditions.

Acid;96hours immersion at RT in 36%HCl,95%H<sub>2</sub>SO<sub>4</sub> and 60%HNO<sub>3</sub>. Alkali;in 5%NaOH,40%NaOH.

The values in the table are reference values,not guaranteed values.