automotive testing expo 2018

NOVI MI

INSIDE: Exclusive preview of the new technologies being launched at North America’s only auto testing exhibition!

SHOW PREVIEW

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Autonomous Driving Calibration Solutions

Booth 13003 Vehicles are adapting with advanced technology to give consumers the best driving experience possible. And Burke Porter Group (BPG), a supplier of testing, instrumentation and assembly systems, is blending customized software and high-performance electrical and mechanical components to suit the technological advancements of OEMs. Investing in new product development, BPG has a focus on autonomous driving calibration solutions that support a wide range of advanced driver assistance systems when calibrating and teaching integrated sensors. What’s more, BPG systems use real-time sensor-based feedback to inspect and calibrate components. The company develops machines that are equipped to handle the latest features on today’s and future vehicles. It also has testing solutions to eliminate noise, vibration and harshness in electric powertrains, in order to meet the needs of this evolving market.

Digital and DC-operated rotary torque transducers

Booth 10014 For engineers on the lookout for precise torque measurement in the manufacture and development of engines, transmissions, drivelines and accessory components, S Himmelstein has a full range of solutions for measuring tire rolling resistance and driveline efficiency, and emissions correlation/coastdown testing. Take, for example, its MCRT 48800V/489000V digital torque transducers, which possess ultra-high accuracy and fast response, and the MCRT 84000V/85000V series, which is a bearingless digital torque transducer with noise immunity, non-critical installation and excellent dynamic response available in dual ranges and high capacities.

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Automated x-ray inspection system

The slice6 high-shock Ethernet data acquisition system from California-based Diversified Technical Systems (DTS) was developed for the US Army’s WIAMan (Warrior Injury Assessment Manikin), a groundbreaking vertical load ATD. Now it has caught the attention of the automotive industry thanks to its proven track record in extensive laboratory drop tests and live-fire tests, combined with its ultra-compact and integrated design that considerably reduces in-dummy cabling and connectors. As visitors to Automotive Testing Expo 2018 in Novi, Michigan will discover, Euro NCAP’s new iTHOR model 477 ATD, which is scheduled to be available in the fall, is being manufactured to accept several in-dummy data acquisition solutions, including Slice Nano and Slice6 from DTS. In addition, Slice6 is the only solution designed to work with both NHTSA’s and Euro NCAP’s lumbar adjustment designs.

Innovative oil shear technology

Key to the design of low-speed, high-torque dynamometer load brakes, oil shear technology from Force Control Industries works by circulating transmission fluid through a wet-design friction brake to provide a fluid film between the friction discs and drive plates. This removes direct contact between the friction surfaces and nearly eliminates wear. The work is done in the fluid and the torque is controlled by adjusting the pressure on the friction stack. The result is extremely smooth, controllable torque, consistent torque transfer, minimal wear and very low noise levels. This becomes the ideal combination for the design of low-speed, high-torque applications such as dyno load brakes.

Co-locating with Automotive Testing Expo in Novi, Michigan

Engine Expo 2018 in Novi, Michigan is the must-attend event for anyone involved in the design and development of OEM engines and powertrains as well as the sale or procurement of engine components, engine manufacturing systems, engine accessories, new technologies and materials.

North America’s dedicated international trade fair for automotive powertrain design, production, components and technology will once again be held in an informal yet focused environment in which OEMs and Tier 1 companies can meet and discuss their requirements with past, present and potential technology partners.

In addition to the slew of new technology launches, a free-to-attend Open Technology Forum will run for three days alongside the exhibition. Key speakers and presentations will offer an insight into new product design and service innovations, technological developments within areas such as engine manufacturing, forced induction technology, electric powertrain advances and much more!

Visit www.engine-expo.com/usa for more information.

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www.testing-expousa.com
One-stop-shop proving ground

Booth 6040  Proving grounds provide a critical service, but engineers need more than just a test track to fully develop a new vehicle. That’s why Navistar Proving Grounds (NPG) provides the garage facilities, equipment, instrumentation, computerized data acquisition systems and personnel required to support a full new vehicle development program. Equipped with static and dynamic vehicle tests, evaluations and required governmental certifications, NPG also supports electrical system testing, autonomous vehicle testing and electric vehicle testing. What’s more, off road conditions and paved road events, along with a high-speed oval, mean NPG can also provide development assistance for any vehicle, from bicycles and passenger cars to commercial trailers, trucks and military vehicles.

