

NEWSLETTER

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**ELEVATING GLOBAL
COMPETITIVENESS**

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With the transformation and modernization of the global automotive industry, vehicle electrification has become an unstoppable trend. However, the European market exhibits unique dynamics within this trend. On one hand, the reduction of subsidies for electric cars has slowed down sales. On the other hand, from a European perspective, electric vehicles cannot compete in the short term with cost-efficient electric cars from China, and cost reduction challenges make it difficult for international automobile manufacturers to pursue electrification.

THE EUROPEAN AUTOMOTIVE INDUSTRY IS EXPLORING NEW PATHS IN ELECTRIFICATION, DRIVEN BY A HIGH ENVIRONMENTAL CONSCIOUSNESS, EXPLORATION OF NEW TECHNOLOGIES, AND A PURSUIT OF GREATER COMPETITIVENESS.

As a leading technology provider in Europe, GETEC is ready to support the European automotive industry in its transition towards more environmentally friendly and efficient solutions. We offer comprehensive support, including the development of new vehicle technologies and the provision of efficient vehicle testing and certification services, to lead the automotive industry in Europe to the forefront of transformation.

At the same time, GETEC is pleased to announce that our team has successfully completed the TISAX certification in time for Easter. TISAX, a globally recognized standard for evaluating information security, will provide GETEC with enhanced information security protection and strengthen our competitiveness in the industry. GETEC believes that TISAX certification will further improve the protection of customer data and enhance trust in GETEC.

In this issue of the technology magazine, GETEC presents successful case studies, including a technical comparative analysis of pure electric buses and results from real-world road endurance tests with vehicles. These case studies not only demonstrate GETEC's expertise in vehicle electrification but also provide valuable references and inspiration for other companies in the industry.

We would like to thank our customers and partners for their support and trust. Together with you, it is possible to make continuous progress and drive innovation. In the future, GETEC will continue to work hard to offer our customers high-quality and reliable services and to grow and develop together.

Enjoy reading

Joachim Trumpff
General Manager



ELEVATING GLOBAL COMPETITIVENESS - LEADING INNOVATION IN BENCHMARKING ELECTRIC PUBLIC BUSES

GETEC Getriebe Technik GmbH supports its customers in the development of top class electric busses. The benchmark comparison of leading international brands ensures that our customers products stand out on the global market. GETEC seamlessly integrates its engineers and resources, coordinating vehicles, test facilities, drivers, and testing routes to ensure efficient benchmarking.

Throughout the project, GETEC conducts subjective evaluation and objective tests. Through in-depth analysis, GETEC provides detailed benchmarking reports and offers specific and realizable suggestions for improvement.

GETEC'S BENCHMARKING REPORTS NOT ONLY HELP CUSTOMERS TO ACCURATELY IDENTIFY THE STRENGTHS AND WEAKNESSES OF THEIR PRODUCTS BUT ALSO HELPS TO CLARIFY THE COMPETITIVE GAPS COMPARED TO INTERNATIONAL COMPETITORS. THE INNOVATIVE APPROACH SHOWS THE CUSTOMER CLEAR PATHS TO IMPROVEMENT.

Through global benchmarking, GETEC helps support its customers in achieving competitiveness in the electric public bus industry.



BSFZ SIEGEL CERTIFICATION IN RECOGNITION OF R&D EXCELLENCE!

GETEC is glad to announce that GETEC has been awarded the prestigious BSFZ Siegel certification, recognizing GETEC's exceptional Research and Development capabilities!

This certification presents our unwavering commitment to innovation and excellence in every side of the work.

R&D Excellence: The BSFZ Siegel certification underlines GETEC's research and development capabilities, highlighting its ability to push boundaries, explore new frontiers, and pioneer groundbreaking solutions.

THIS ACHIEVEMENT BELONGS TO EVERY MEMBER OF OUR TEAM WHOSE PASSION, DEDICATION, AND EXPERTISE MAKE THE IMPOSSIBLE POSSIBLE.

