

SCHAEFFLER



Mechatronic System Integration

Our service is your opportunity



Mechatronic systems designed to suit your needs



The high complexity of mechatronic system integration, increasingly short development cycles, and rapidly changing market requirements mean that manufacturers and original equipment manufacturers are always facing new challenges.

We can help you to overcome these challenges more easily.

Rolling bearings and linear guidance systems are central power transmission components. They work “in the center of motion”, which makes them the natural starting point for integrating other functions for measuring, regulating, and controlling.

But mechatronic system integration is much more than just combining the best components to form a single unit. Achieving the overall functionality is a matter of correctly matching the individual parts to each other.

Our experience means security for you

We have spent decades working in the field of bearing supports for moving machine parts, so we know the critical influences that affect electronic components in mechatronic systems: Acceleration, temperature, vibrations, mechanical loads, electromagnetic fields, etc. And we have the expertise to ensure that suitable measures are always taken to eliminate these problems in advance.

Strong brands guarantee the perfect solution in construction and design

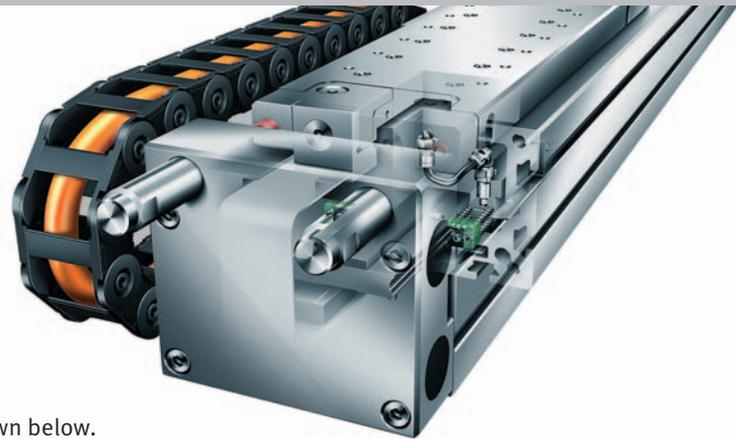
Schaeffler offers a unique product range that combines precision technology with outstanding product quality. This includes both premium rolling bearings from FAG and high-precision mechanical systems from INA. Thanks to consistent high-tech research at our Surface Technology, Materials Technology, and Tribology centers (among many others), our modular system of products and services can deliver the perfect solution to suit any requirements.

Schaeffler works together with subsidiaries such as the direct drive specialist IDAM and with strong partners in the sensor technology and electronics sectors, such as Continental AG, so we have every kind of expertise needed for the integration of electronics and mechanics at our disposal.

Your advantages

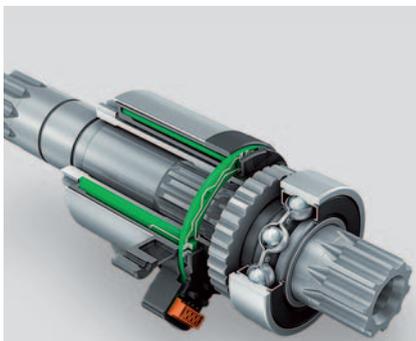
- **Expertise:** Take advantage of our decades of experience in designing and precision-manufacturing mechanical components and mechatronic modules.
- **Costs:** Create economies of scale in purchasing, simplify your manufacturing processes, and streamline your supply chain.
- **Customized solutions:** Having the Schaeffler Group as a system supplier means that you also benefit from the support of an expert, specialist development partner when carrying out your development tasks – always working in close cooperation with you right from the start.
- **System integration:** We develop optimized plug and play solutions for integration into your application according to your exact specifications.
- **Reliability and quality:** Benefit from development and production according to the most stringent quality guidelines and processes that are standardized worldwide.
- **Time to market:** Speed up your development processes and take advantage of our rapidly available on-site production capacities.
- **We are always on hand, wherever you need us:** Our worldwide network of engineers, service and sales technicians is there to ensure you can make contact quickly and directly.

Solutions for the future



We have many years of experience with system integration. Some examples of successful mechatronic systems from our company, which we developed in close cooperation with our customers, are shown below.

Smooth-running sensor bottom bracket, integrated into e-bike drive



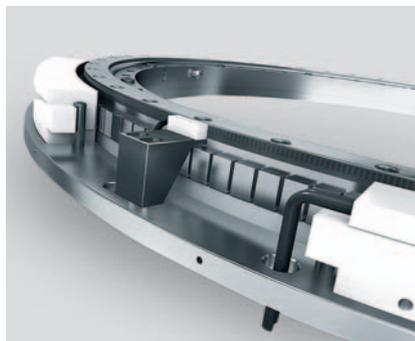
The challenge:

- To integrate high-precision torque and speed sensors into the existing fitting space
- To protect the sensors against external electromagnetic effects
- To achieve compatibility with conventional ISIS bicycle cranks
- To ensure freedom from maintenance throughout the operating life

The solution:

- Design adapted for optimum protection against external electromagnetic effects
- Corrosion protection for the shaft and sealed deep groove ball bearings due to Corrotect® coating
- Non-contact measurement of speed, direction of rotation, and torque on both sides
- Ready for operation after fitting

Compact bearing system for rotary tables with integrated direct drive



The challenge:

- To integrate the slewing ring, torque motors, magnets, and angular measuring system to create a customer-specific drive and bearing system
- To save fitting space
- To increase operating life and operational reliability
- To create customized solutions

The solution:

- Torque motors with magnets mounted directly on the outer ring of the slewing ring
- Pinion and gearbox eliminated by integrating the direct drive
- Excellent dynamics due to the connection secured against relative rotation
- Maximum precision due to the special rotational angle measurement system on the bearing ring
- Ready-to-fit, matched drive and bearing system

Bearing unit for operating room ceiling stands with electromagnetic brake



The challenge:

- To create a ready-to-fit, compact bearing unit that requires 20% less fitting space than individual components
- To provide an emergency stop function in case of a power failure
- To use materials approved for medical applications
- To provide corrosion protection
- To achieve optical integration into the existing design

The solution:

- Two preloaded angular contact needle roller bearings in an O arrangement
- Integrated end stop system
- Electromagnetic brake integrated
- Fail-safe: Brake is applied when no current is flowing
- Corrosion protection due to powder coating approved for medical applications



Further information



If you would like to find out more about the Schaeffler product range, simply scan the QR code into your smart phone or tablet PC and download our free apps.

Or you can visit us at www.schaeffler.com

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