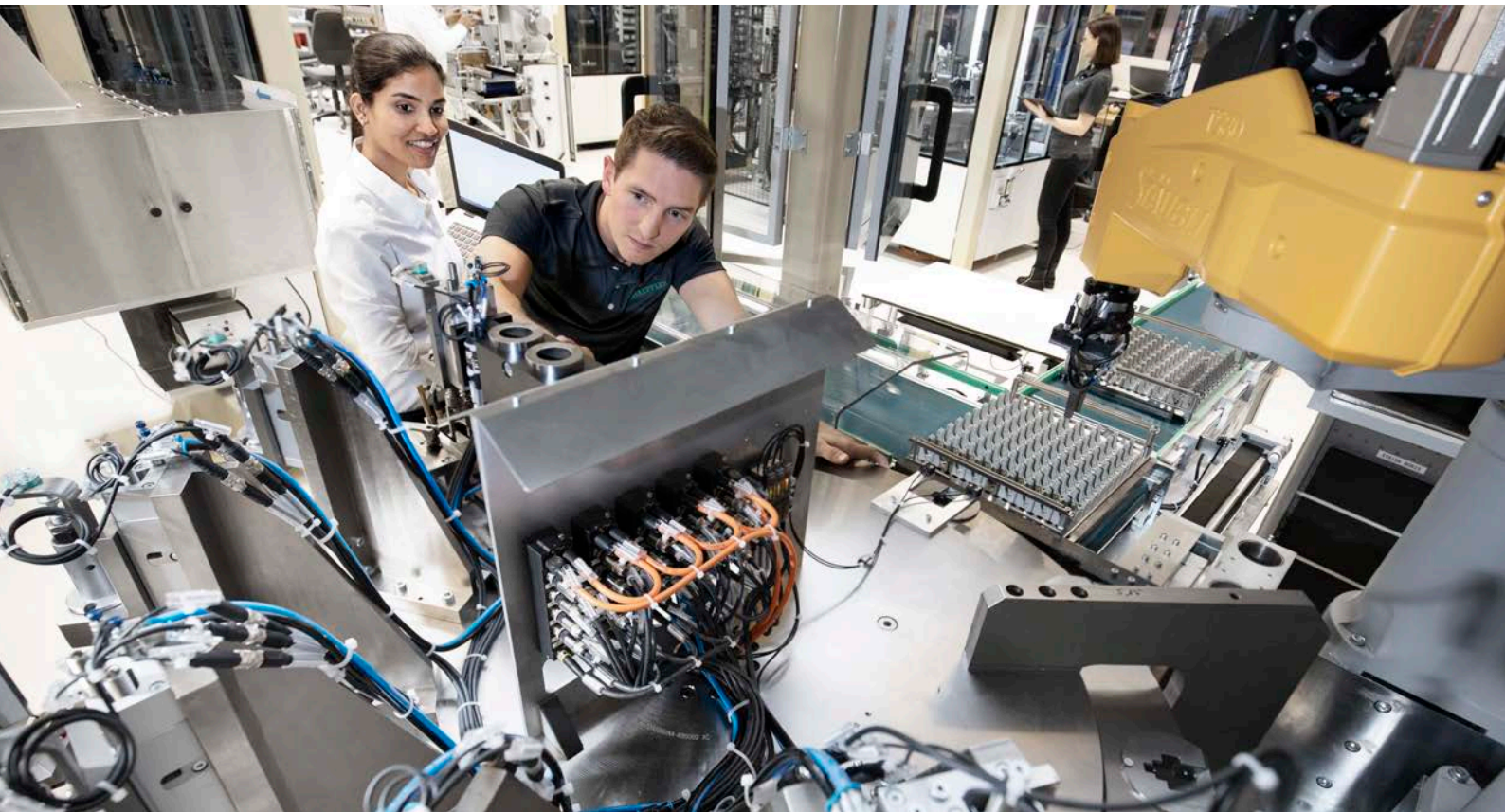


Special Machinery



Your partner for production excellence



With our team of specialists in Special Machinery, we accompany our customers worldwide from the initial machine concept to stable series production. Our global network of 13 locations enables the implementation of large international projects, maximum customer proximity, and worldwide service. Through this network, we combine our local expertise in each region with the knowledge and innovative strength of our experts around the world.

