Resistant in Harsh Environments – Seals and Bearings made from CarSIK

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CarSIK – A Material for High Loads

CarSIK and its natural properties

CarSIK is a material based on silicon carbide, which has been continuously developed for decades. Silicon carbide has been beneficial for a wide range of industrial applications for quite some time.

Silicon carbide is created from coke and quarry sand only when temperatures are between 1600 and 2500 °C.

Silicon carbide materials are extremely lightweight, almost as hard as a diamond and extremely heat-resistant.

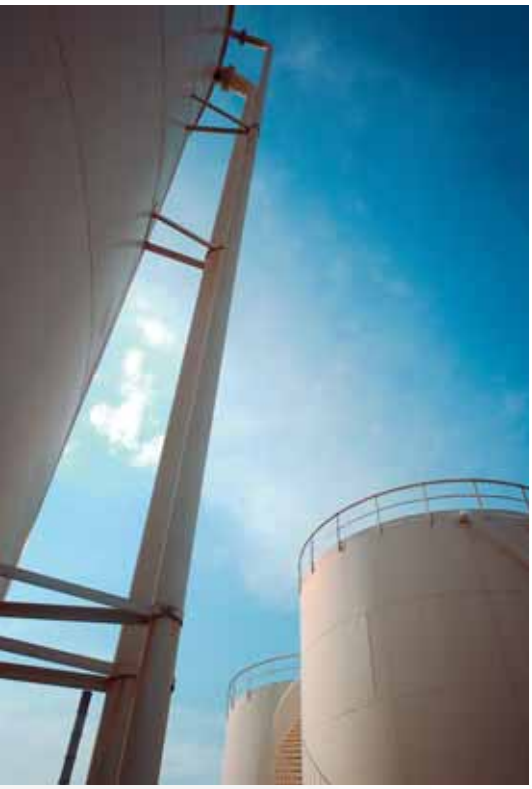
CarSIK remains stable in harsh environments

Extremely high resistance to corrosion and wear distinguishes pump bearings made from CarSIK from bearings made of metal. This is obvious especially when pumps with the same medium to be pumped are sealed and lubricated at the same time. CarSIK withstands the absorption of radial forces at the pump shafts as well as the mechanical stress of the bearings without premature material fatigue.

Seals and bearings made from CarSIK for the petrol industry, chemical engineering as well as for the manufacturing of pumps are constantly exposed to high stresses: This includes not only the mechanical stress on the seals by the absorption of axial forces on the rotating shafts, but also the effects of aggressive substances.

Seals and bearings made of CarSIK high-performance ceramics are important components of pumps. The sliding and sealing properties can be adjusted for individual application types.
The components made of CarSIK are light-weight, have convincingly high rigidity, and have excellent emergency operation properties and dry running properties.

Low-Wear in an Aggressive Environment



"Refined" solutions with seals and bearings made of CarSIK are found mostly in the petrochemical industry. In exceptionally aggressive environments, silicon carbide assures higher wear reliability than materials made of metal.

Ceramic material increase the operational safety

It is necessary to have reliable components in equipment that is located in a harsh environment. But this is only the case when a material is used whose properties increase the operational safety. In agriculture or coal mining, the decision is made in favor of ceramic components, therefore low-wear components, which promise long-lasting operational reliability of pumps and exhaust equipment. Here, as well as in the field of petrochemical industry (e. g. petrochemical mixers) or in ship building industry, CarSIK is considered to be particularly resistant and therefore resilient.

Due to its performance in running operation, the ceramic material CarSIK is wide ahead of metals thanks to the high performance qualities.

Components made of CarSIK are represented in many logistical processes and material flow processes, which depend on sustainable functional reliability as well as operational safety.

CarSIK is Chemically Stable

Influences on ceramic material

The material variants CarSIK-NT and CarSIK-CT withstand corrosive and erosive media (pH-values from 0 – 10).
The materials have proved to be largely resistant to all neutral liquids such as solvents, liquid hydrocarbons and other organic liquids. Therefore CarSIK materials are used for example also in lime water suspensions for flue gas desulphurisation.

Please refer to the detailed brochure “Facts and Figures for CarSIK Seals and Bearings” for the specific corrosion performance of the material variants CarSIK-NT, CarSIK-CT and CarSIK-SD.

The extraction of mineral resources demands high standards for the mechanical components that are involved in the process. Therefore, seals and bearings made of CarSIK are often part of the game.

Silicon Carbide Material

The thermal conductivity of CarSIK – compared to that of steel – is significantly higher. CarSIK is resistant to thermal shock and corrosion; especially in an environment of high temperature applications. Furthermore, seals and bearings made of CarSIK high performance ceramics have excellent running properties.

Components Made of CarSIK: Prototypes, Large and Small Scale Productions

Schunk Engineering Ceramics manufactures seals and bearings made of CarSIK under strict quality control. That applies overall for individual components, small or large-scale productions. CarSIK therefore meets the strict requirements of the seal and bearing technology.

Thanks to use-oriented development and test techniques, material combinations always create new possible solutions, in order to satisfy individual forms and requirements.

Schunk will gladly advises you in all questions about material properties and component design.

Various pump systems benefit from CarSIK seals and bearings.

Since CarSIK is a stable and resistant material, it is also used in agricultural vehicles with powerful pump systems.

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