

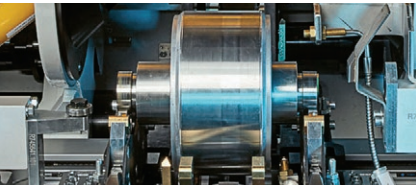
Case studies

As a leading supplier of balancing and spin testing machines, Schenck works with key players in the the automotive and aviation industries to drive the electrification of powertrains forward. Schenck delivers unrivaled, innovative solutions, not only for the series production with its automatic balancing machines, but also and uniquely for the design and R&D phases, resulting in highly efficient electric drives.

The following three case studies illustrate the value of our products and services compared to conventional offerings on the market.

Rotor balancing in mass production

eTENO series, unique capabilities for the manufacturing of modern rotors



CONSTANT OUTPUT
The orbital double-spindle system balances both rotor planes simultaneously,drastically reducing cycle times and maintaining consistent output despite varying initial imbalances.



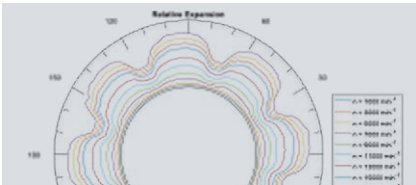
GENTLE WITH ROTORS
Designing rotors with composite materials and bold stacks offers benefits but can create weak points. eTENO uses EV-specific clamping systems to ensure your rotors aren't damaged during manufacturing.



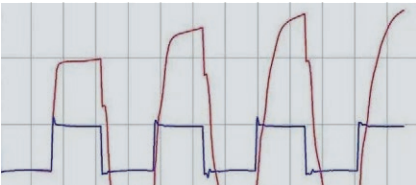
SUPERIOR ACCURACY
Featuring a free-rotating rotor-launching system and a stand-alone frame architecture, the eTENO's imbalance sampling remains stable, resulting in the industry's most accurate measurements.

Rotor spin testing in the R&D of new motors

Centrio series, finding the optimal middle ground between over- & under engineered solutions



ELASTIC + PLASTIC DEFORMATION
At high speeds (i. e., high RPM), centrifugal forces can cause both temporary (elastic) and permanent (plastic) deformations. Enhance your rotor design with precise mapping of these phenomena.



FATIGUE TEST
Fatigue tests on rotors save time in electric motor development. Identifying design weaknesses early on prevents costly setbacks and results in more efficient, reliable motors.



BURST TEST + VIDEO
Overloading a rotor with an overspeed test can cause it to burst. Using a high-speed camera provides valuable insights for identifying structural weaknesses.

Rotor balancing of small batches in the production of prototypes

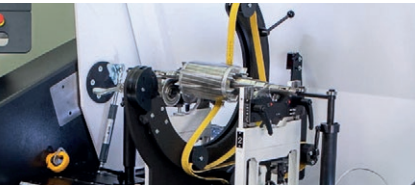
Pasio series with Schenck ONE, high flexibility and accuracy for a large variety of EV rotors



EASY & QUICK CHANGE OVERS
Balancing in R&D involves various rotor sizes and shapes. Part programming to measure imbalances is critical, and our HMI simplifies this with unprecedented speed and ease, earning two prestigious awards.



COMPOSITE FRAME
Pasio balancers use a special die-cast composite material, or mineral casting, increasing 'seismic mass' for stable imbalance readings and enabling a sleek design.



MAGNETIC PROOF*
When developing or testing motors, balancing magnetized rotors may be necessary. The Pasio series is designed to withstand the magnetic fields of most modern rotors.

* limitations apply



Global reach, local support
Extensive service network and 24 h remote assistance

Schenck is the global leader in balancing solutions, represented in over 50 countries on five continents through subsidiaries, joint ventures, and sales partners. We produce at our own sites worldwide and supply innovative technologies to sectors such as the automotive, energy, aviation and aerospace, as well as the general mechanical engineering industry.