Customer-specific solutions in the fields of machining centers and assembly as well as testing technology have been our core expertise since 1960. We are the experts for application-specific and innovative concepts that ensure long-term economic success for our customers. This makes us a preferred partner for production solutions across industries.

We work together with our customers to develop and implement solutions that are perfectly matched to the requirements in production – using innovative ideas, creative engineering, and comprehensive manufacturing expertise. Our portfolio of machines ranges from the reliable volume production of mechanical products through to assembly and inspection solutions for complex mechatronic assemblies. Regardless of whether it is flexible small-volume production or a cam-controlled high-output machine, manual or fully automatic – we will always find the right solution for you: all in one from the idea and the development through to the design and implementation of the machines.

Maximum efficiency and highest quality are our aspiration.

*Bernd Wollenick –
Head of Special Machinery*

Our range of service – customized for you



Assembly lines

Modular and scalable: our assembly lines adapt to your capacity requirements.



Testing systems

Whether high-performance testing for e-axle transmissions or large bearing test stands - we develop individual solutions.



Handling technology

Feeding, transport and storage of production parts. We always provide customized feeding systems.



Processing machines

Optimized for grinding and honing of various ring geometries - our high-precision processing machines with minimum interlinking efforts.



Robotics

As system integrators we realize innovative applications in the field of robotics. From classic applications to human robot collaboration.



Vision-systems

Whether it is position detection in space or surface inspection with artificial intelligence - our specialists master the whole range.



Production-IT

With our IT products we support the digitalization of your production system.

All in one solutions



Consultation and guidance for assembly optimized product design

In the early phases of your product development, we support you with the optimization of your product design in terms of assembly and the development of a machine concept that is optimally suited to your requirements.



Conception and project planning

We design lean and innovative solutions that can be perfectly integrated into your existing value stream.



Simulation

Digital twins, material flow simulation or the design of workstations – we verify concepts before implementation using our 3D-based planning tools and card-board simulations.



Project and quality management

Quality, cost compliance, and delivery reliability – our global project management approach and well-practiced process culture ensure your success even in the case of dynamic projects with a high percentage of simultaneous engineering.



Development and implementation

We guarantee short delivery times, rapid setup, and efficient initial operation by using our standard modules, robust technologies, and virtual initial operation strategies.



Customer training and service

Our training concept provides a basis for ensuring increased machine availability in the long term. We provide fast and effective local support from our worldwide network.

