

Press Release

Schaeffler at AMB 2026 (Hall 6, Booth C42)

Innovations for Machine Tools – From the Spindle to the Peripherals

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- Bearing and drive solutions for tool, workpiece, and feed axes
- Hybrid spindle bearings, rotary axis bearings, torque and linear motors for maximum productivity and service life
- For automation: rotary axis bearings with integrated gear teeth and monorail guidance systems for the peripherals of machine tools

Developed for exacting requirements: The Motion Technology Company Schaeffler is presenting at the AMB 2026 in Stuttgart under the motto “Innovation across every axis” a broad portfolio of efficient, robust, and powerful bearing and drive solution for tool, workpiece, and feed axes, which tangibly increase the efficiency of machine tools – from the spindle to the peripherals.

“The world of machine tools is undergoing transformation. More than ever, customers are now looking for solutions that not only work precisely and reliably under continuous load, but also increase the efficiency, productivity, and service life of the entire machine,” says Ralf Moseberg, Global Sector Lead Industrial Automation at Schaeffler. “Our engineers understand our customers’ needs. Our technologies help them to offer machine tools that deliver genuine competitive advantages in terms of dynamics, precision, and efficiency.”

Bearing solutions for tool axes

The use of hybrid bearings, which have been standard in main spindles for decades, has also been extended over the past few years into other applications such as rail technology, the food industry, e-mobility, and into feed spindle bearings in short stroke applications in the machine tool segment. In main spindles, hybrid bearings of the VCM series, with rings made of high-performance Vacrodur rolling bearing steel, are setting new standards in terms of robustness and service life. Even under extreme mechanical, thermal, and tribological loads, they guarantee previously unattainable performance capability and operational reliability.

Driven tools have developed over the past 10 to 15 years into highly productive auxiliary axes integrated into the machine controller, which can also master challenging machining requirements. In turn, the demands placed on the spindle

bearings have also increased. Schaeffler is targeting this market with precision spindle bearings of the type PTB in the precision class P4 with shaft diameters from 10 to 50 mm in the dimension series 70 and 719.

Bearing and drive solutions for rotary workpiece axes

With torque motors in the RIB series and rotary axis bearings in the YRTC series, a Schaeffler customer implemented highly dynamic drives for rotary indexing machines with maximum precision. The direct drives can maintain the position precisely in the micron range during machining entirely “electrically.” This not only does away with the need for mechanical clamping. It also substantially reduces cycle time.

The innovative double-row XZU angular contact needle roller bearing was developed originally as an output bearing with high tilting rigidity for precision gearboxes. With its very low and even moment of friction it also enables extremely precise and uniform motion in laser swivel heads. Due to its compact cross-section, it is also excellently suited for mounting swivel heads for light machining.

For rotary axes outside the machining area, the Schaeffler engineers have developed the YRTA series (A = Automation). These double direction axial radial bearings ideally fulfill the high requirements in automation regarding tilting rigidity, long operating life, and minimal maintenance, such as in pallet changing systems.

To drive milling machine tables and swivel axes for bridge-type milling structures as well as milling heads or automation axes, Schaeffler offers a very cleverly integrated solution: The rotary axis bearings of the YRTC and YRTA series can be configured with outer gearing on the shaft washer (YRTCG, YRTAG). This gear takes the place of the spur or helical gear of the customer-side gear drive. This substantially reduces the installation space, the complexity, and the assembly time of the axes.

Bearing and drive solutions for linear and feed axes

Linear axes for workpiece and tool handling should be particularly low-maintenance and durable. They must also be able to offset larger tolerances and defects of the connection geometries without causing significant constraining forces. These are precisely the requirements that the four-row monorail guidance systems in the KLLT series with an X arrangement meet. The systems supplement the extensive Schaeffler linear guidance system portfolio specifically to meet the requirements of the peripherals of production machines. Eight different carriages – in long, short, high, and low versions, with and without flange, offer maximum design freedom and flexibility.

The key to highly dynamic and compact linear direct drives lies in their power density. Compared to the current benchmark, the L7 linear motors from Schaeffler provide up to 50 percent lower power loss with the same drive force or up to 40 percent more nominal force with the same power loss. While motors with optimized peak force or power loss characteristics are already offered on the market, the L7 linear motor combines both these strengths and offers outstanding acceleration capability, while remaining significantly cooler. Precision and productivity increase, while cutting operating costs.

Schaeffler Group – We pioneer motion: The Schaeffler Group has been driving forward groundbreaking inventions and developments in the field of motion technology for 80 years. With innovative technologies, products, and services for electric mobility, CO₂-efficient drives, chassis solutions and renewable energies, the company is a reliable partner for making motion more efficient, intelligent, and sustainable – over the entire life cycle. Schaeffler describes its comprehensive range of products and services by means of eight product families: From bearing solutions and all types of linear guidance systems through to repair and monitoring services. Schaeffler is with around 110,000 employees and more than 250 locations in 55 countries, one of the world's largest family-owned companies and one of Germany's most innovative companies.

Precision spindle bearings of the type PTB for driven tools (Image: Schaeffler)

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Double-row XZU angular contact needle roller bearing (Image: Schaeffler)

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Rotary axis bearings in the YRTAG series with outer gearing of the shaft washer (Image: Schaeffler)

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Four-row monorail guidance systems of the KLLT series with an X arrangement (Image: Schaeffler)

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L7 linear motor (Image: Schaeffler)

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