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Dear readers,

Welcome to the 2nd edition of ESPRIT, and as we are fast approaching the end of 2013, this issue is packed with interesting articles confirming HORIBA's presence as a leading light in the industry.
The automotive market is such a dynamic business to operate in and companies that are successful need to react to swift changes and demands of their clients. As you will find in this version of ESPRIT we display the multi-facetted skillsets and knowledge within our organisation. Not only do we cover articles on fast-moving Emissions legislation, but also the latest cutting-edge technology that endeavours to address some of the challenges ahead.

Rapid industry expansion is visible for both HORIBA and some of our clients; with the expansion of the HORIBA Europe Head Office at the Oberursel facility, and also in the UK, where HORIBA UK Limited were recently awarded a large emissions project by RICARDO UK. HORIBA will build and equip their new Vehicle Emissions Research Center (VERC) in Shoreham-by-Sea.

We hope you enjoy this edition of ESPRIT and find the contents of particular benefit to you. We would like to wish you all greetings of the season, and be sure to look out for our next ESPRIT early next year.

Best Wishes
Jonathan Eaton
Vice President Business Development & Marketing
Automotive Test Systems

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Mr. Atsushi Horiba, Chairman, President, and CEO of HORIBA Ltd. and Martin Fausset, Managing Director at Ricardo UK Ltd.

Groundbreaking ceremony in Shoreham-by-Sea, West Sussex

Japanese groundbreaking ceremony for Ricardo Vehicle Emissions Research Center

HORIBA UK Limited won the full turnkey contract to build the new Ricardo Vehicle Emissions Research Center (VERC). Thus, Ricardo UK Ltd. invited top management from HORIBA Ltd., Kyoto, Japan, as guests of honour for the special groundbreaking ceremony at their head office in Shoreham-by-Sea, West Sussex. The £10 million VERC project will consist of two emissions chassis test cells as well as a full climatic facility from -30 °C to +55 °C under the project management of HORIBA UK. The new building will incorporate a four-wheel drive chassis dynamometer and advanced emissions testing equipment. With the new VERC facility, Ricardo will be capable of testing passenger cars, light commercial, and hybrid electric vehicles; including their associated energy regeneration systems.

With its footprint of 2000 square meters completion of this modern, low carbon, low emissions, vehicle research and development facility is in sight for the end of 2014. It is supported by the UK Government's Regional Growth Fund (RGF), a £3.2 billion initiative designed to help companies in England to grow. The project will not only protect but also create jobs in the important field of clean technology.

"This project builds upon a long-standing history of collaboration between our two companies in the area of advanced testing technology. It comprises key HORIBA technology and skillsets to deliver this facility across our group worldwide," said Mr. Atsushi Horiba, Chairman, President and CEO of HORIBA Ltd. "We look forward to working with Ricardo to complete this state-of-the-art facility."

At the beginning of June, a group of HORIBA delegation travelled to Shoreham to participate in mutual discussions along with a small introduction to the project. In light of the company's Japanese heritage, HORIBA UK organized a sake barrel ceremony known as "Kagami-biraki", where the lid of the barrel is broken by a wooden mallet and the sake is served to everyone present. Mr. Horiba, Mr. David Shemmans, CEO at Ricardo plc, and Mr. Martin Fausset, Managing Director at Ricardo UK took part in the "opening of the lid" ceremony. This traditional Japanese practice symbolizes harmony and good fortune.

To make the visit a real team event, everyone involved was invited to sign the sake barrel as a memento of the day. Thus, the barrel additionally became a symbol of the both collaborating companies. It will be placed in the reception of the new facility later on.

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Interview

"Test cell automation and laboratory management are increasingly important"

Les Hill, Manager Automotive Test Systems, Product Planning Department of HORIBA Limited

Les Hill has worked in automotive emissions measurement for more than thirty years. Originally trained as an analytical chemist, his introduction to exhaust emissions measurement was at Triumph Cars in Coventry, England. In 1982 he joined HORIBA Instruments Ltd. and was fortunate to work in many emissions testing facilities on a wide variety of projects that allowed him to increase his knowledge and experience in all aspects of exhaust emission measurement. In recent years, Les Hill has been responsible for emissions measurement product planning activities within HORIBA.
He was presented with the Forest R. McFarland Award from SAE in 2007 in recognition of his contribution to SAE activities. In addition to organizing Emissions Measurement and Testing sessions for the SAE Congress, he has contributed to several industry, legislative and technical working groups on exhaust emissions measurement. He also actively works for global coordination for emissions measurement technology and procedures.

In recent years, emission testing has become very challenging. With regards to the upcoming Euro 6 standard, what do you have to pay the most attention to?
There are two major changes regarding emissions standards. Starting with Euro 6 in 2014, a solid particle number (PN) standard for positive ignition direct injection gasoline vehicles will be introduced, albeit initially at a ten times higher level than for diesel vehicles, for which the PN standard was introduced in 2011 with Euro 5 Phase 2. Secondly, the NO_X standard for compression ignition (CI) vehicles will be reduced from 0.18g/km in Euro 5 to 0.08g/km – thus, Euro 6 more than halves the permitted NO_X emissions limits for diesel vehicles.