Schaeffler Special Machinery at a glance

30.000

In total approx. 30.000 m² assembly area

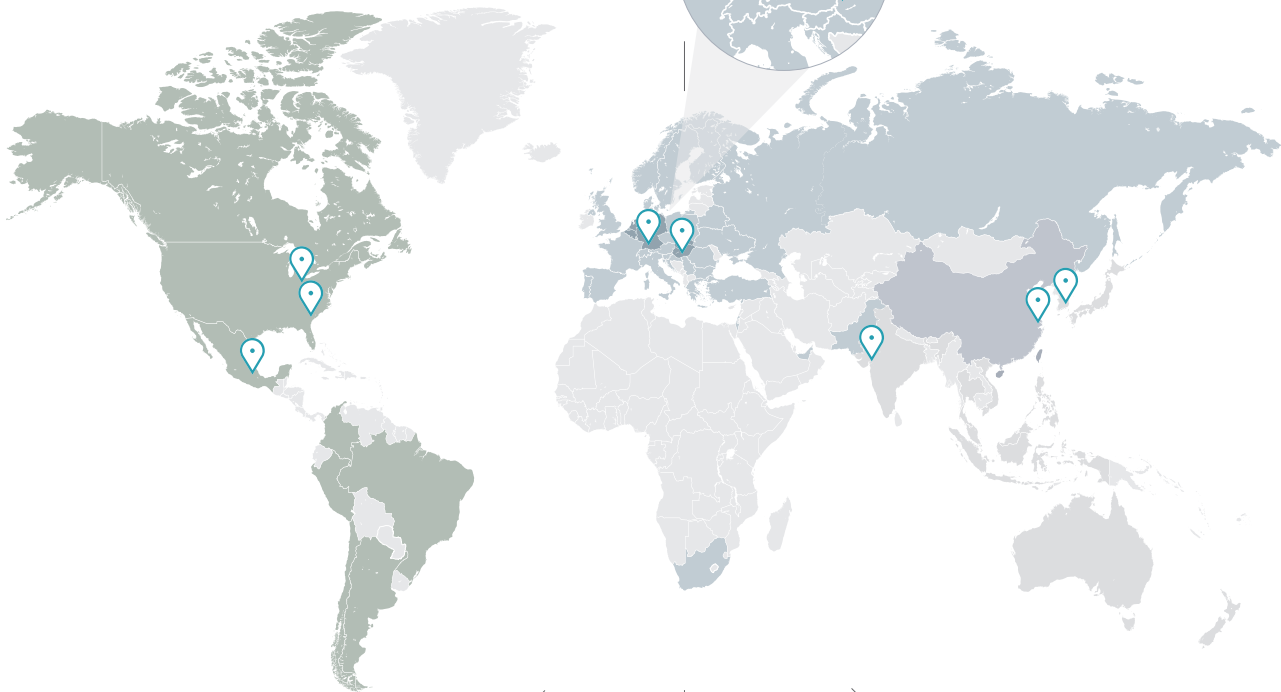
380

Annual turnover 2018:
380 million € worldwide

10.000

Production equipment for more than
10.000 different products

detailed map
Europe



4.500

About 4.500 projects per year

13

13 SMB-locations on site
worldwide

1.700

More than 1.700 employees worldwide

Schaeffler Special Machinery locations worldwide

Germany: Erlangen, Schweinfurt, Buehl

France: Haguenau

Netherlands: Barneveld (Radine B. V.)

