KYOCERA Fineceramics Europe GmbH

Ceramic sliding bearings for magnetic mixers

Rotors and stators with magnetic coupling as sealing system convince with ceramic bearings through reliable and unproblematic sterilizability and germ-free operation.

Ceramic bearings in aseptic production lines

Ceramic bearings are used in contact with aggressive, difficult media as well as sensitive medicines and foodstuffs. Chemical inertness and biocompatibility of ceramics allow a wide range of applications.

Magnetic agitators are used in production systems for medical and cosmetic products where no metallic abrasion is permitted that could contaminate the final product. The static bearing journal is mounted on the so-called welding plate, while the outer bearing is integrated into the mixing head. The torque is transmitted by permanent magnets that rotate at high speed. Such a solution provides a hermetic separation of the inside of the vessel from the outside atmosphere, with no mechanical coupling between the motor and the rotary head.

Our ceramic bearings can be cleaned with the known cleaning methods and are ideally suited for CIP and SIP processes due to their high thermal shock resistance and high corrosion resistance. The high-precision hard machining offers tight tolerances and excellent surface qualities. We certify compliance with the highest safety standards with USP Class VI and FDA certifications, as required for use with demanding and critical media.

Adhesive forces between the sliding partners are eliminated by using different ceramic materials for the inner and outer bearings. To improve the dry running properties, we supply the outer bearings made of zirconium oxide with higher toughness and better impact resistance. For the counter bearing, we supply silicon carbide bearings with the highest wear resistance. This material combination offers mixing down to the last drop of product. Other material combinations are possible on customer request. To enable a strong fixation of the inner bearing, we can grind a precise thread into ceramic or use a glued-in metal thread. Outer bearing can be combined with metal mixing head by shrinking in. Both silicon carbide and zirconia can be used in sub-zero temperatures, making them also suitable for cryogenic production processes.

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Female bearing made of silicon carbide, male bearing made of zirconium oxide

Our company has experience with pharmaceutical applications and can assist you with the right choice of ceramic material and robust ceramic design. Our comprehensive supply chain management offers full traceability, which is particularly important for aseptic applications.

We manufacture the components to your specifications in large and small batches as well as custom-made products. We are also your right partner for small prototype series.