SCHAEFFLER

We pioneer motion

Rotary Axis Bearings

Trends – Solutions – New Releases

Responding to the numerous trends in machining production

The requirements in highly automated production are becoming increasingly diverse, both in terms of automation solutions for all aspects of the machine tool and the increasing integration of additional machining processes into the machine tool.
Rising energy costs have made it necessary to rethink existing drive concepts and look for alternatives. Further reductions in the number of drivetrain components, weight and installation space is now achievable courtesy of functional integration. Schaeffler can offer suitable bearing solutions for each of the current development trends.

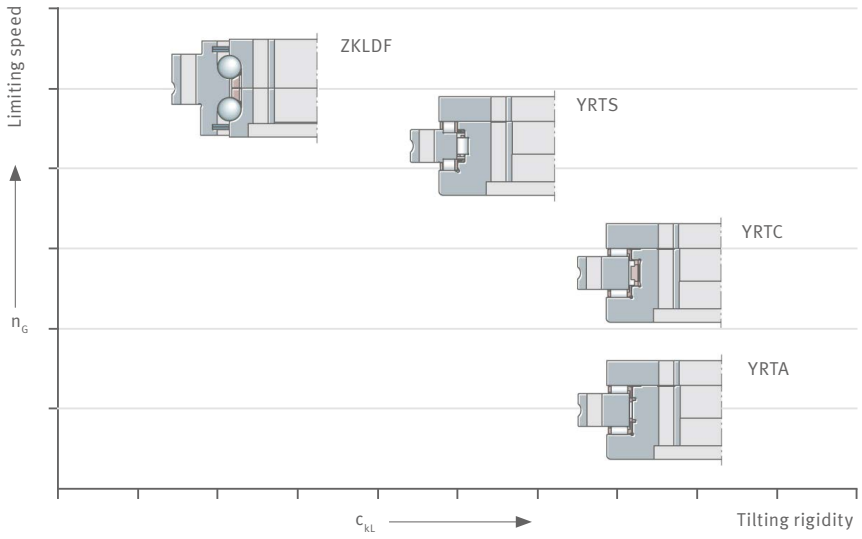
Leading partner for the machine tool industry. Drives – Bearings and Guidance Systems – Measurement Systems

The world's largest selection of rotary axis bearings and mechatronic solutions for production systems, machine tools and industrial automation is available from Schaeffler

- in rotary tables, rotary grinding tables, swivel axes, CNC dividers and rotary indexing tables,
- in combination with direct drives or gearbox solutions
- with an integral angular measuring system or as a matched complete drive,
- for the machine tool and associated peripherals, for automation solutions or productronics.

We have expanded our comprehensive product range, complete with the proven high-performance products ZKLDF, YRTS and YRTC, to include the new YRTA and YRTAG series, which have been developed specifically for automation applications.

Speed and tilting rigidity



Rotary axis bearings for machining

YRTC

YRTCG

New: Rotary axis bearings YRTCG with integrated spur gear

Increased energy efficiency is not only required of auxiliary drives but also of main machine tool axes. In principle, conventional axes with gears do not require any energy in their idle state, which is why this solution is now increasingly in demand again for certain applications. Schaeffler now offers its YRTC-series of axial/radial bearings with integrated gearing (YRTCG) for such developments. As the gearwheel on the gearbox side is now no longer required, significant reductions in weight and installation space are achieved. The number of gear teeth as well as the module and tooth corrections are produced to customer specifications, while the integrated solution now renders the previously required alignment of the gearwheel unnecessary.

