

HIGH-PERFORMANCE CERAMICS

GAS-LUBRICATED SEALING AND BEARING ELEMENTS

Application:

High-performance pumps, compressors, turbines and systems for water treatment, in the chemical industry or in oil and gas extraction

Material:

Silicon nitride StarCeram® N3000 P

Gas-lubricated mechanical seals are used wherever rotating machine parts need to be reliably and permanently sealed – especially under extreme conditions such as high pressures, temperatures and circumferential speeds. Silicon nitride is the material of choice here.

Kyocera's new high-performance material StarCeram® N3000 P – a silicon nitride with a virtually flawless microstructure – is ideal for highly stressed sealing and bearing elements thanks to its outstanding material properties:

- ▶ Exceptional flexural strength, even at high temperatures
- ▶ High fracture toughness
- ▶ Extreme wear resistance
- ▶ Low density
- ▶ Outstanding thermal shock resistance
- ▶ Electrically insulating
- ▶ Very fine, almost non-porous structure

The exceptional material quality with very limited porosity enables precise and damage-free laser processing, for example for the integration of gas-conducting grooves or special surface structures.

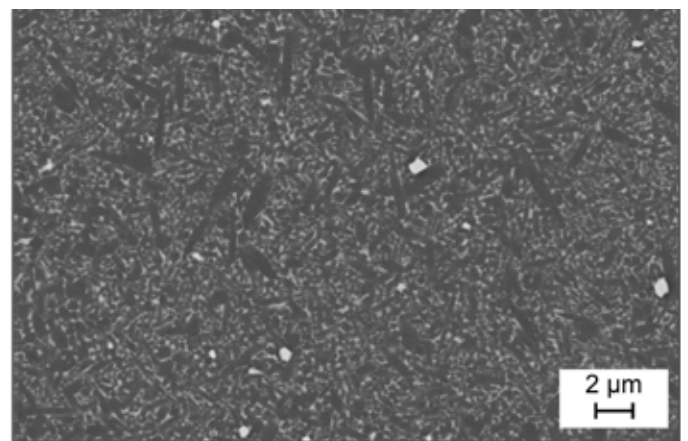
Kyocera relies on highly developed laser systems for production, which enable a wide range of precise machining tasks. Thanks to optical and tactile positioning systems, consistently high process quality and reproducibility are ensured. Different surface structures – from roughness modifications to microstructures such as recesses or grooves – can be realised flexibly and efficiently.



Silicon nitride StarCeram® N3000 P offers a number of advantages when used as a material for gas-lubricated mechanical seals:

- ▶ Minimisation of leaks and maintenance
- ▶ Increased energy efficiency
- ▶ Improved performance and durability
- ▶ Reduced maintenance effort
- ▶ Precise and trouble-free machining of the gas grooves thanks to exceptional material quality

Kyocera is an experienced specialist in technical ceramics and a reliable partner in the development of demanding applications. By manufacturing customised components and providing comprehensive technical support, we help our customers to implement ceramic-compatible solutions for individual challenges.



Microstructure recording of StarCeram® N3000 P

The material specifications for StarCeram® N3000 P can be found at www.kyocera-fineceramics.de.