India: Vadodara

Slovakia: Kysucké

China: Taicang

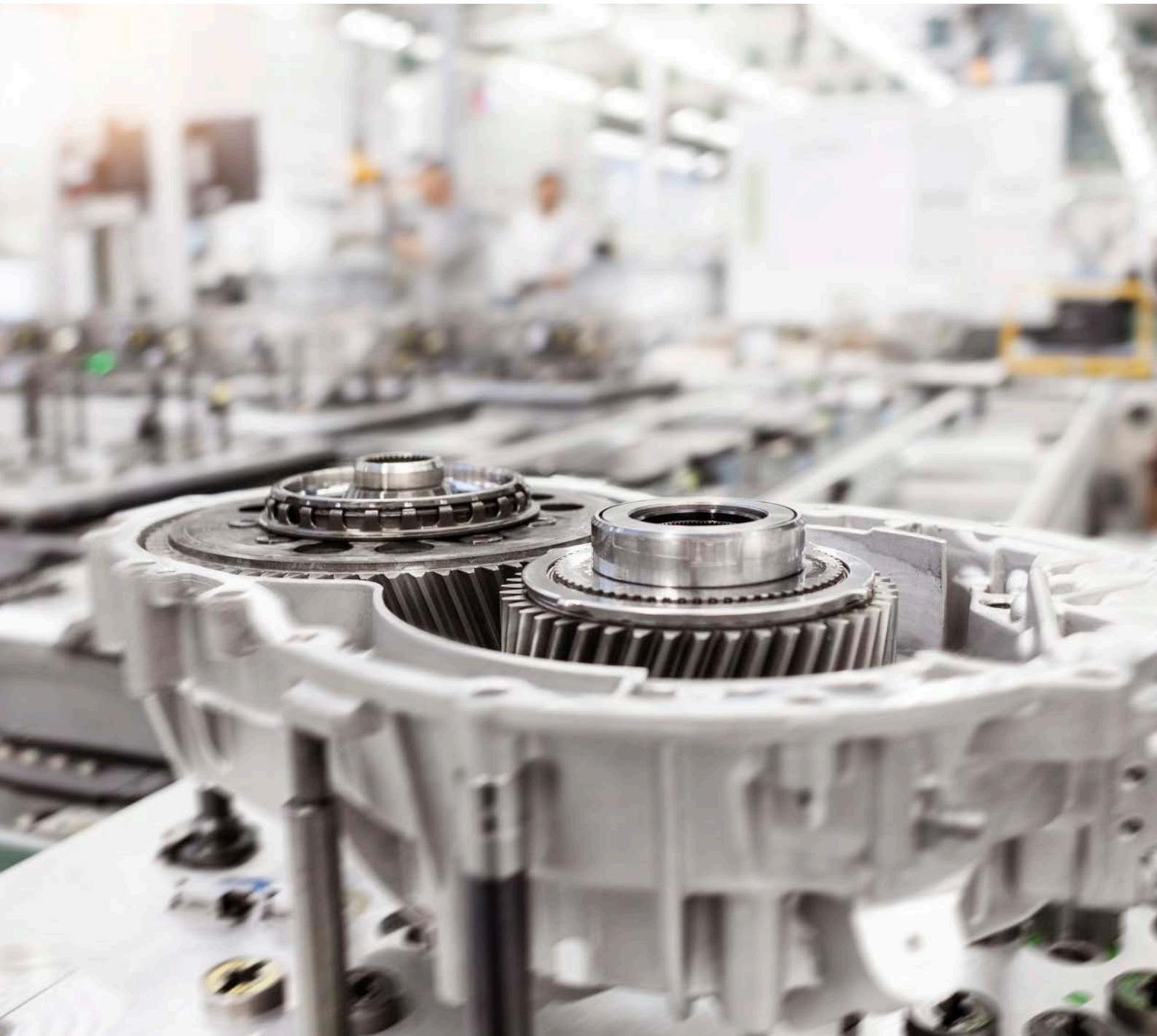
USA: Cheraw, Wooster

Hungary: Szombathely

Korea: Changwon

Mexico: Puebla

Flexible assembly and inspection system for electric mobility

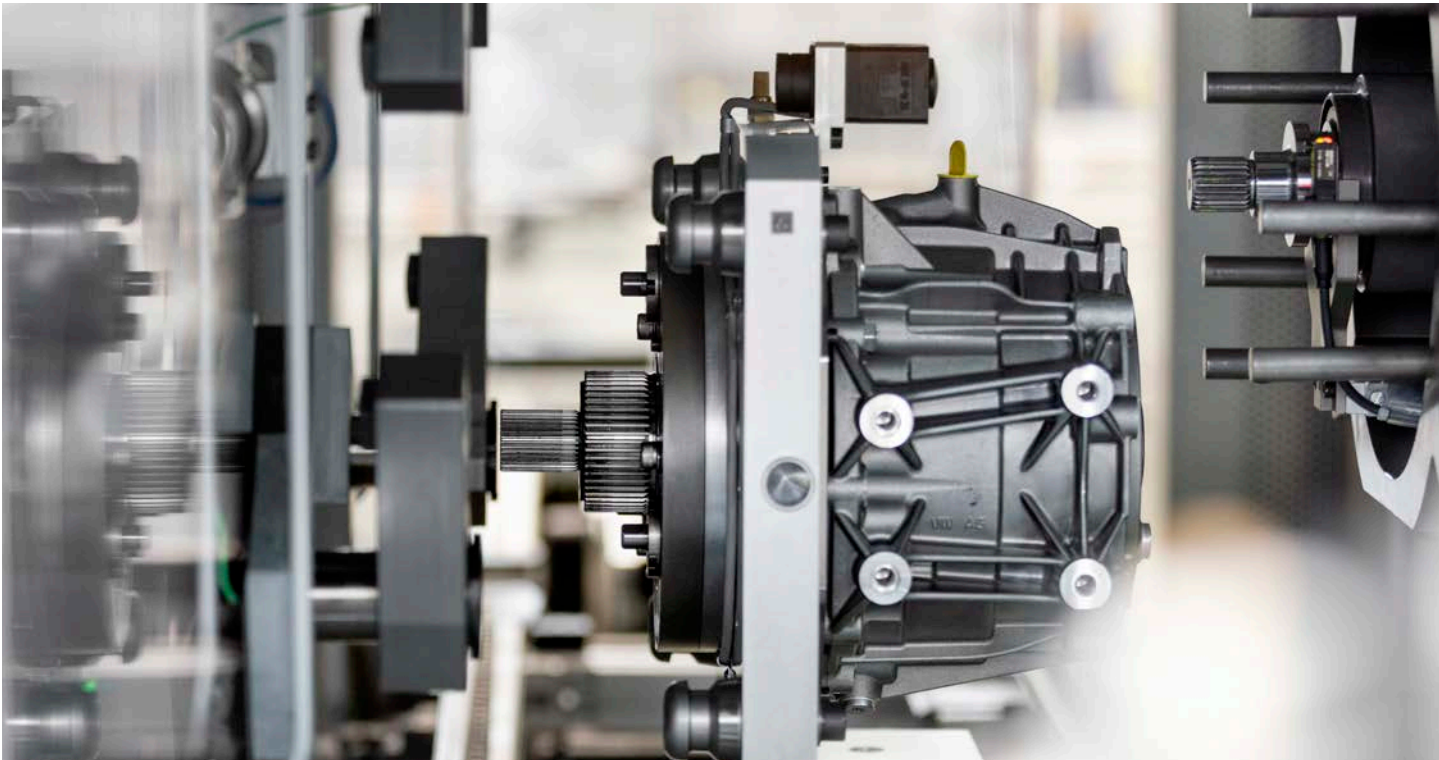


Highly flexible assembly line

Schaeffler's Special Machinery department offers partially automated facilities that can be adapted to meet customer-specific requirements in terms of capacity thanks to a high degree of modularity and scalability.

Thanks to the combination of compact assembly and inspection modules, various transmission types can be manufactured in mixed operation on a single machine. Our machine design based on the lean principles enables the efficient deployment of personnel and short setup times. Additionally, innovative workpiece carriers allow the position of the conveyed components to be changed to all working planes. We can thus reach optimum workpiece positioning for lean processes.