As GETEC celebrates this milestone, we are more inspired than ever to continue pushing the boundaries of what is possible, driving innovation.



FROM THE VEHICLE TO RAW MATERIAL, BENCHMARKING CAN DO LIKE THIS!

In recent years, under the background of strong policy support and high-speed R&D of enterprises, the new energy vehicle industry has developed rapidly. Market penetration of BEV is rising rapidly. GETEC carried out benchmarking experiments on two BEVs which are highly popular and technically representative. The work scope covers testing from the vehicle performance to the raw material of the cell:

Vehicle Performance

- ▶ Charging Testing
- ▶ Consumption Testing
- ▶ e-PT Efficiency Testing
- ▶ e-PT Teardown
- ▶ Battery Package Teardown
- ▶ Cell Testing

FROM VEHICLE TO RAW MATERIAL

To enable our customers to compare their vehicle with the market, GETEC carried out benchmarking. From vehicle test over system/subsystem & component test and assessment. GETEC can offer all disciplines. Even material level benchmarking has been conducted.

WORKING CONDITIONS COVER THE WHOLE SCENE

GETEC has proving grounds, test benches and offers environmental simulation for vehicles and powertrains. As part of the project fully developed experimental methods and environmental simulation technologies were applied to create working conditions covering the complete scope, such as vehicle drivability, energy consumption, charging performance and powertrain efficiency, etc, to provide our customers with a comprehensive vehicle data report.

SOPHISTICATED BATTERY TESTING

GETEC provided a finely granulated test service for battery testing. By disassembling the battery package into single components, information such as internal structure and parts can be obtained to further test the durability, performance and materials of the cell.

With years of experience in testing, GETEC is able to offer the best solution to customers on bench testing as well as road testing. Test duration is further reduced by 24/7 operation, ensuring test quality with guaranteeing high quality and time-critical data.



ENHANCING THE OFF-ROAD CAPABILITIES OF VEHICLES

In the world of automotive engineering, optimizing torque transfer efficiency is crucial for vehicles designed to conquer challenging terrains. GETEC Getriebe Technik GmbH latest project, focusing on the sustainable controllability of clutch torque, aims to address this challenge. Let's dive into the details!

1. WHY THIS PROJECT?

Our customer's system is engineered to transfer torque between front and rear wheels. This increased torque proves invaluable in scenarios where maximum traction is vital, such as navigating deep sand, mud, or conquering steep hills. However, if the clutch doesn't perform optimally, the vehicle can't generate sufficient torque to overcome obstacles like bumpy roads, diagonal inclines, or demanding hill climbs.

The primary reasons behind non optional clutch control are:

- ▶ Mismatched relationship between actuation requirement and clutch actuation due to wear.
- ▶ Changes in clutch friction characteristics caused by thermal effects or aging.

BENCHMARK VEHICLE: DODGE RAM 1500 PICKUP TRUCK

To set a benchmark for our project, we've chosen the iconic Dodge RAM 1500 Pickup Truck. Its reputation for robust performance and torque transfer capabilities makes it the perfect reference point.

2. PROJECT KEY POINTS

The project's primary goal is to ensure sustainable controllability of clutch torque. This is achieved by developing a sophisticated System Compensation Logic. This logic will compensate changes in clutch characteristics caused by wear, thermal effects, and aging.

3. PROJECT GOALS

- ▶ Development of the System Compensation Logic system that dynamically adapts to clutch wear and other factors to maintain peak performance.
- ▶ Benchmarking of the Control Strategies of Competitors to ensure that the solution is at the forefront of torque transfer efficiency optimization. Working towards enhancing the off-road capabilities of vehicles, ensuring they can conquer any terrain with confidence!

