Morgan Advanced Materials

Silicon Carbide Materials

for Seals & Bearings

SEALS AND BEARINGS

Precision Silicon Carbide components in high volume with sizes up to 80mm in diameter.

Our market-leading Silicon Carbide materials are the preferred choice for many of the market's most respected mechanical seal manufacturers, demanding the best possible tribological performance in hard on hard seal face and bearing combinations.

Silicon Carbide Family	Key Characteristics
Resin Bonded Silicon Carbide	High Wear Resistance Thermal Shock Resistance High Modulus
Sintered Silicon Carbide	High hardness and strength High-temperature resistance High Modulus Chemical Resistance
Siliconised Graphite	High hardness Abrasion resistance
Ceramic Matrix Composites	High Hardness High Modulus Improves marginally lubricated conditions

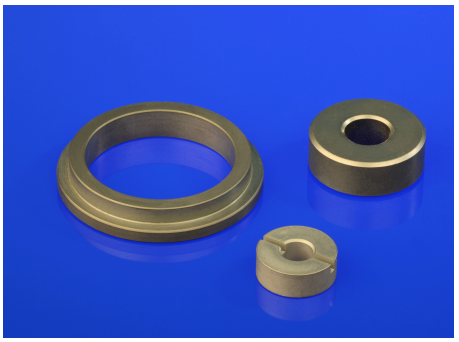
Morgan Silicon Carbide Applications

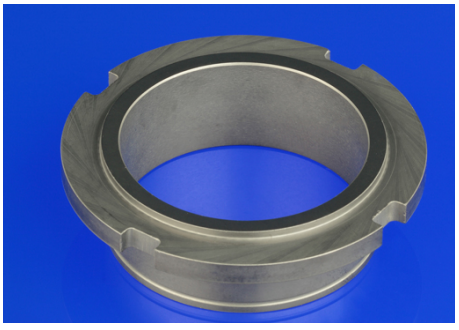
- Centrifugal pumps
- Submersible pumps
- Compressors
- Mixers and steam joints
- Gear pumps
- Propulsion shaft sealing
- High temperature and pressure applications
- Speciality pumps for handling corrosive and abrasive fluids
- Mechanical seals for circulating pumps with limited dry running capability
- Bearings for circulating pumps
- Bearings for electric water pumps used in electric and/or hybrid cars

Contact us today for our most up-to-date datasheets and a grade recommendation tailored to your application.

Silicon Carbide Characteristics

- Superior wear resistance with low friction
- High-temperature capabilities
- Wide-ranging compatibility with other materials
- High thermal conductivity
- Outstanding thermal shock resistance
- Superior corrosion resistance, especially in alkali environments





Reaction Bonded Silicon Carbide Types

Monolithic or Solid Reaction Bonded Silicon Carbide

As part of the reaction process, the silicon infiltrates the inherent porosity of the matrix, yielding an impervious composition. The surface texture created by the free silicon reduces friction for prolonged component life.

An excellent candidate for tribological components used in fluids that are moderately caustic or acidic, including fuels, abrasives, light hydrocarbons, etc. The material yields the highest P-V capability when mated with our premium mechanical carbon materials.

Reaction Bonded Silicon Carbide with Graphite (CMC)

Also impervious, the unique surface texture created by the presence of silicon and graphite further extends the tribological capability of this material. With its higher degree of thermal conductivity and lower degree of thermal expansion, this material is ideal for applications susceptible to the forces of thermal shock as well as friction, impact, abrasion, erosion, or high temperatures.

Sintered Silicon Carbide Types

Sintered Silicon Carbide

Combination of hardness, strength, and temperature resistance gives it excellent capabilities for service in a wide range of applications where chemical and abrasion resistance, high speeds, and high pressures are required. Also, an excellent counterface material when paired with our premium mechanical carbon grades.

Graphite Loaded Sintered Silicon Carbide

The free graphite improves lubricity for greater dry run survivability and better thermal shock resistance than conventional sintered materials. Increased PV (pressure velocity) capability between hardface mating pairs, due to the presence of graphite, makes PGS-100 the best solution for all types of hardface pair sealing applications.

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At Morgan Advanced Materials, our purpose is to use advanced materials to help make more efficient use of the world's resources and to improve the quality of life.

Morgan's highly experienced scientists and application engineers actively engage with our customers to find new solutions for complex and technologically demanding problems.

We are building distinctive competencies in:

- Leading technology and materials science capability and process know-how
- Application engineering
- Customer focus, reputation for quality and delivery and brand

Our core strength is our ability to get to grips with individual customer problems, apply the science and engineer elegant and reliable solutions.

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