MBA

Miniature Bearings Australia

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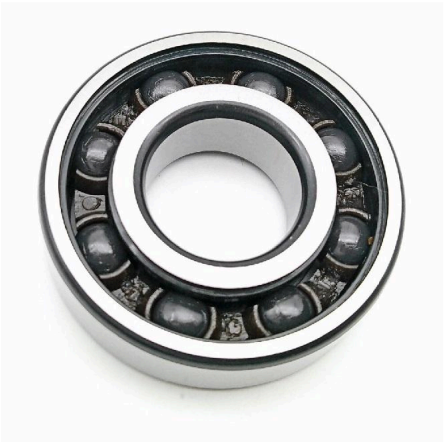
Ceramic vs Ceramic Hybrid Bearings

Ceramic Hybrid Bearings

A Ceramic Hybrid Bearing is a bearing with Steel Races and Ceramic Balls. The balls are usually Si3N4 (Silicon Nitride), and the races can be either SAE52100 Chrome Steel or AISI440C Stainless Steel. The benefits of ceramic hybrid bearings over conventional metallic ball bearings include.



- Ceramic balls are harder, often resulting in longer life.
- Ceramic balls are usually smoother resulting in less vibration.
- Ceramic balls are non-metallic meaning no magnetic build up and longer life due to no micro-welding between balls and races.
- More tolerant of reduced lubrication.
- The inner and outer race are electrically insulated from each other due to no metallic ball.

***** Benefits listed are subject to the prevailing conditions and may not apply to all applications**



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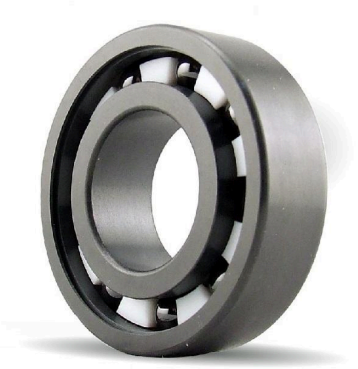
Ceramic Bearings

A Ceramic Bearing is a bearing with Ceramic Races and Ceramic Balls. Ceramic Bearings may be either Si3N4 (Silicon Nitride - Grey) or ZrO2 (Zirconia - White). The benefits of using full ceramic bearings instead of conventional metallic ball bearings include.

- High Temperature. Cages fitted to Ceramic Bearings are often made from PTFE which can withstand temperatures up to 260°C. The cage material should always be taken into consideration when determining the temperature range of ceramic ball bearings.
- With no cage the Zirconia Bearing can be used in temperatures exceeding 1000°C whereas Silicon Nitride can be used to around 700°C.
- Silicon Nitride Bearings can run at loads and speeds approaching those of steel bearings. Zirconia is reserved for slower less loaded applications.
- Inert to water and most chemicals.
- Non magnetic
- Can be used without lubrication
- No frictional heat build up
- No metallic parts allow the bearing to act as an electrical insulator.



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