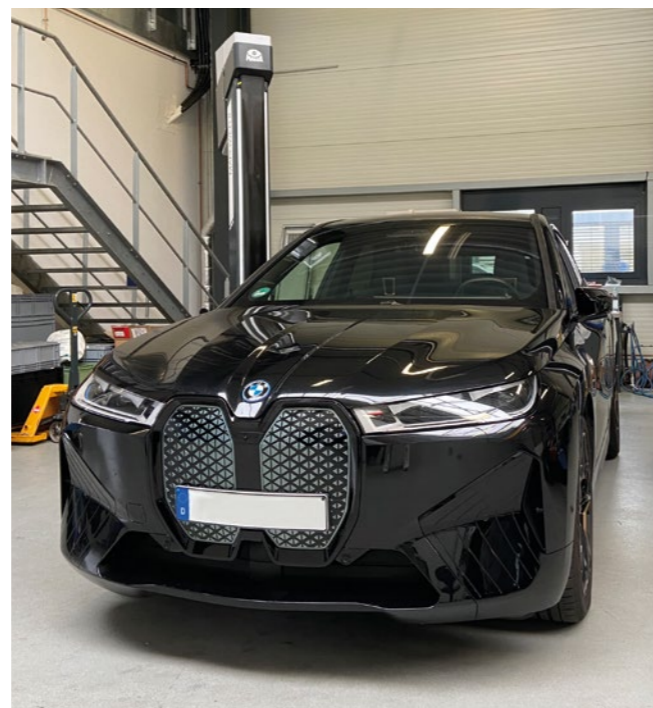
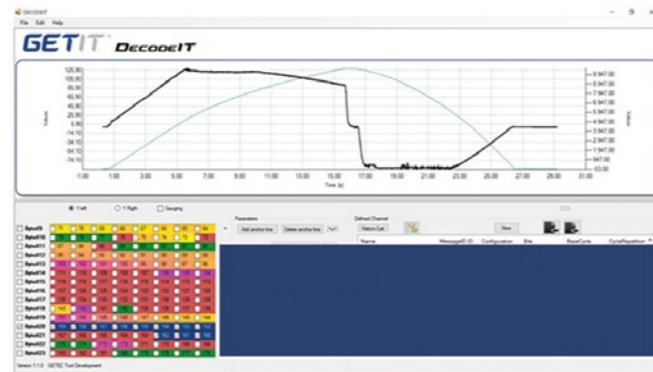


GETEC'S INSIGHTS IN BMW iX SERIES

CANDecoding is very important and necessary for successful vehicle benchmarking to measure relevant CAN or FlexRay Signals. GETEC is an experienced expert in decoding these signals. Therefore, GETEC is using its own developed Tool DecodeIT. Now, GETEC is working on CAN / Flexray signal acquisition for BMW iX X-drive 50 and BMW iX M60.

For the project handling, GETEC first the vehicle's structure and identifies existing control units to distinguish the CAN and FlexRay systems. After this the relevant cables for CAN and FlexRay connections are tapped. Next driving manoeuvres are measured and recorded, using GETEC's DecodeIT for analysis. Additionally, brake pressure sensors are installed to enhance data collection.

Depending on signal accessibility, GETEC creates a comprehensive CAN Database or an XML database for effective data management. Finally, a joint evaluation and verification session with the customer is conducted to ensure all signals meet requirements. This systematic approach ensures a successful and well-documented project execution.



UNVEILING OUR EXPERTISE IN TESTING AUTOMATION

In this particular project, GETEC's team was assigned to perform a comprehensive test procedure specified by the customer on the Differential, a vital component in the automotive. The challenge was not just performing the test, but also ensuring the utmost precision and efficiency in the process.

