

automotive testing technology international

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Arnaud Deboeuf

Renault's entry-program vice president on the secret of Dacia's success

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Full preview of Automotive Testing Expo Europe, June 4-6, Stuttgart, Germany

Active aerodynamics and 900 horsepower: how to test a 21st century hypercar

McLaren

Stuttgart focus

Inside the Automotive Simulation Center and an insight into the region's automotive future

Driver assistance

How test methods and technologies are evolving in one of the fastest growing fields of automotive development: ADAS

Crash-test lab

Thatcham has invested in new equipment to become a fully fledged Euro NCAP test center

Tire development

We visit Goodyear's Mireval proving ground and round up the latest testing equipment



China

Vehicle dynamics development and a chat with Qoros's chief engineer

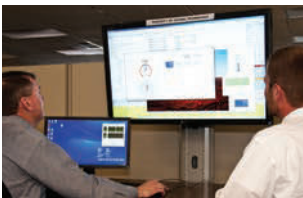
Durability

Moves are afoot to make battery durability testing specifications more relevant to cars

Test automation software

547 Test facility owners seek to sustain and optimize aging capital investments with minimal operational budgets. Companies are achieving this by retrofitting their existing test facilities with Jacobs' low-cost test automation software, Test SLATE. Customers are recognizing that a small investment can breathe new life into an existing facility, taking advantage of modern Windows-based software that provides full integration of measurements and controls orchestrated under a highly flexible test automation toolset. Facilities upgraded with Test SLATE have documented testing efficiency improvements of 30% with many intangible advantages such as improved data quality, speed and security.

Test SLATE enables the integration of new technologies with existing legacy measurement and control devices. Jacobs' extensive interface library includes devices spanning three decades and is continually expanding to embrace new devices in the marketplace. Test SLATE provides a path for facilities to easily utilize existing equipment and only purchase and install new equipment in the future as needed. For a small investment in Test SLATE and current Windows-based computers, a modern operational interface can be created in an existing test facility for enhanced performance that rivals the operational efficiency of a new facility.



Jacobs Technology

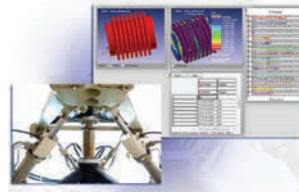
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Durability and data analysis solution

548 For over 30 years the nCode brand has provided cutting-edge durability and data analysis solutions to major OEMs and component suppliers, enabling engineers to understand product performance, accelerate product development and improve design. For example American BOA, which specializes in the engineering and production of flex-joints for exhaust emission systems that decouple the engine motion from the exhaust structure, selected nCode as its software solution for performing



test-data processing and finite element fatigue analysis.

BOA previously used a number of internally developed and commercial software packages for test-data analysis. Each time engineers moved from one software package to another they

had to go through a data conversion process. With nCode, BOA is now able to streamline its engineering test-data analysis.

BOA is now able to accurately predict the failure location using capabilities in DesignLife such as hot spot detection and stress distribution in 3D, and virtual strain gauge analysis.

HBM nCode

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Intelligent robot system

549 With F.R.I.T.S., the Force controlled Robotic Intelligent Test System from ACTS, various tests and measurements on components such as steering columns, seats, glove boxes and doors, up to complete car bodies, can be conducted. An industrial robot from ABB is the main part of the system and provides high accuracy, repeatability of positioning, and application of force.

With its handling capacity, speed, measurement technique and six degrees of freedom, the system also enables a wide range



of endurance and fatigue tests on car components.

The robot control realizes very complex motion sequences with speeds up to 2.2m/s and an accuracy of positioning of 0.8mm. The operator can follow force

versus time on a certain path with the highly sophisticated closed loop force control. Depending on the robot, a load up to 6kN can be applied. The embedded data acquisition system is time based and event triggered and works with 200 samples per second. The live data can be visualized on screen and the recorded data, plots and graphs can be analyzed.

ACTS

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Environmental test chambers

550 With its highly efficient temperature test chamber and climatic test chamber with humidity unit, Memmert provides the market with two devices that considerably shorten the process of controlled material and function testing, as well as aging testing.

Sufficient reserves of power across the temperature control range of -42°C to +190°C guarantee that relevant test standards are fulfilled, such as DIN EN 60068-2-1, 2-2, and 2-3. The Memmert environmental test chambers set the benchmark in terms of temperature change speed. In just 20 minutes (to 98% of the setpoint) they heat up from -40°C to +180°C, and in the opposite direction they cool down in just 95 minutes (to 98% of the



setpoint) from +180°C to -40°C. This means an average temperature change speed of 10K per minute in heating operation, and 3K in cooling operation (according to IEC 60068-3-5).

In order for the two appliances, with a nominal power of 7,000W, to be able to work highly energy efficiently at the same time, the twin-compressor is regulated according to output, while the extremely low K-value of the insulation also provides for optimized energy consumption. The three-layer insulation system can't be penetrated by moisture, thus permanently guaranteeing insulation capacity. With a chamber volume of 256 liters, the compact appliances can be easily moved into most laboratories.

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