Testing technology

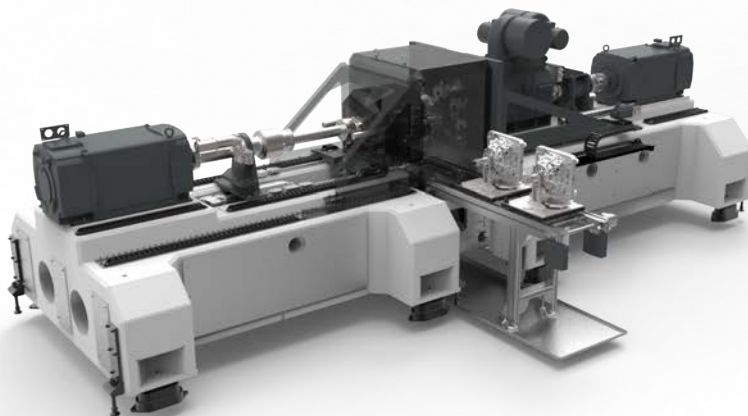


High-performance end-of-line inspections for electric axle transmission systems

This fully automatic inspection system performs several complex tasks. The core task is to carry out inspections of the transmission system's function, acoustic properties, drag torque, and parking lock. Additionally, the level of efficiency of each transmission is determined in individual performance tests. The transmission is automatically filled with oil, emptied after the inspection process, and the residual oil quantity is determined in order to simulate the real conditions. Also the preload and bearing clearance of the transmission bearings are individually adjusted for the relevant product type.