New jury testing module

Booth 3016  Due to the demand for quieter powertrains, acoustics are becoming increasingly important in the automotive industry. Listening tests are a key starting point for determining the optimal acoustical image of a product, performing benchmark tests, comparing different alternatives and developing meaningful metrics for sound quality performance specifications. For target sound definition and benchmarking, Head Acoustics has released the latest version of its Artemis Suite data acquisition and analysis software, which now offers the sQala module for jury testing tasks. Artemis Suite 10.0 combines all of the tools needed for carrying out comprehensive measurements and analyses.

Accurate and reliable pressure measurement solutions

Booth 13031  Pressure is a vital parameter in the automotive industry, and getting it right means using the correct sensors. The trusted Druck product range from Baker Hughes, a GE Measurement & Control Solutions company, includes the UNIK 5000, a flexible silicon pressure sensor incorporating a wide range of accuracies, outputs, temperature ranges and physical constructions. Furthermore, the Trench Etched Resonant Pressure Sensor (TERPS) is among the most accurate sensors available to the industry today, while the PACE pneumatic pressure controller offers an elegant and economical solution for pressure control.

Co-locating with Automotive Testing Expo in Novi, Michigan

Autonomous Vehicle TEST & DEVELOPMENT Symposium, Novi, Michigan

Autonomous Vehicle Test & Development Symposium 2018 in Novi, Michigan is a pioneering conference dedicated to furthering the industry’s understanding of driverless vehicle technology. The two-day event will see more than 45 presentations from the world’s leading experts in the field of autonomous vehicle research, testing, validation and development. These include Adit Joshi, research engineer at Ford; Curtis Hay, technical fellow at General Motors; Taylor Lochrane, technical manager for the US Department of Transportation’s Federal Highway Administration; and Frans de Rooij, director of business development for TomTom.

Visit www.autonomousvehiclesymposium.com/detroit/ to book your conference seat now!

Sensor signal conditioners

Booth 8022  Sensors that can measure strain, pressure and vibration are often inaccessible and difficult to troubleshoot. Keeping these sensors in check means using signal conditioners that can tackle an array of automotive test applications. Precision Filters’ signal conditioning systems have built-in hardware and software that let engineers quickly and easily run automated sensor, circuit and cable checks. What’s more, the company says that its 28000 test cell signal conditioning system and C-Series (CompactDAQ and CompactRIO) signal conditioning modules for in-vehicle test environments are designed to address the challenges of automotive tests to reduce setup and troubleshooting time.

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Autonomous vehicle simulation hardware

**Booth 4000** In the race to build safe autonomous vehicles, it helps not to have to wait for an experimental prototype before you can commence testing and validation. That’s why leading simulation hardware, such as the Environment Sensor Interface Unit (ESIU) from dSpace, gives engineers a jump start. The ESIU offers users the capability to stream raw sensor data captured from onboard cameras with expected radar and lidar reflections from simulated scenarios. By replicating vehicle driving functions in the very early development phase and get started on the production of high-quality software. The system also allows users to time align the data captured from real-world drives and data from simulators to enable safe and cost-effective lab-based testing.

The dSpace ESIU provides a means to introduce pixel errors and fisheye effects.

Test facility operations partner

**Booth 4042** Automotive testing cannot be done exclusively in-house, especially when there are so many global certification requirements to meet. And with the high level of technological disruption currently taking place within the industry, it is critical to find partners who can handle the demands of such a change. Intertek is positioning itself at the forefront of autonomous and connected vehicle testing with a multi-year partnership with the American Center for Mobility (ACM) for the operations and maintenance of ACM’s 500-acre vehicle proving grounds. The company is also one of the recognized authorities in the field of electric vehicles, especially battery technology and charger certification.

Miniature high-speed cameras

**Booth 10040** High-speed cameras are sometimes the only way to capture the action and get the data that engineers need. But fitting cameras where needed can often be tricky. Luckily, Photron has two new high-speed cameras, both of which are ideal for automotive testing applications. The Fastcam Mini CX and Fastcam MH6 offer HD 1,080 resolution at 1,000 frames per second with a light sensitivity of ISO 5,000 color and ISO 10,000 monochrome. The Fastcam Mini CX camera is a compact, standalone package ideally suited for both onboard and off-board automotive safety testing; the Fastcam MH6 allows up to six miniature camera heads to be connected to a single control unit, and is perfectly suited for locations that are severely space- and weight-constrained.

Both the Fastcam Mini CX and Fastcam MH6 offer high-definition 1,080 resolution at 1,000fps.

