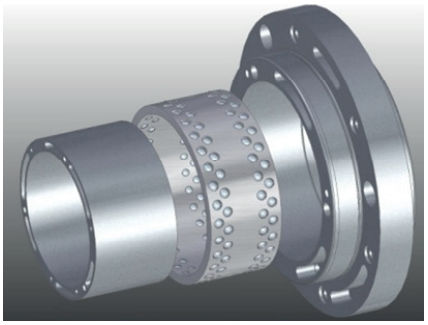
Motor spindles, high-speed machining spindles, turbine bearings

Floating bearings, thermal expansion compensation

High-speed, high-precision motor spindles require dimensional compensation of the spindle shaft due to thermal expansion in the axial and radial directions. This is a quasi-static application. The high-speed radial bearing is installed in the inner ring; the floating bearing shifts by a few hundredths to tenths of a millimeter exclusively in the axial direction. Thanks to the optimized design of the components, the bearing remains preloaded throughout the entire temperature range.
Designed for use with special spindles, high-precision spindles, and other applications involving rotating parts. Relevant documentation is available to designers upon request.
The issue of thermal expansion is less of a problem with belt-driven spindles.



Floating bearing unit with integrated cooling of the inner and outer rings; copyright Agathon AG

Important points are

- Floating bearing unit or only ball cages (units or individual parts)
- Highest precision to prevent out-of-balance, paired units with concentricity up to 3 µm
- Advantages and disadvantages of the different materials (aluminum and brass)
- Profile rollers or balls offer various possibilities
- Various ball sizes available in stock
- Definition of the ball class, advantages and disadvantages
- Maximum protection for the highly sensitive and expensive (hybrid) spindle bearing

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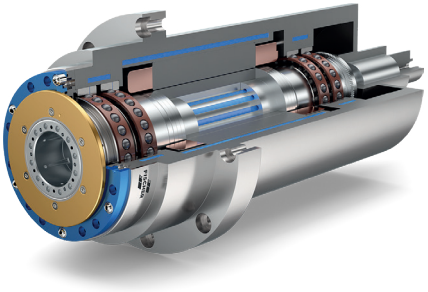
Agathon services and possibilities

- Project management for guiding systems (support)
- Technical support for optimized design and calculation of guiding systems (load capacity / stiffness)
- Core competences in house (production and technical support)
- Customized material selection (e.g. inox material, ceramic balls, etc.)
- Production sizes 1 to several 1,000pcs/year, diameters from 3 mm to 80 mm (maximum size: ø140 mm), larger ball cages
- Deburring according to customer's specifications (drawing and specific details)
- Cleanliness: Cleaning and packaging as needed, according to the customer's specifications
- Ready-to-build-in-delivery possible (assembled, greased, etc.)
- Measuring protocols and material certificates according to the customer's specifications
- Paired units, preload according to application (defined sliding forces upon application)
- Extensive experience in the manufacture of high-precision parts for various sectors



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