With a robust global footprint, Schenck ensures that our clients benefit from the presence of over 200 worldwide service engineers. This extensive network guarantees prompt and efficient aftersales service, crucial for capital

equipment with a lifespan easily exceeding 20 years. Additionally, our Helpdesk offers 24-hour first-level support to further enhance our service capabilities and ensure our clients receive the best possible assistance whenever needed.

Schenck is part of the Dürr Group, a leading mechanical and plant engineering firm with expertise in automation, digitalization, and energy efficiency. The Dürr Group's products and services enable efficient and sustainable production processes across various industries.



Find your Schenck location: www.schenck-rotec.com



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RA1150e

DÜRR GROUP.

E-Mobility

E-Propulsion

Hydrogen

GREEN TECHNOLOGY

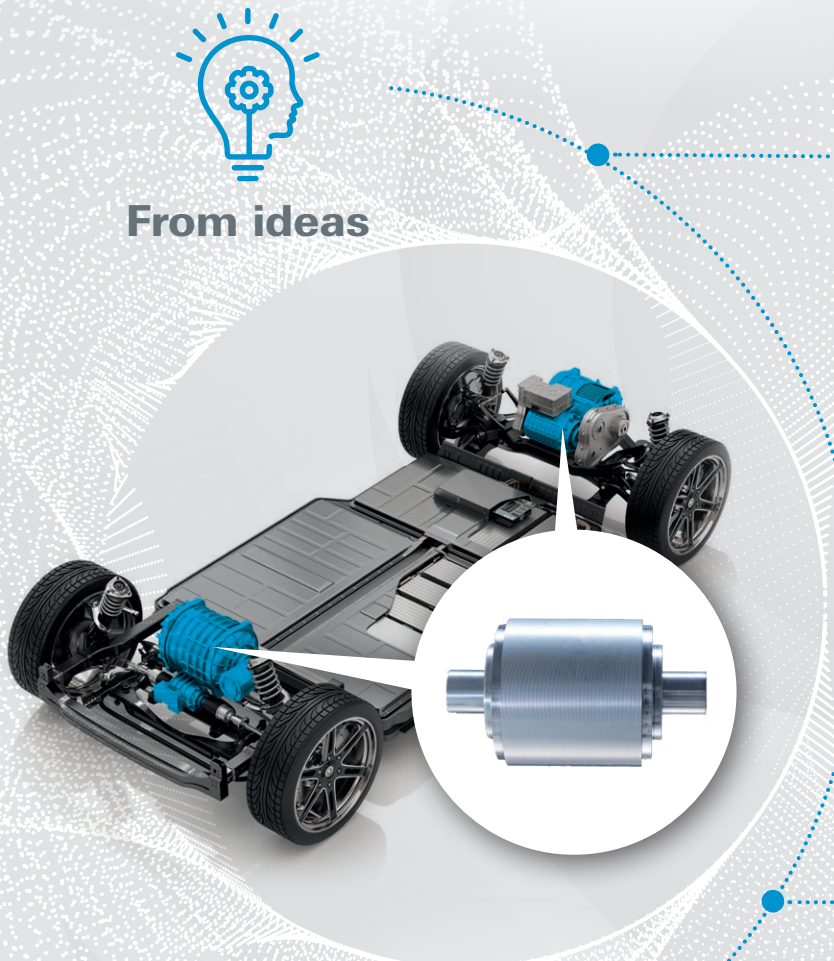
Elevating your sustainable solutions with our rotor balancing, spin testing and design consulting

Passion for Balancing

Side by side with your sustainable journey

The Green Technology division was created to empower the path of our costumers towards a decarbonized future. This is achieved through the development of products and services tailored for sustainable drive technology.