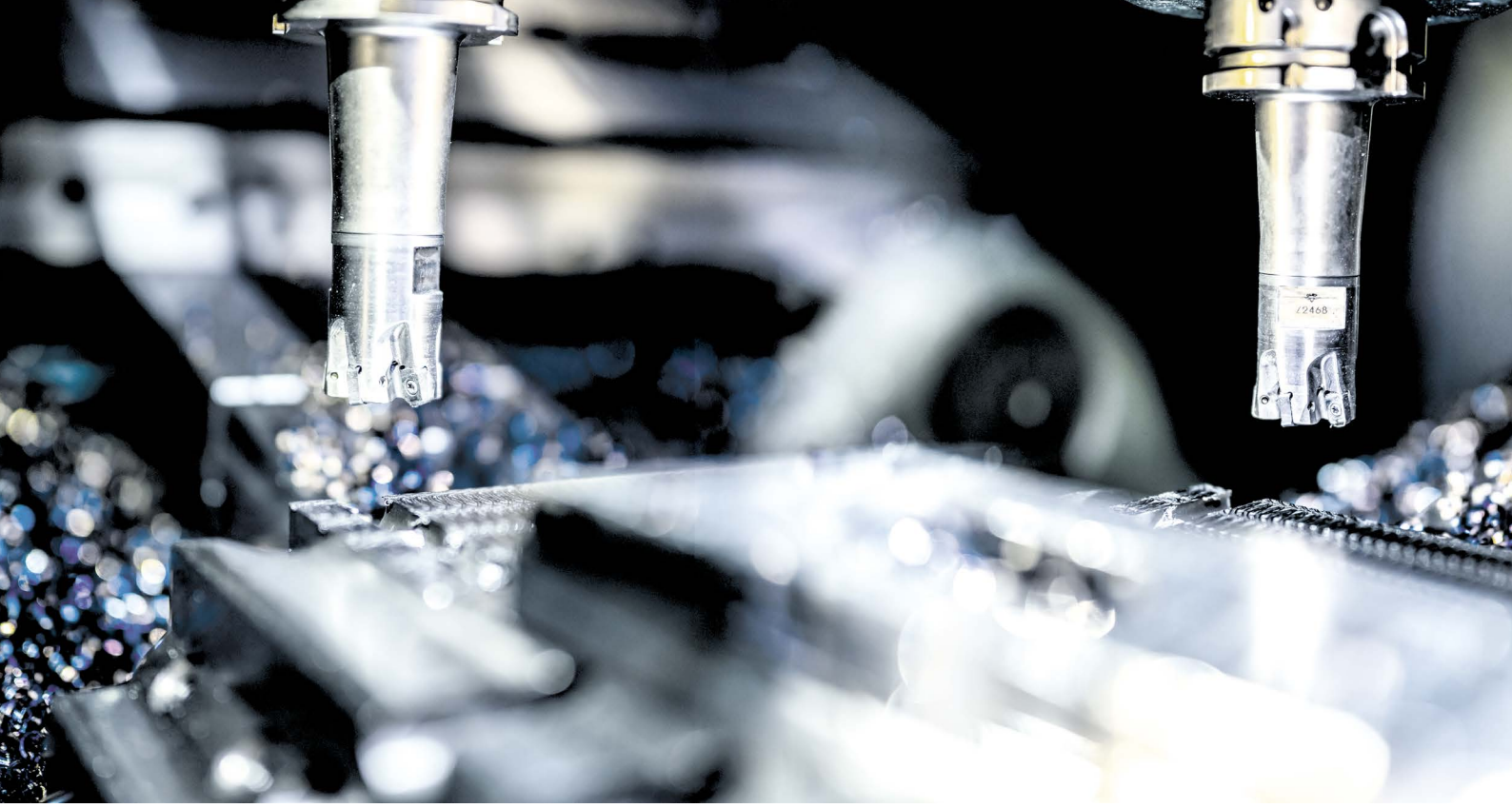
YRTCMA

YRTCGMA

New: Rotary axis bearings YRTCMA, YRTCMI and YRTCGMA with angular measuring system

The established inductive absolute AMOSIN® angular measuring system is also available for both the YRTC rotary axis bearing and the new YRTCG rotary axis bearing with integrated spur gear. We also offer rotary axis bearing YRTC with the incremental AMOSIN® angular measuring system.

The integration of the drive and angular measuring system into the bearing arrangement enables extremely compact drives with low assembly costs and a reduced mass inertia. A generous amount of space for feeding through cables and lines is also provided courtesy of the large central passage.