Highlights

The low-vibration design and damping behavior of the frame made from special concrete allow highly precise acoustic tests to be carried out with a high repeat accuracy. The integration of temperature compensation also enables precise measurements of the level of efficiency. Efficient energy management of the system is ensured through the internal recovery of electrical energy.





Assembly line with an asynchronous conveyor system

Maximum efficiency

With the latest generation of production facilities for noise-sensitive high precision bearings, we have integrated the short-cycle assembly processes of a high-volume assembly line and time-intensive inspections into a combined assembly and inspection line. This allows the number of handling steps to be minimized, inventories between the processes to be eliminated, and the setup times for small batch sizes to be reduced.

This is made possible by the targeted use of a flexible, highly-dynamic free-flowing workpiece carrier transfer system that ensures short workpiece transfer times for a high system output. Processes that are relevant for the cycle time are multiplied in a simple and space-saving manner.





Continuous improvement

Together with our customers, we continuously analyze existing processes and concepts, identify potential for optimization, and thus improve their competitiveness in the long term.

Human-robot collaboration

Breaking new ground

We provide our customers with direct support on site worldwide in analyzing their automation potential. As a system integrator, we devise and implement application solutions for human-robot collaboration (HRC) – from planning, development and realization through to final CE certification. Our product portfolio ranges from lean pick-and-place applications to highly-complex force-controlled assembly processes using cobots.

HUMANS AND ROBOTS WORK- ING TOGETHER

Cobots

Through the use of cobots, we are able to design cost-effective and flexible production processes for our customers. Cobots are an easy-to-use solution that can be rapidly integrated into production and directly relieve employees of repetitive and strenuous activities.