How does HORIBA serve these new stringent European requirements?
Chassis dynamometer test cell systems have to be upgraded by the installation of dilution tunnels, particulate matter (PM) samplers, and PN counting systems for DI gasoline vehicles. The extension of the PN standard means this parameter will be very critical for the development and calibration of powertrains in the engine test cell stage. Accordingly, HORIBA has developed solid particle number counting systems for engine test cells. The latest model, the MEXA-2100SPCS, is designed to measure the PN from the raw, undiluted exhaust gas without the need for the CVS (constant volume sampling) and dilution tunnel equipment necessary for chassis dynamometer-based certification.

The reduction of NO_X emissions requires advanced measurement instrumentation. How does HORIBA meet this task?
The HORIBA chemiluminescent analyzers provide the best accuracy for NO_X measurement from diluted exhaust (CVS) as required for certification. For the precise measurement of all the nitrogen compounds at any point within the exhaust and after-treatment system, HORIBA has developed a new type of analyzer that uses Quantum Cascade Laser (QCL) technology, the MEXA-1400QL-NX. It measures the NO, NO_2, NH_3, and N_2O concentrations from the engine exhaust with a lower limit of detection and wider dynamic range than other infrared based instruments. In addition, HORIBA has also applied the QCL principle in the MEXA-1100QL-NX. This analyzer is designed for the measurement of nitrous oxide (N_2O) from CVS bag and continuous diluted samples as required to meet its measurement under CFR 1066 and also the proposed new "Worldwide Harmonized Light Vehicles Test Procedures" (WLTP).

For future EU legislation, exhaust emissions measurement will have to be conducted on the road under real driving conditions using portable emissions measurement systems (PEMS). Where do you stand in relation to this new regulation for testing?
A study for the EU Commission by the Joint Research Centre (JRC) in Ispra tested a number of used vehicles complying with differing emissions standards on a variety of test routes under real world conditions. The results showed compliance to all of the gaseous emission standards apart from NO_X on diesel fuelled vehicles (PM or PN not being measured in this program). Accordingly, in future, the EU Commission will require that compliance with the standard be demonstrated on the road in real world conditions.
This initiative to apply PEMS for Light Duty Vehicles (LDV) will require continued optimization of the PEMS originally applied for Heavy Duty Vehicles and also the development of a practical method of PN measurement that can be used on the vehicle (in both of which HORIBA is active). The latest information on all aspects of this topic is likely to be presented in the Real Driving Emissions (RDE) conference to be held in Bonn in early December.

In 2017 the European Union will introduce a new test procedure, the WLTP. What are the differences and/or advantages compared to the current test procedure?
The primary change is to the drive cycle itself which has been derived from a large number of real world road trips from a number of countries and is more demanding in terms of acceleration and maximum speed than the current New European Driving Cycle (NEDC). This is coupled to the setting of the gear shifting points on manual vehicles which is calculated based on the actual vehicle parameters as opposed to speeds fixed by the legislation.
The main changes have been to the tightening of several of the support procedures, test parameters and changes to the calculations in order to reduce potential variation in the test results especially for the CO_2 and fuel economy determination. Consequently, the overall testing process will inevitably become more complex and time consuming, especially for the EU certification for which real world compliance under RDE-LDV will also be necessary.

How does this change affect the test equipment needed?
The current draft specifications for the WLTP as proposed will not have a big impact on the actual core emissions equipment provided by HORIBA. However, due to the more complex procedures and vehicle parameters, the test cell automation and laboratory management / data systems are increasingly important in reducing the impact for the OEMs.

While European vehicles are world-leader in terms of fuel efficiency, the limits for toxic emissions are less stringent than in North America. What kind of changes have to be expected worldwide in the next ten years in the field of regulations?
All countries are expected to continue the active monitoring and reduction of exhaust emissions, especially NO_X and PM, in order to meet atmospheric pollution targets. Although the US American limits are very strict, the PM mass limit for EU light duty vehicles is already effectively more stringent. The 6 * 10e11 particles per km limit that is being applied reduces the PM mass emission to less than 1 mg/km while the USA will not reach the level of 1 mg/mile for all light duty vehicles until 2025. In terms of GHG emissions (primarily CO_2) and fuel consumption, legislation is already in place for the USA and Europe to continue their gradual reduction which will impact on vehicle and powertrain design.

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Lively discussions took place during the conference breaks

Successful conference takes a view into the future

On October 14th and 15th 2013, HORIBA and the Chair for Automotive Engineering of the Technical University (TU) Dresden welcomed almost 50 multi-industry experts to the second Conference of Combustion Emissions Particulates and Testing (CONCEPT) in Dresden, Germany. The conference, chaired by Prof. Dr. Marcus Rieker (HORIBA) and Prof. Dr.-Ing. Günther Prokop (TU Dresden), discussed current developments of alternative powertrains and their impact on vehicle functions as well as increasing requirements on testing systems.

