In view of today's high performance standards in the field of machine tool spindles, floating bearing arrangements place ever increasing demands on the design engineer. Superior functional reliability and cost-effective, simple constructional solutions appear to be almost incompatible. The degree of functional reliability desired for the floating bearing location may at times restrict the achievement of maximum speeds. In the past several years, FAG has provided numerous technological developments that contribute to solving or improving these problems.

FAG now also offers its customers special customized solutions, tailored to meet specific application requirements. These solutions are based on a wide selection of precision cylindrical roller bearings, which are also available in a hybrid version.

In addition ball bearings with integrated floating bearing functions - so-called Floating Displacement bearings – are also offered. They are available in various design configurations, e.g. sealed or with tapered inner ring bore or with Direct Lube feature.

Recently, ready-to-mount floating bearing units have caused quite a sensation. FAG offers them with sealed super precision bearings that are lubricated for life, comprising integral sliding fit function and cooling.

And there’s far more in store...
FAG Floating Bearing Solutions – Made Easy
Individual and cost-effective solutions for each type of application

FAG offers the widest and most comprehensive product range for solving the floating bearing issue in machine tools. The FAG catalogue “Added Competence - Super Precision Bearings” (AC 41/130) contains a large selection of proven high-precision bearings that master this difficult task with ease. These include precision cylindrical roller bearings as well as FAG Floating Displacement (FD) ball bearings that set the standards in motorized spindles. Furthermore FAG offers application-specific floating bearing units, which incorporate the typical floating bearing functions and additional components in a virtually ideal way.

**FAG Super Precision cylindrical roller bearings**

are available in all common types and design variants:
- single row (N..)
- double row (NN..; NNU49..)
- hybrid version (HCN..)

**FAG Floating Displacement bearings**

are a combination of a deep groove ball bearing outer ring and a cylindrical roller bearing inner ring. They incorporate an extensive input of proven rolling bearing expertise. The inner ring uses a high-Nitrogen performance steel, whereas the rolling elements are made of ceramic material. FD bearings permit free displacement of the outer ring relative to the inner ring during operation. The external dimensions of the bearings correspond to those of single row cylindrical roller bearings (N10..). Special advantages are their superior high-speed capability, high load carrying capacity and the considerable down-sizing options resulting from the first two characteristics. The bearings are also available:
- in a sealed version (FD..2RSD)
- with tapered bore (FD..K)
- for oil-air lubrication (FD..DLR).

Friction-induced temperatures do not only occur in the bearing itself, they also result from tolerance build-up and assembly influences between the corresponding mating parts. Specifically in machine tool spindles, the reliable control of these heat sources requires maximum accuracies, technical competence – and time. The aforementioned factors often limit the full potential of the spindle bearing performance. FAG now offers application-specific systemized solutions where sliding fits, sealing, spring accommodation, heat dissipation, oil supply and return etc. have already been completely integrated into the bearing. This makes it easy to find a floating bearing solution for even the most challenging floating applications!

**New: FAG Integrated Floating Bearing Units**

**Ready-to-mount, multi-functional floating bearing solutions**

- extremely cost-effective
- sealed at both sides and lubricated for life
- integral cooling and heat dissipation

**FAG integrated unit with built-in spring preload**

- low measuring and mounting requirements
- sealed and lubricated for life
- maintenance-free
- integral cooling and heat dissipation

**FAG integrated unit in DLR design**

- improved sliding owing to long outer ring guided surface
- simplified spindle design owing to multi-functional sliding sleeve
- easy-to-assemble
- integrated oil supply and return

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