Rotary axis bearings for automation applications in machine tool peripherals

YRTA

YRTAG

New: Axial/radial rotary axis bearing series YRTA and YRTAG for automation axes and auxiliary axes

Rotary axis bearings for automation solutions differ from those for machining processes in that their accuracy and speed requirements are somewhat lower. The costs associated with rotary axes and providing the appropriate bearing support also play a significant role in the ROI for automation solutions.
Using the proven axial/radial cylindrical roller bearing as a base, our engineers succeeded in expanding the portfolio to include the new YRTA series of axial/radial bearings through a number of optimisations. The new YRTA series of axial/radial rotary axis bearings is the perfect choice for pallet changers, rotary feed stations and countless other applications. In contrast to the YRTA bearing, the new YRTAG series features an integrated spur gear, which replaces the spur gear on the gearbox side. The key to even greater potential for automation solutions lies in machine tool peripherals, which you can now unlock with our expanded range of rotary axis bearing arrangements.

Expansion of the product range

ZKLDF

ZKLDFMI

New: Rotary axis ball bearings with integrated angular measuring system

Due to their high-speed suitability, low breakaway torque and low levels of friction, ZKLDF-type bearings are the preferred choice for high-speed and high-precision machine tools used in light metal, plastic and wafer machining, with highly dynamic rotary indexing tables in industrial automation also ranking among their preferred applications. As ZKLDF bearings in rotary axes are almost always used in combination with direct drives, the integration of an angular measuring system posed a logical step. Since high speeds can be involved, an inductive AMOSIN® angular measuring system is primarily used with the ZKLDFMI bearings (Im=incremental measuring). If the ZKLDFMA bearing with absolute measuring system is used, the speed is reduced to the output frequency of the measuring system.

YRTS

YRTSMA

New: Sizes 580 and 650 added to the YRTS series

The trend within the machine tool industry towards performing various production processes in a single clamping operation remains unchanged. This necessitates combining high tilting rigidities and high speeds for the turning and milling process plus low fluctuations in frictional power for the grinding process in a single bearing solution. Furthermore, the frictional power and thus the heat generated in the bearing should be kept to a minimum. The axial/radial roller bearing YRTS was developed to satisfy these general conditions.

Schaeffler is now expanding its range of YRTS bearings series to include two new sizes, 580 and 650, for large rotary tables with table top diameters of up to 2000 mm. With speed capabilities of 400 min^{-1} for the YRTS580 and 300 min^{-1} for the YRTS650 in intermittent operation (S6), combined with frictional torque of only 25 Nm, both bearings represent a premium addition to the Schaeffler portfolio and are additionally available with an integrated absolute angular measuring system.

The Schaeffler rotary axis bearing product range at a glance

		Applications with very high speeds and high rigidity		
Series	**Sizes/ inside Ø in mm**		**With angular measuring system**	
YRTA	150, 180, 200, 260, 325, 395, 460			
YRTC	150, 180, 200, 260, 325, 395, 460			 YRTC
YRTS	200, 260, 325, 395, 460, 580, 650	 YRTS	 YRTSMA - YRTSMI	
ZKLDF	100, 0150, 180, 200, 260, 325, 395, 460	 ZKLDF	 ZKLDFMA - ZKLDFMI	

Design featuring measuring system: ..MI = with inductive, incremental angular measuring system;
..MA = with inductive, absolute angular measuring system

Design with integrated spur gear

Applications with high speeds and maximum rigidity			Applications with low speeds and high rigidity	
With angular measuring system	**With spur gear**	**With angular measuring system and spur gear**		**With spur gear**
			 YRTA	 YRTAG
 YRTCMA, YRTCMI	 YRTCG	 YRTCGMA		

The following brochures are available to view in our media library:

- **PDB75 Expanded Product Range YRTS**
- **PDB76 YRTA**
- **PDB77 Axial/Radial Bearings with Toothed Shaft Washer YRTCG and YRTCGMA**
- **RE1 Torque Motors**

Schaeffler Technologies AG & Co. KG
Georg-Schäfer-Straße 30
97421 Schweinfurt
Germany
www.schaeffler.com

Issued: 2024, September

PRA en-GB / DE / 2024-09