Data Sheet

Ceramic Balls

ceramicspeed

Ceramic Balls

Ceramic balls can be found in a variety of materials. The best material available - and the one used for our bearings - is silicon nitride (Si_3N_4).

Ceramic balls are superior to steel balls in all physical measurable properties. This ensures many benefits in the bearing: The increased hardness of the ball means that the contact area between the ball and the track is reduced leading to lower friction, higher potential speeds, and less energy waste. The hardness and the extremely smooth surface also mean that the balls are far more durable than steel balls.

- Extreme wear resistance
- Non-corrosive
- Low friction
- Electrically insolating
- Ultra-precise
- Robust against any particle
- Higher precision – fewer vibrations
- Higher robustness against contamination
- Low weight

	Steel Balls	Silicon Nitride CeramiSpeed Balls	Difference
Density (g/cc)	7.6	3.2	58% lighter
Hardness (Vickers)	700	1600	128% harder
Elastic modulus (GPa)	190	310	63% stiffer
Thermal expansion coefficient	12.3	3.7	-70%
Max usage temperature (°C)	300	1000	+680
Surface finish grade (micron)	0.02	0.005	400% smoother
Life wear resistance	-	<10×	<10×
Electrical resistivity (Ohm/cm)	10^-g	10^14	10^16=insulator 0=superconductor

Stock Items

Size		Grade
Inch	mm	
	1,000	3
3/64"	1,190	3
1/16"	1,587	3
5/64"	1,984	3
	2,000	5
3/32"	2,381	3
	2,500	3
7/64"	2,778	3
	3,000	3
1/8"	3,175	3
	3,500	5
9/64"	3,571	5
5/32"	3,969	5
	4,000	5
11/64"	4,365	5
	4,500	5
3/16"	4,762	5
	5,000	5
7/32"	5,556	5
15/64"	5,953	5
	6,000	5
1/4"	6,350	5
17/64"	6,746	5
9/32"	7,143	5
5/16"	7,937	5
	8,500	5
11/32"	8,731	5
3/8"	9,525	5
13/32"	10,318	5
7/16"	11,112	5

Size		Grade
Inch	mm	
15/32"	11,902	5
31/64	12,303	5
	12,500	5
1/2"	12,700	5
17/32"	13,493	5
9/16"	14,287	5
19/32"	15,081	5
5/8"	15,875	5
21/32"	16,668	5
11/16"	17,462	5
23/32"	18,256	5
3/4"	19,050	5
25/32"	19,844	5
13/16"	20,637	5
27/32"	21,431	5
7/8"	22,225	5
15/16"	23,812	5
1"	25,400	5
1 1/16"	26,988	16
1 1/8"	28,575	16
1 3/16"	30,162	16
1 1/4"	31,750	16
1 5/16"	33,338	16
1 1/2"	38,100	20
1 5/8"	41,275	20
1 3/4"	44,450	20
1 7/8"	47,625	20
57/64	48,419	20
2"	50,800	24
21/64	59,00	24

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