Broad thematic range

In his well-respected keynote speech, WHO member Prof. Dr. Flemming Cassee from the National Institute for Public Health and the Environment, Netherlands, attempted to answer the question, "Health effects from traffic emissions: which fraction can cause what kind of health effects and how can this be reduced?" Following this opening highlight, the conference program covered a wide range of current and future trends in the field of automotive testing. Competent lecturers from legislation, automotive, and engineering companies as well as universities provided detailed insights with regards to test stand and measurement technology and also vehicle emissions. On the second day, the thematic focus turned towards the optimization and assurance of development results. Furthermore, the conference debated future functional automotive trends. Besides professional discussions, the participants highly appreciated the accompanying program for the evening. In the historical restaurant "Sophienkeller", they reflected on the topics of the day and enjoyed the beautiful city of Dresden.

Positive feedback

The conference received thorough positive feedback. The participants not only recognized the successful organization and beautiful venue, but also the broad range of presentations. In general, emission measurements and the measurement of particles and legislative background information were rated as most important topics. As the relevancy and complexity of these issues will continue to increase, HORIBA already plans to repeat the conference in 2015.

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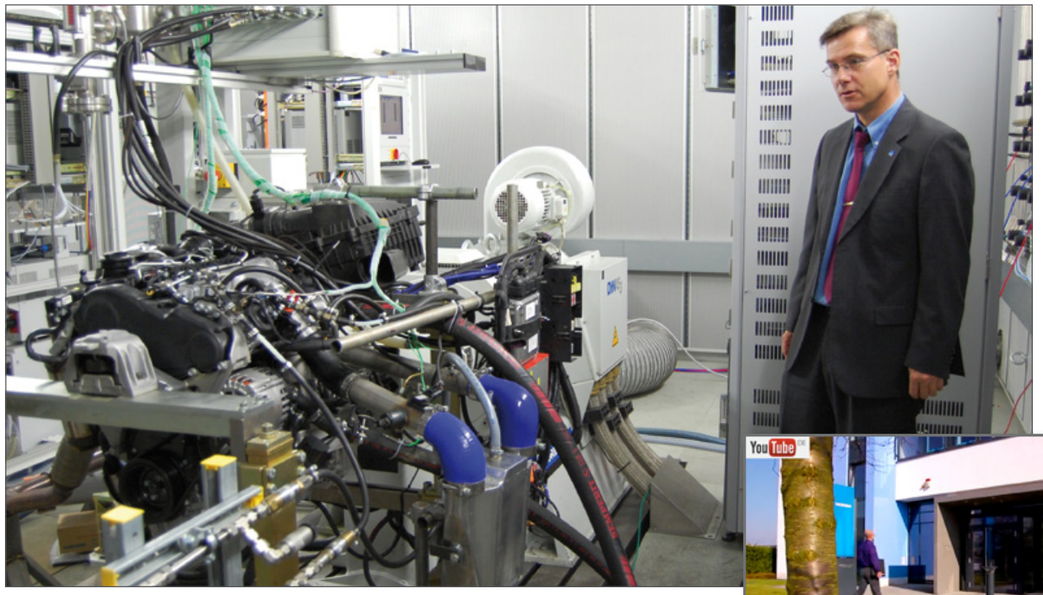
Construction activities in Oberursel



Heiko Lampert, Chief Financial Officer, HORIBA Europe, inspects the engine test cell

http://www.youtube.com/watch?v=8q8yKtE_iy8

HORIBA Europe expands head office

Busy activities can currently be recognized around the HORIBA facility in Oberursel. Machines and workmen are in a constant movement and the smell of freshly excavated soil covers the air. Ten years after the relocation to the northwest of Frankfurt/Main and during the anniversary year, HORIBA is about to invest 4.2 Million Euro in an extensive expansion and restructuring of its European head office. After completion the building will comprise 850 square meters additional space. About half of the budget is dedicated directly to the state-of-the-art test center located at the facility. Storage, laboratories, workshops and offices will also benefit from the measures. Due to careful planning, the construction process has only minimal impact on the day-to-day business of the local HORIBA team. Finalization is to be expected by early 2015, including newly designed exteriors and a fresh coat of paint.

New equipment and deep insights

The test center in Oberursel consists of three test cells equipped with advanced measurement technology which HORIBA has already updated during the reconstruction. The heart of the facility consists of a chassis test cell with a VULCAN dynamometer and MEXA-ONE exhaust gas analyzers for testing according to Euro 6 emissions standard as well as two engine test cells. One of these two test stands is used for conventional combustion engines while the other, a TITAN E-Drive, is especially designed for hybrid and E-motors. Among other things, HORIBA uses it for applications such as characteristic diagram analyses as well as idling and short-circuit tests.

The latest generation of the VULCAN all-wheel drive chassis dynamometer is designed for emissions testing of passenger cars and light commercial vehicles. An ADS 7000 driving robot allows the realistic simulation of road driving conditions and provides reliable and reproducible test results. In addition to the driving cycles mandatory by international legislation, HORIBA can carry out individual customer specific analyses. “We registered a growing demand for AWD vehicles within the last years,” said Heiko Lampert, Chief Financial Officer, HORIBA Europe. “With the second generation of its VULCAN all-wheel drive chassis dynamometer, HORIBA has a first-class testing tool to serve these new requirements.”