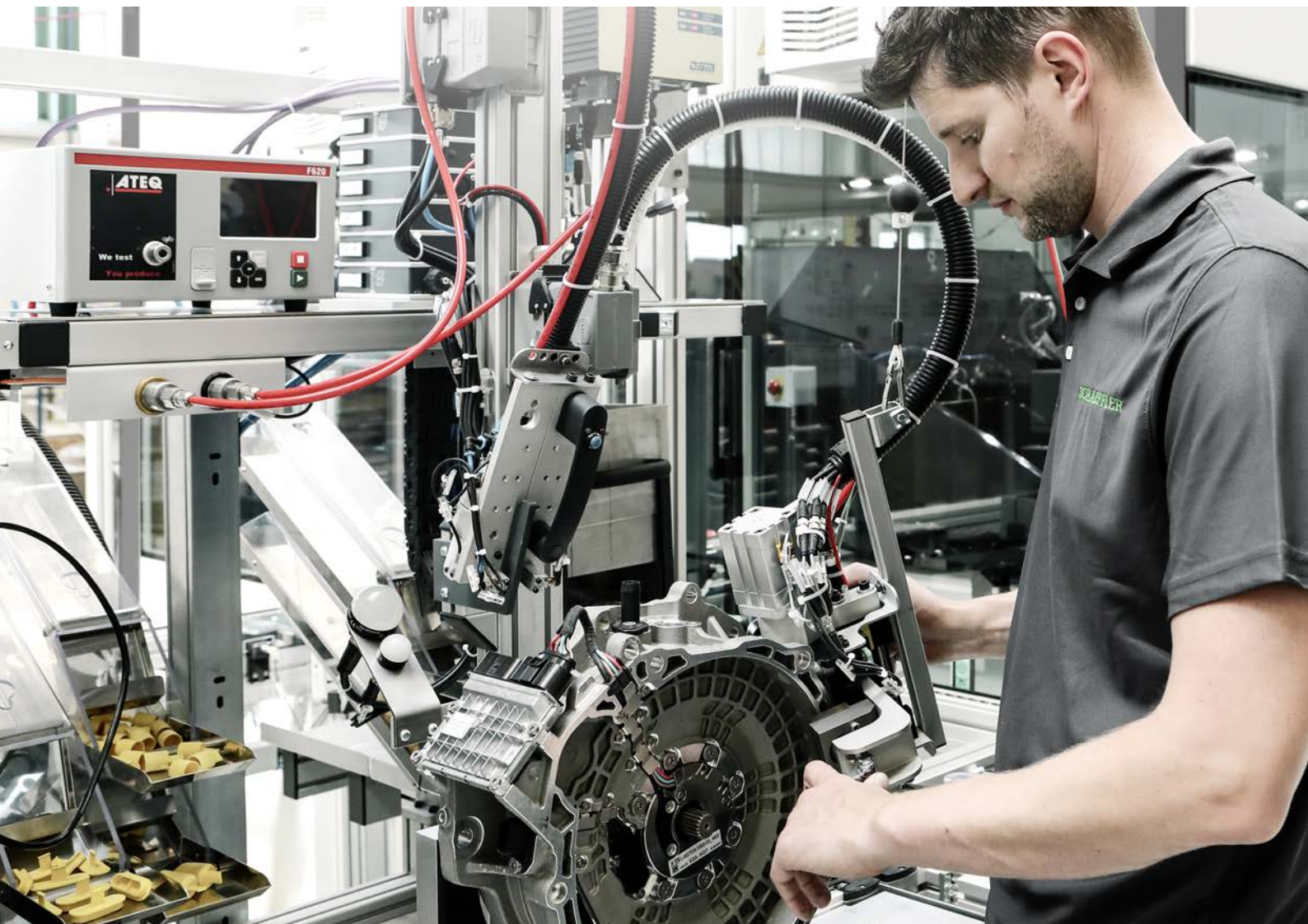
Handling technology

Handling technology is another core element of our product portfolio in addition to innovative assembly machines. We offer our customers the highest level of expertise in technology for the infeed, transportation, and buffering of manufacturing parts. Our feed systems are used to supply the assembly machines developed by us as well as various types of machining centers from the entire value added chain of a component.

FEEDING INTERLINK- ING BUFFERING

We offer feeding systems that are optimally matched to the production requirements of our customers: vibratory conveyors with interchangeable tools for a wide range of parts, linear sorting systems for feeding tasks involving different small contours and medium quantity requirements, and centrifugal conveyors with a conveying capacity of up to 1,400 parts per minute. The combination of various handling units allows comprehensive feeding and removal systems to be implemented in machines and facilities.

High-performance assembly and inspection line for hybrid modules



State-of-the-art production technologies for electric mobility

This production facility for complex electromechanical drive systems allows to manufacture hybrid modules with outstanding quality and process reliability. The line combines technologically challenging, fully automated processes such as the magnetization of rotor magnets, the multi-dimensional compensation of imbalance, and functional testing of the entire performance range with ergonomically optimized manual workstations.

Our motivation

We continuously strive for improvement, optimize our production systems, and develop new technologies. We leverage synergies through close cooperation with our partners, various universities and research institutes around the world in order to find the right application for your production requirements.

Grinding technology

Modular grinding and honing machine systems



Precision for highest requirements

Regardless of whether they are used in volume production or for machining small quantities, our vertical grinding and honing machines are compact, highly modular complete systems.

We are setting the benchmark when it comes to manufacturing high precision workpieces in the shortest possible cycle time with these specially developed machine systems that ensure reliable machining of small to medium-sized parts.

The high degree of automation of our machining centers facilitates the design of lean production lines. Machine operators also benefit from the user-friendly and intuitive operation of our systems.

For over 60 years, we have been successfully developing and manufacturing high precision machining centers for a wide range of customer requirements. We are continuing this success story with our vertical grinding and honing machine series that deliver impressive precision.



Schaeffler Technologies AG & Co. KG

Special Machinery
Frauenauracher Str. 98 – 100
91056 Erlangen
Phone: +49 9132 827 98 76
Sondermaschinenbau@schaeffler.com

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