- ▶ **Test Bench Layout:** the bench layout was optimized for this specific testing, ensuring seamless operations and pinpoint accuracy.
- ▶ **Control System:** to power the test stand, the KRATZER AUTOMATION Test Systems control system, known for its flexibility and reliability was used. This choice was crucial to ensure the automation system's flawless performance throughout the testing process.
- ▶ **Comprehensive Test Plan:** This included critical aspects such as speed control, torque control, ramp engagement tests, and slip disconnect tests. Every detail was meticulously worked out to guarantee the most comprehensive results.
- ▶ **Post-Testing Analysis:** Data-Driven Insights, after rigorous testing, we compiled the results and presented them with detailed charts and graphs. These insights not only validated our meticulous approach but also provided valuable data for further refinement and optimization.

AT GETEC GETRIEBE TECHNIK GMBH,
WE'RE NOT JUST ABOUT
MEETING EXPECTATIONS -
WE'RE ABOUT EXCEEDING THEM.

This case study shows how committed we are to pushing the limits of what can be achieved in testing automation.

GETEC'S BENEFITS

At GETEC Getriebe Technik GmbH, we believe in taking care of our most valuable asset – our employees!

GETEC is happy to share some fantastic benefits
GETEC offers to our team:

- **(E-)Bikes for Eco Friendly Commutes:** As part of our commitment to a sustainable future, GETEC provides our employees with (electric) bicycles, promoting green and healthy commuting options. It's our way of saying, „Let's ride towards a greener tomorrow!“
- **Benefit Cards to Beat Rising Prices:** In today's world of increasing costs of living, GETEC stands up for our employees. Our benefit cards come with a special perk – no taxes or social security deductions! It's a little extra in the pocket to make life a bit easier during these challenging times.

Our employees wellbeing matters! Besides our annual health check-ups, GETEC is all about encouraging an active lifestyle. Our e-bikes are not just for fun – they're here to keep you fit and active. Your health is your wealth!

GETEC believes that the little things count. Our employee benefits are our way of showing how much GETEC appreciates each and every one of you. Your happiness and comfort matters to us!

It's these small gestures that create a big impact. Our dedication is to make GETEC not just a great place to work, but a place that truly cares for its people.

GETEC IS MORE THAN JUST A COMPANY;
GETEC IS A FAMILY.



WHY I JOINED GETEC GETRIEBE TECHNIK GMBH

I decided to write my dissertation at GETEC because it was the best place for me to apply my knowledge and develop it further.

GETEC is a very innovative company in the field of product development for vehicles and powertrains, technical services, and testing, including E-mobility. I was already able to gain a lot of experience, and I am very happy to have been working with GETEC already for more than 5 years with a great team in a great company.



„Hello Joseph, Cheers for your over 5 years in GETEC, so glad that you are one of our team“

STAY SAFE, STAY INFORMED!

FIRE SAFETY IN THE WORKPLACE

At GETEC Getriebe Technik GmbH, safety is our top priority! Recently, we organized a fire safety training session for all employees.

KNOWLEDGE SHARING:

Our dedicated team of firefighters not only shared invaluable fire safety insights but also responded to a crisis and daily preventive measures.

HANDS-ON TRAINING:

Through practical demonstrations, everyone learned the proper usage of firefighting equipment, ensuring they are equipped to handle emergencies with confidence.

Investing in safety isn't just a box to check; it's about creating a vibe where everyone's got each other's back. Together, let's continue to prioritize safety and create a secure work environment for everyone.



COMING EVENTS

TESTING EXPO STUTTGART

04-06.06.2024

Booth No.: 1584



www.testing-expo.com/europe/en



Headquarters
Aldenhoven, Germany

R&D and Testing Center
Wujiang, China

Sales Office
Seoul, South Korea

Sales Office
Nagoya, Japan



HEADQUARTERS

GETEC Getriebe Technik GmbH

Galileo-Allee 2

52457 Aldenhoven

GERMANY

☎ 0049 2464 90266 00

📠 0049 2464 90266 29

@ info@getec-gmbh.com



[f](#) GETECGetriebeTechnik



[in](#) getec-getriebe-technik-gmbh