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Press Release

Hannover Messe 2025

Schaeffler offers key components for humanoid robots

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- Schaeffler presents its product range for growing market in humanoid robots
- Broad product portfolio from components to subsystems thanks to comprehensive expertise in the field of motion technology
- Industrialization excellence and high level of vertical integration deliver added value for manufacturers of humanoid robots
- Activities in the humanoids segment are testament to the company's innovative strength in future-oriented areas of industry

At the Hannover Messe, the Motion Technology Company Schaeffler showcases its product expertise in the industrialization of humanoid robots. Humanoids will play a key role in the industry of the future, as they can be readily deployed in existing work environments and significantly improve process efficiency. Building on its eight product families, Schaeffler offers a broad product portfolio to give manufacturers of humanoid robots a technological edge. As an integrator who is already using this future technology in its factories, the company understands the high requirements for key components such as bearings and actuators and incorporates this knowledge into its own product development. The industrialization process is supported by the high level of vertical integration that has characterized Schaeffler for decades.

"As a technology partner across all areas of motion, Schaeffler is in an ideal position to revolutionize industry with its innovations for humanoids," says Andreas Schick, who has overall responsibility for activities relating to humanoid robots in his capacity as Chief Operating Officer of Schaeffler AG. "Humanoid robots are crucial for the efficient and agile production systems of the future. Schaeffler is already a strong partner in their development, supplying key components to major players in this field. Our comprehensive expertise in product and manufacturing technologies allows us to effectively establish and actively advance this disruptive technology in the industrial environment."

Key technologies for humanoid robots

As a user of humanoid robots in the production environment, Schaeffler has sound knowledge of the exact requirements for components used in humanoid systems. Thanks to this expertise and its innovative product range, Schaeffler is transferring

proven technical solutions to humanoid robots, and in doing so is systematically driving their ongoing development.

On average, humanoid robots have 25–30 joints, the effectiveness of which is largely dependent on the precision and robustness of the components used within them. Schaeffler's innovative XZU double-row angular contact needle bearing was originally designed for industrial robots. A lightweight variant and more compact design variant of the XZU bearing has been developed by Schaeffler specifically for the humanoid market. Thanks to improved friction behavior and high tilting rigidity, these bearings allow the movements of humanoid systems to be controlled more efficiently and precisely.

Schaeffler offers a broad range of key components for humanoids like linear and rotary drive assemblies. Thanks to its longstanding experience in the automotive sector, Schaeffler is extending its high standards in drive technology to humanoid robotics. This results in scalable solutions that meet the requirements of the industry. Schaeffler's rotary gearboxes and linear actuators, such as ball and planetary roller screw assemblies, can be used in various humanoid joints to achieve optimum functionality and efficiency.

At the Hannover Messe, Schaeffler will also be presenting a wide range of sensor solutions. Humanoid robots must be capable of precise gripping or touching, so sensitive and ultra-modern sensors are crucial components. The company will present innovative linear sensors that detect longitudinal movements and can therefore substantially increase the perception range of humanoids.

In the electric motor segment, Schaeffler will showcase high-performance, scalable product solutions. Originally developed for e-mobility, Schaeffler's electric motors and power electronic solutions can be used in the drives of humanoid limbs and joints. Thanks to the merger with Vitesco Technologies, Schaeffler has substantially enhanced its expertise in these areas of technology and now has additional capabilities and competencies in the vertical integration in the development of components for humanoid applications.

David Kehr, president Humanoid Robotics at Schaeffler, says: "At the Hannover Messe, Schaeffler will showcase its product solutions for humanoid robots for the first time. Our goal is to be a strong technology partner to manufacturers of humanoids. With our in-depth system knowledge we are in a position to supply products optimally designed for the humanoid market. Schaeffler will leverage its outstanding manufacturing capabilities to scale up these technologies cost efficiently as soon as the demand for humanoids increases."

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Schaeffler at the Hannover Messe

Schaeffler will display its innovations in eight product families at the Hannover Messe from March 31 to April 4, 2025, in Hall 5, Booth D18. Schaeffler will also have a booth in Hall 13 (E41/1) focusing on solutions for the generation and use of hydrogen.

Learn more about Schaeffler's appearance at the Hannover Messe 2025:
Schaeffler at Hannover Messe 2025 | Schaeffler Group

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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, 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. With around 110,000 employees and more than 250 locations in 55 countries, Schaeffler is one of the world's largest family-owned companies and ranks among Germany's most innovative organizations.

Schaeffler is committed to deploying humanoid robots on the shop floor Photo: Schaeffler

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Electric motors with very high power density can be utilized in humanoid robots through scaling concepts. Photo: Schaeffler

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