

**Technology x Enthusiasm = Performance**

## Alternative drive systems

With PTS-Prüftechnik, tomorrow's mobility is already being thought through and verified today. In times of hybrid drives and full electrification, comprehensive testing is required to transfer these new storage and drive concepts from design and simulation to reality. PTS-Prüftechnik uses its many years of experience in the testing of complete systems as well as individual components and fulfils typical test standards and requirements such as:

- Powered Thermal Cycle Endurance (**PTCE**)
- High and Low Temperature Operation Endurance Test (**HTOE**)
- Life and Reliability Testing
- Environmental Simulation and Thermal Conditioning
- Characterization and Performance Testing
- Tests according to LV 123 and LV 124
- NVH investigations
- VDA AK 4.5



Deutsche  
Akkreditierungsstelle  
D-PL-21096-01-00

The accreditation applies to the in the certificate system  
D-PL-21096-01-00 listed accreditation scope.

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## Testing of electrical machines

The very special properties of the electric drive train create complex challenges in testing and require specific know-how of the engineers as well as powerful electric machine test rigs. PTS-Prüftechnik accompanies its partners with e-testing services from the first concept to series production. The following characteristics of our electric machine test benches ensure your continuous improvement of the electric drives.

### Test bench technology

- Nominal power 300 kW/axis
- max. torque 600 Nm
- Speed up to 25,000 rpm

### Battery simulation

- Power range max. 675 kW
- Voltage range up to 1,000 V
- Current range 0 - 2,400 A

### Additional technical benefits

- Compensation of residual vibrations
- Exact performance analysis
- Measurement of Noise Vibration Harshness (NVH)

When would you like to find out which advantages our services offer you?

## Facing the future together with PTS-Prüftechnik!



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## Battery simulation

New drive systems such as hybrid drives or full electrification require powerful energy storage systems. PTS-Prüftechnik provides the necessary environment and know-how for the testing and simulation of batteries and fuel cells to support the development of batteries and fuel cells at any time.

In order to ensure reproducible conditions, we only use equipment that is characterized by excellent stability against load shocks and high dynamics when adjusting voltage setpoints.

Our customers also appreciate the following technical features:

- **Switching frequency 30 kHz**
- **Output voltage 0 - 1,000 V (source), 25 - 1,000 V (sink)**
- **Control frequency Voltage 4 kHz**
- **Maximum power 675 kW**
- **Residual ripple at rated current below 0.5 V**
- **Freely programmable battery models based on MATLAB/Simulink**

### Additional technical benefits

- **Additional technical benefits**
- **Dynamics when adjusting new voltage setpoints**
- **Deviation from voltage setpoint max. 3 V**

When would you like to find out which advantages our services offer you?

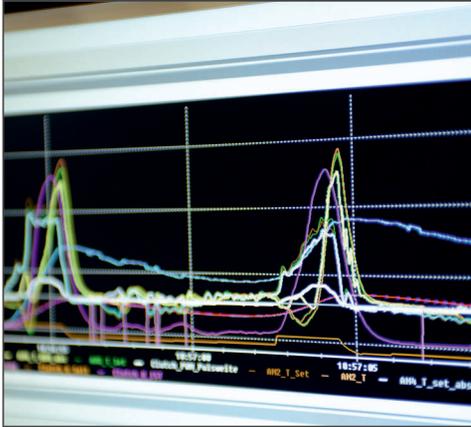
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## Putting energy storage to the acid test

Modern energy storage systems have become an indispensable part of our daily lives. Whether in areas of mobility, as energy storage for demand-oriented power supply or applications in rail and air transport - the number of applications and the associated quality and market requirements are constantly growing. In order to guarantee the safety and function of the batteries already during production, comprehensive tests are necessary. PTS-Prüftechnik accompanies the entire development process of an energy storage device with a broad spectrum of testing services. The range of services includes performance tests under extreme climatic conditions (from -70 C° to +140 C°), verification of service life and characterization testing of electrical parameters such as charge and energy efficiency. Through extensive testing, we achieve meaningful and reproducible results in order to identify errors and significantly reduce development time and costs.

**Our test center includes test benches for:**

### Battery cells

- Output voltage: 0 - 5 V
- Output current: up to +- 1,200 A

### Battery modules

- Output voltage: 0 - 100 V
- Output current: up to +- 800 A

### Battery packs

- Output voltage: 0 - 1.000 V
- Output current: 0 - 2,400 A
- Output: up to 675 kW

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