It takes several hours to prepare a vehicle for testing on the chassis dynamometer. So far, the HORIBA team directly carried out the preparation on the test stand which is why no tests could take place during this phase. In early 2014, a new 250 square meter soak room will facilitate the engineers’ work and will approximately triple the effective time for testing.

Step-by-step HORIBA transforms its test center into a showroom for customers to provide insights how measurement technology and mechatronics are applied and interact. Additionally, in the course of the reconstruction a seminar room for a European training center will be built on the first floor from fall 2014.

Growth at significant points

Outside the buildings the former parking ground has nearly disappeared. It will be replaced by a new 600 square meters storage due to a considerably increased stock turnover. As there is a strong demand for the company’s measurement technologies, HORIBA also needs to enlarge the capacities of its calibration laboratories where measurement technology imports from Japan are adjusted to the emissions standard Euro 6. The expert for measurement and testing technology converts parts of the previous stock into additional laboratories to obtain additional room.

More space in the future

Due to better partitioned premises, the expansion of HORIBA’s Oberursel site provides benefits for the employees in the workshops and offices as well. In an additional construction stage, the first floor will be reorganized. “We do not change the basic structure of the facility, but we make more effective use of it,” said Lampert pleased. “With the expansion HORIBA improves the working conditions and at the same time enhances its quality at the Oberursel facility. In the next years the team will also be enlarged.”

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"Yellow Angels" – Testing on top level

The ADAC test center in Landsberg am Lech, Germany, utilizes HORIBA equipment © ADAC

In the 100 years since its foundation, the German automobile club ADAC (Allgemeiner Deutscher Automobil Club), also known as "Yellow Angels", established itself as an important testing institution for consumers as well as manufacturers. Complex systems are necessary to test modern vehicles in order to meet current safety and emission guidelines. Therefore, ADAC utilizes the latest equipment in its test center based at Landsberg am Lech, Germany. The market-share of four-wheel drives has continuously increased for years; even various medium-class sedans have started to adopt this mode of driving recently. This requires specific test devices. The ADAC chose their long-term partner HORIBA for the acquisition of a new four-wheel drive dynamometer. The VULCAN chassis dynamometer is suitable for all modern powertrain systems and combines a high number of testing opportunities within a single test stand. Due to its modular design, the VULCAN provides several additional options and a flexible usability. Thus, the Automobile Association is able to modify its test portfolio at any time as well as to react promptly to any legislative changes. The installation of the new turnkey chassis dynamometer has already begun, ADAC plans to bring it into service at the end of 2013. In addition to conventional one-axle-driven passenger cars, the VULCAN is capable for testing on all-wheel drive vehicles as well as on fully electric and hybrid vehicle concepts.

Best premises

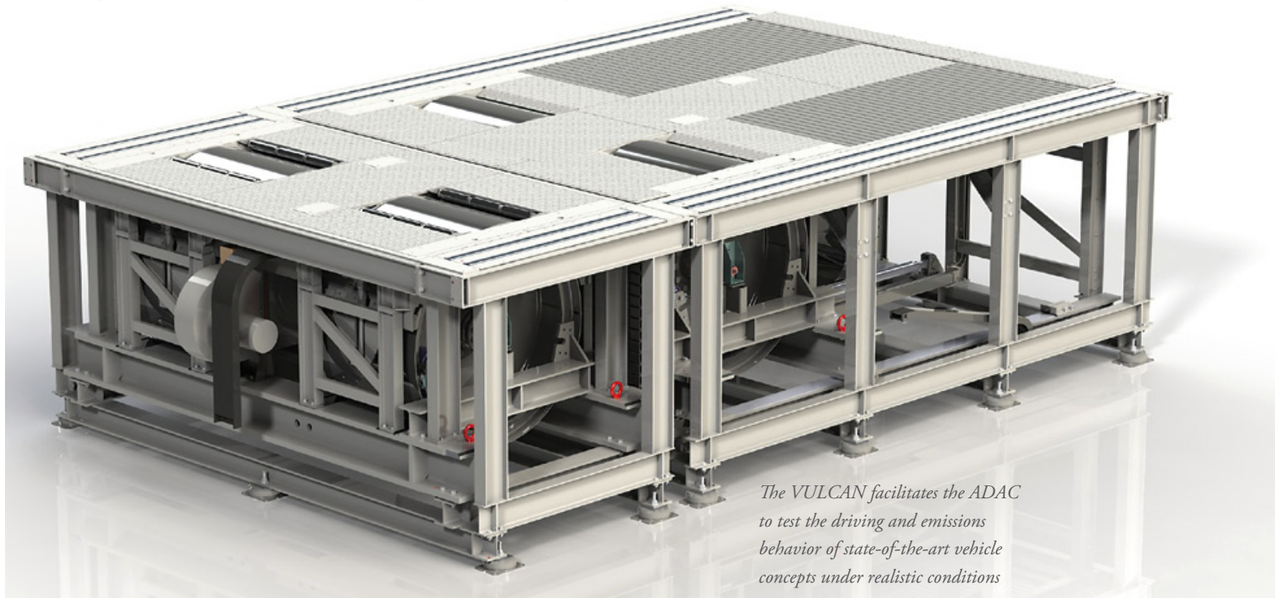
"We are very proud to supply the ADAC technology center with one of our powerful VULCAN 4WD chassis dynamometers and thereby continue to support the essential work of the ADAC," explains Jörg Brunke, Managing Director of HORIBA Europe GmbH. The 150 square meters large laboratory in Landsberg is already equipped with several test systems of the Japanese company, HORIBA. Responding to the increasing 4WD trend, the ADAC has modernized its emissions laboratory by relying on proven quality. "The new chassis dynamometer allows a flexible configuration to meet our different demands, so it is an especially versatile testing tool for us," says Axel Knöfel, Testing Manager at ADAC. The VULCAN facilitates the ADAC to test the driving and emissions behavior of state-of-the-art vehicle concepts under realistic conditions. The current second generation of the HORIBA VULCAN is characterized by a high force repeatability in test mode as well as an extended speed range up to 270 km/h and numerous further options. This includes roller surfaces with different coatings and drive sets as well as testing at extended temperature ranges to simulate at climatic conditions temperatures from -40 °C to +45 °C. In addition to legislative emission testing, the chassis dynamometer is suitable for several individual functions, comparative and consumption tests. The results are available for manufacturers as well as for consumers.