Our mission is to elevate green technology by supporting manufacturers with their rotor design, R&D and manufacturing through unique engineering consulting, innovative spin testing and reliable automatic balancing, ensuring their electrified powertrains are safer, quieter and more efficient.



to running green technology

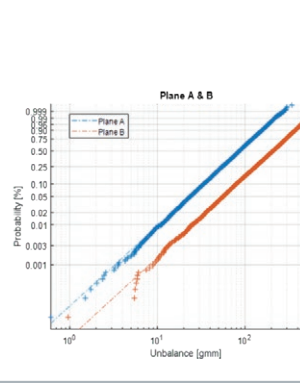
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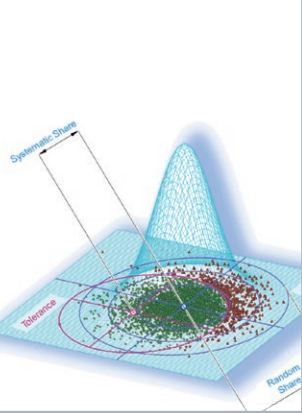
Rotor Design

Designing rotors for modern, efficient powertrains requires niche engineering expertise that is hard to find. Our Consulting services streamline the design process from a balancing standpoint, reducing manufacturing costs, and ensuring timely project completion for both new rotors and optimized versions of existing ones.

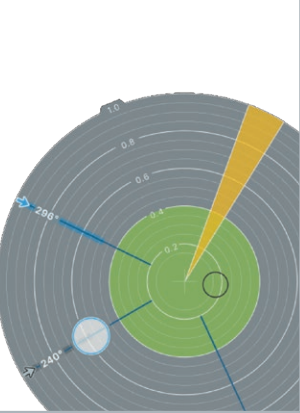
Production simulation and rejects Prediction



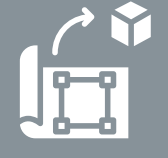
Unbalance Budget



Balanceability



2



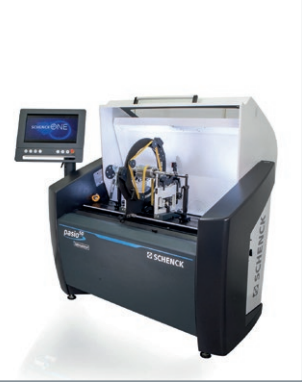
Rotor R&D & Prototypes

The focus on efficiency and performance is driving a reevaluation of conventional solutions. By incorporating rotor spin-testing and precise balancing, you can confidently validate new technical solutions and dramatically shorten the time-to-market for your powertrain.

Spin testing machines or service



Horizontal balancing machines or service



Vertical balancing machine or service



3



Rotor Manufacturing

The start of production is a crucial moment for success, as many elements depend on each other to function smoothly. Using reliable equipment, such as our balancers and spinners, ensures a flawless production launch and enhances business profitability.

Automatic balancing, high volume production



Automatic balancing, low volume production



Automatic production spinning



Green Technology Center

Enabling a decarbonized future

Our contribution to the realm of Green Technology is also exemplified with the new Green Technology Center. Based at our headquarters, this one-of-a-kind facility is dedicated to supporting manufacturers by streamlining the design process and R&D capabilities on rotors through our solutions-as-a-service model.

This approach ensures clients can leverage our state-of-the-art machinery and expert guidance without the burden of significant capital expenditures or specialized personnel training. Our offerings are as follows:

For your Rotor Design process:

- + Unbalance budget
- + Balanceability study
- + Design for manufacturing (DFM) for balancing
- + Production simulation and rejects estimation

For your Rotor R&D and Prototyping process:

- + Balancing of small batches (also available in several other locations globally)
- + Low cycle fatigue test
- + Elastic deformation due to centrifugal load, with patented non-contact measurement solution
- + Plastic deformation due to centrifugal load, with tactile measurement system (CMM)
- + Burst tests by overspeed runs, applying high speed video cameras for the analysis of burst behavior

Schenck prioritizes intellectual property protection, even more in a fast-paced context like the EV sector. We follow TISAX® standards, with robust measures ranging from physical privacy barriers to siloed engineering teams and secure data protocols, guaranteeing the integrity of your proprietary information.



[schenck-greentechnology.com](https://www.schenck-greentechnology.com)