One example is the 2012 enhanced ADAC EcoTest. During this test procedure a holistic evaluation of fuel consumption and CO_2 emissions as well as of strictly regularized exhaust components is provided. In Germany, these include carbon monoxide (CO), hydrocarbon (HC), nitrogen oxide (NO_X) and particulate matter (PM). These revised testing guidelines also provide a direct comparison between conventionally driven vehicles and such with a hybrid or electric concept. For each vehicle, the specific CO_2 emissions including those out of the fuel production are considered globally. This so called "Well to Wheel" principle measures the entire energy consumption of a vehicle directly from the well to the wheel.

Well prepared for the future

Further applications of the VULCAN chassis dynamometer cover so called "In Use Tests", which are required by local legislations of several countries to certify new cars. These tests include research and evaluation of the durability as well as the functionality of catalytic and filtration systems. It is highly important, especially for electric powertrain concepts, to check and confirm the assured driving range. Therefore, ADAC subjects electric powertrain components to long-term tests.

In addition to the patented digital force and speed measurement techniques, the new VULCAN generation is characterized by its superior test automation system. It allows autonomously running processes in the areas of quality control and product diagnostics. Furthermore, the dynamometer provides a high usability and reliability in everyday testing the "Yellow Angels" can rely on.



The VULCAN facilitates the ADAC to test the driving and emissions behavior of state-of-the-art vehicle concepts under realistic conditions

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Many customers visited the Tech Day to learn more about MEXA-ONE

Site portrait: HORIBA Austria

From Austria towards Eastern Europe

About 30 kilometers away from the Austrian capital Vienna, Tulln is located by the river Danube. From 1989 the HORIBA Austria office has supported several countries and customers from business segments of Process and Environmental (P&E) and Automotive Test Systems (ATS). "Our customers in the field of ATS are primarily OEMs and research institutes from more than half a dozen countries," says Markus Böck, Sales Manager of the HORIBA GmbH, "We serve clients in Poland, Hungary, Macedonia, and many more. Our responsibility extends to the borders of Ukraine." To support the growing number of customers and to be on-site as soon as possible, the test system supplier has established two service offices in Prague (Czech Republic) and Pitești (Romania).

HORIBA facility in Tulln, Austria

Space for new ideas

The 25 employees of HORIBA Austria are currently working over 850 square meters in Tulln; more than half of them within the field of P&E. Here, the focus is on different measurement systems for active pollution control. The application range covers water quality measurement relevant to the concentration of nitrogen and phosphor for the continuous monitoring of particulate matters and greenhouse gases in the atmosphere. For example, HORIBA manufactures analyzers for ambient air as well as stack gas measurement systems and analyzers for power plants. In Austria, HORIBA also produces stack gas generators. Guided by experienced engineers, customers can use emission measurement systems and the portable gas analyzer PG-350E for stack gas measurements in Tulln.

In the field of ATS, HORIBA provides its customers with different test devices on-site. The MEXA-7000 and a MEXA-1400QL-NX are used for highly accurate emission measurements. Furthermore, OEMs and research institutes can run fuel consumption tests with the Fuel Flow Meter FQ-2100DP.

The services of HORIBA Austria – available at Tulln as well as on the customer's own site – include calibration, equipment training and technical maintenance for all devices of ATS and P&E.

From Austria, HORIBA serves customers in the following countries:

- Poland
- Austria
- Romania
- Czech Republic
- Macedonia
- Slovakia
- Croatia
- Hungary
- Serbia
- Slovenia
- Bulgaria
- Bosnia-Herzegovina
- Albania
- Moldova

Lively exchange

In June 2013, HORIBA Austria arranged a special workshop for automotive customers. More than 30 guests from 15 different companies across the world attended the Tech Day. Amongst many topics the seminar focused on the new motor exhaust gas analyzer, MEXA-ONE. A guest speaker provided an interesting view on consumption measurement and described his experiences with the Fuel Flow Meter FQ-2100DP in detail. Before the participants started on a joint tour across the facility, HORIBA presented general news from the mechatronics sector and industry. The day ended with a barbecue including a wine tasting session. Due to the positive feedback, HORIBA intends to repeat the event next year.

Calendar

Dates and Events

2013

2-4 December International Conference Real Driving Emissions	Bonn, Germany
3-4 December ASAM Conference	Dresden, Germany

2014

11-14 February SAE International Hybrid Consortium	La Jolla, CA, USA
March Tech Days (Customer seminars)	UK
19-21 March Automotive Testing Expo India	Chennai, India
April Tech Days (Customer seminars)	Russia
8 April HORIBA Customer Seminar	USA
8-10 April SAE World Congress	Detroit, MI, USA
13-15 May EuroBrake 2014	Lille, France
21-23 May JSAE Annual Congress	Yokohama, Japan
28-30 May Automotive Engineering Exposition Japan	
24-26 June Testing Expo Europe	Stuttgart, Germany
June or July Tech Days (Customer seminars)	Austria

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Vast testing opportunities

HORIBA supplies Bosch with an E-motor test stand for research on alternative powertrains

With its contribution to the development of high efficient E-motors, HORIBA takes part in the increasing importance of alternative engine concepts. The customers' demand of green energy in their everyday life makes it necessary for automotive suppliers to focus more on components for suitable vehicles. As one of the world's largest suppliers, Bosch decided to improve its test center opportunities in Schwieberdingen near Stuttgart by installing an E-motor test stand supplied by HORIBA with a $DYNAS_3$ HS 180 asynchronous machine as the dynamometer.

From the first day of planning the system through to its first operational run, it only took nine months. It was challenging to integrate all the new components into Bosch's test center within such a short timeframe. Clearly emphasizing the role of a true service partner, HORIBA professionals not only installed the test stand elements at the Bosch site but also individualised it step by step until every detail was working to the customer's requirements. In order to feature a short commissioning time and to be able to run the first specimen as soon as possible, HORIBA provided their own test lab in Oberursel. The fully equipped test stand can be used for contract testing. Due to this benefit, the first tests were already running while the test cell was under construction.

A wide range of opportunities and benefits

HORIBA's TITAN E-Drive is a pure development test stand for prototype testing. The E-automotive innovation has to pass testing before it is used in the real vehicle type environment and by other test systems. At the moment, Bosch primarily uses its new test stand for the measurement of the characteristics diagram of E-motors, but in the near future it will expand its uses for other alternative powertrains and system elements, for example hybrid drives and range extenders.

As the major part of the high-performance E-motor test stand, the $DYNAS_3$ HS 180 asynchronous machine delivers a rated power output of 178 kW and a rated torque of 430 Nm (overload torque: 559 Nm). It is possible to reach a maximum speed of 16,000 rpm and the maximum acceleration can be stated with 22,000 rpm/s.

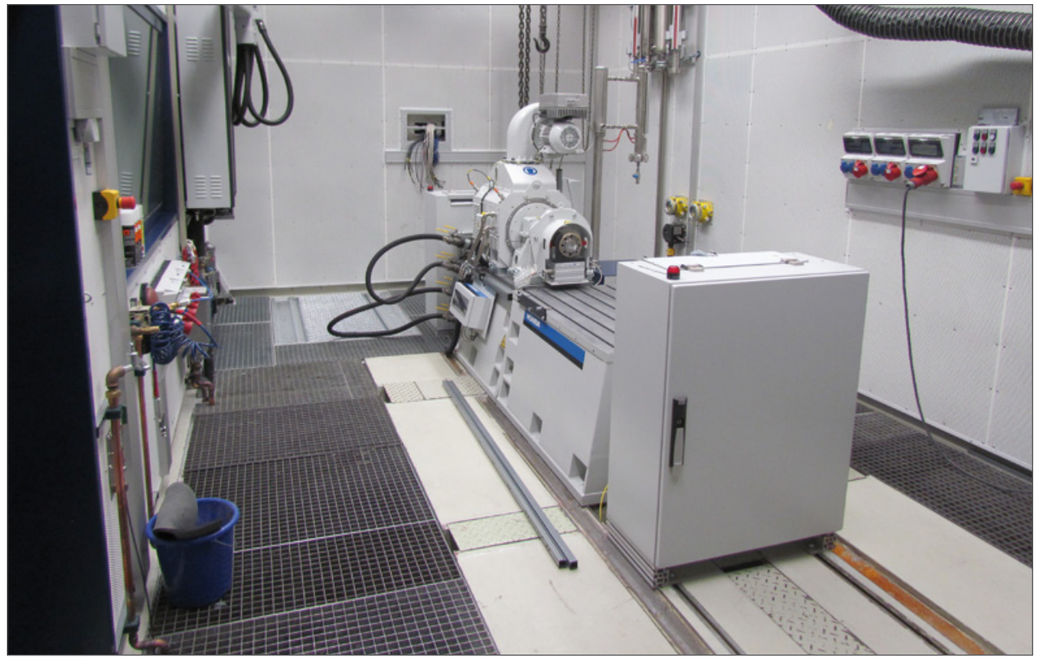
The hardware abilities of the system are completed by innovative software competences which not only offer the opportunity of prototype testing but also help saving costs. With the DC source it is possible to evaluate minus development at an early point of a misleading process. Otherwise needless expenses and scrap would be produced.
In the case of alternative powertrain concepts, this affects for example particularly the development and testing with real batteries. Considering the cost saving benefits of the HORIBA TITAN E-Drive, the nonrecurring initial value of the system can be amortized in the foreseeable future, depending on the utilized capacity of the test stand.

From decision to realization

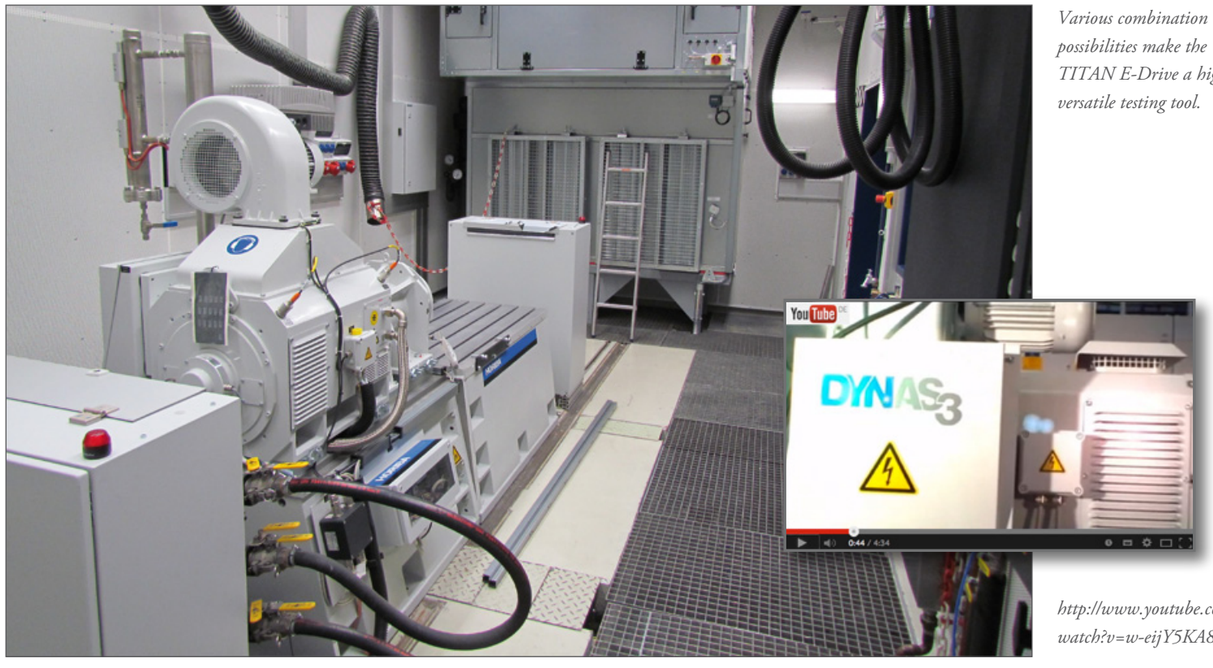
Another reason Bosch chose HORIBA as a system supplier for their new test stand was the usage of the STARS automation system software. STARS has been present in the market since 2003 and is the HORIBA automation platform for engine, driveline, vehicle, and brake test beds in its ideal life cycle phase. It has achieved the full functionality and reliability for OEM customers. The STARS software is constantly updated to meet the requirements of future challenges and it goes hand in hand with the input of customers. Additionally, the system is saving time by creating a network for fast data exchange. Not only results of the test stand but also the input from engineering offices and facility management come together in the integrated central STARS cluster. Another advantage is the individual adaptability of the graphical user interface that the user may configure themselves.

Always up to date

Developed especially for hybrid and E-motor testing, each component of the system is state-of-the-art. With its several options of combining the different elements it is a truly flexible test development tool. In addition to the completely equipped test stand it is also possible to integrate single components, e.g. a battery simulation, in existing installations. Formulating it is simplified effectively; the customer is able to upgrade and enhance any existing test stand.



The modern TITAN E-Drive has been especially developed for hybrid and E-motor testing.



Various combination possibilities make the TITAN E-Drive a highly versatile testing tool.

http://www.youtube.com/watch?v=w-eijY5KA8I

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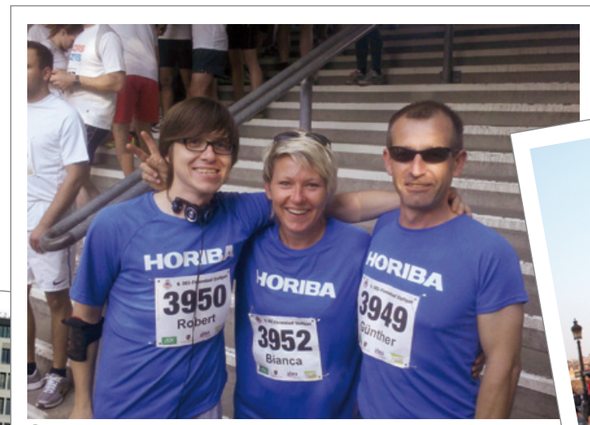
Joy & Fun

Sportive highlights in the anniversary year

Pfungstadt Firmen-Ultra



Stuttgart corporate run

Paris Marathon

J.P. Morgan corporate run, Frankfurt

60 years, 60 Horibarians and 42.195 kilometers – that was the formula of success for this year's Paris Marathon where HORIBA celebrated its anniversary. Also at other company runs, sportive HORIBA teams could convince.

In the heart of France

On the occasion of the HORIBA jubilee some top motivated employees made the decision to join the Paris Marathon for the first time in a team of 60 colleagues. The request to Horibarians throughout Europe attracted wide interest and promptly 62 colleagues from France, Germany, the United Kingdom, Poland, and even from the Czech Republic came together as one team.

When they arrived in Paris in the beginning of April, each of them looked back at exhausting months of preparation. Some were facing their physical limits during this time. In addition to plenty of motivation they needed a lot of discipline and sportsmanship to get through hard daily training for weeks and months. No matter whether it was cold, wet or simply unpleasant, the runners did their laps in all weathers to prepare themselves for the marathon.

The unique experiences in the French capital recompensed the athletes for the stresses and strains of their training. On the evening before the run, they came together for a pasta party and exchanged their training experiences and the target times they hoped for.

Aux Champs-Élysées…

The next morning, the good-humored participants positioned themselves among 45,000 runners at the starting line on the legendary Avenue des Champs-Élysées. With a huge HORIBA banner the so-called "Four hours" team set a signal for all colleagues in the crowd. The widely visible lettering repeatedly motivated the sportsmen not to quit although this thought became quite attractive now and then. After all, with every kilometer, legs were getting heavier, muscles started to ache and it was getting harder to continue. Numerous cheering visitors and musicians supported the runners with new motivation on this sunny day. Crossing the finish line, the successful participants had every reason to be proud to have mastered this sportive challenge – for sure a moment which will remain unforgettable. With great individual results between 3 hours 1 minute and 5 hours 47 minutes, HORIBA achieved the 26th place out of 119 participating companies. Thus, they left teams from much bigger enterprises like Air France, Total and Renault distinctly behind.

With enthusiasm to the finish

Not only in Paris Horibarians showed sportive commitment, but also in the center of Frankfurt am Main, Germany. Taking part in the J. P. Morgan corporate run for HORIBA already became almost a tradition. A total of 35 German colleagues found themselves among 69,000 runners as this event is one of the biggest company runs throughout the world. The 5.6-kilometer long distance leads through streets between the skyscrapers of Frankfurt city where normally thousands of cars pass every day. No matter how crowded the track was, the run was a great experience for all Horibarians. The weather on this warm evening was perfect and organizers provided fruits and beverages. Moreover, the focus was not on competition but on charity: Via entry fees plus donations the impressive sum of 247,500 Euro was collected and could be handed over to handicapped sportsmen.

Fun at sports – regardless of circumstances

In Stuttgart, Germany, a small but highly motivated HORIBA team took part in a corporate run as well. Wearing HORIBA-blue running shirts, they mastered the six-kilometer distance together with 7000 other participants. Afterwards, the organizers offered live music and cold drinks in a calm and relaxing atmosphere. The transport home provided one more highlight to the team members: spontaneously, they decided to jog the distance back. Following this amazing powerful surge of motivation, it is no surprise that the team plans to join the corporate run again next year.

Among long-distance competitions, the Ironman is seen as a supreme discipline: 3.8 kilometers to swim, 180 kilometers to cycle and finishing with a complete marathon run. Due to fact that for a more casual sportsman such a top performance is nearly impossible to master, at the Firmen-Ultra in Pfungstadt, Germany, a team of ten colleagues covers the Ironman distance together. Thus, everyone has to swim 380 meters, cycle 18 kilometers and run 4.2 kilometers. This year, the weather was a particular challenge; it was raining for every minute of the event. While this did not cause much bother during the swimming part, the rain was obviously more unpleasant during the cycle challenge. Mostly though, the weather affected the running section. Rain-sodden tracks seemed to remind participants of swampland. At last, all ten members of the HORIBA team safely reached the finish line. Under these hard conditions, they were satisfied with the 62th position out of 108 teams in the company rating.

Joy & Fun

By participating at different sportive challenges in the anniversary year, the Horibarians showed how actively they live their corporate motto "Joy & Fun". The motto reflects the enthusiasm and joy of the employees in their work and private life. Team solidarity can inspire everyone to personal records, regardless if this means the first marathon in life or a jointly mastered Ironman.

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