Test benches for modern drive concepts

**Booth 3006** Powertrains are changing. The use of modern exhaust gas turbocharger technology will enable downsizing with the same power in future generations of vehicles, which in turn will allow for smaller, lighter, more economical engines. Furthermore, electric and hybrid vehicles require highly specialized facilities. So, to develop efficient, modern, alternative drive concepts for future generations of vehicles, manufacturers and suppliers need tested, scalable, efficient test solutions. Thus, test bench solutions for battery-powered and hybrid concepts from Kratzer Automation are in line with these future-oriented issues and give customers the development tools they need for the entire drivetrain from a single source.

Handheld vibroacoustic data analysis device

**Booth 5046** Most OEMs these days tend to focus their engineering efforts on targeted noise control strategies in order to improve the build quality and customer perception of the product. This has sparked a growing interest among auto makers for tools that help them attain these targets. As such, Microflown Technologies’ new Voyager, a handheld device for on-site acquisition and analysis of vibroacoustic data, makes it an all-purpose probe to help them monitor their vehicles. Voyager merges multiple functional units into a single tablet device.

Test benches developed by Kratzer Automation map test processes under the most realistic conditions possible.
Advanced datalogger

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Booth 3000 As full vehicle and component technologies become more advanced, the need for more advanced datalogging solutions also increases. With up to 12 CANbus interfaces and freely configurable digital inputs and outputs, the new UniCAN 3 datalogger is the latest in the UniCAN range from CSM. As with previous iterations, the UniCAN 3 optionally supports various CAN protocols and software extensions. Recorded data can be transmitted via various protocols and if remote data transmission is not needed, the data transmission can be carried out via network, USB or simply by changing the CF card.

CAN messages and signals, each up to a maximum of eight separate groups, can be recorded in parallel.

Measurement, calibration and diagnostics solutions

Booth 1000 Accurate Technologies Inc (ATI) will be displaying two new hardware products at Automotive Testing Expo 2018 in Novi, Michigan. The first is an Ethernet variant of its EMX data acquisition (DAQ) modules, which merges compact dimensions, an IP67 protection rating, and cost-effective mixed-type combinations of thermo and analog channels into a single unit. The EMX module range features advanced Bessel, Butterworth and elliptical filtering options, and an open message-based protocol functionality enabling easy setup of CAN 2.0A/B support on the ISO 11898-2 physical layer and up to a 10kHz sampling rate. ATI will also highlight the latest version of its patented, software-centric ECU rapid prototyping technology — No Hooks. Ideal for system validation and fault injection, No Hooks removes the need for costly HIL systems without requiring the ECU source code.

Research vehicles for hire

Booth 14035 Research and testing may require engineers to examine a large number of cars, and not all of them may be readily available. Victory Automotive Solutions (VAS) provides vehicles to the auto industry on a rental, lease or purchase basis for various test applications, including benchmarking, certified testing, engineering evaluations, ride-and-drives, product launches or consumer events. From single cars to fleets of over 100 vehicles, VAS also has the capacity to provide out-of-market, non-conforming vehicles for engineering and testing purposes on a purchase or rental basis.

E-mobility test rig

Booth 4016 A new e-mobility test rig from ZF meets all needs that arise as a result of the transition to electromobility. The core component of the rig is a high-performance drive module. In combination with the drive bearing module and receiving module for the test object, it combines to make a complete test rig. The base for the receiving module is optionally fixed, inclinable and swiveling and available for single or multi-machine operation with or without cross table. Optional modules complement the modular system. A receiving module for e-motors and one for coaxial test objects extend test possibilities. An acoustic cabin for the drive module and an air conditioning cabin for the receiving module for the test object are also possible. Due to the rig’s modular design, tests of conventional car transmissions can also be performed.

Co-locating with Automotive Testing Expo in Novi, Michigan

Automotive Interiors Expo 2018 in Novi, Michigan is all about quality, color, texture, touch, feel and innovation. You’ll find a wide range of fabrics, acoustical materials, shape-forming materials and foams, fasteners and adhesive systems, lighting and more!

Automotive Interiors Expo 2018 in Novi, Michigan also hosts the Autonomous Vehicle Interior Design & Technology Symposium, the world’s first and only global conference dedicated to showcasing the latest designs and innovations that will shape the future of vehicle interiors. The symposium will bring together design teams from OEMs, Tier 1 and Tier 2 suppliers, electronics specialists, in-car entertainment companies, interior safety experts and materials companies.


Winter tire test facility

Booth 8008 Each year from November through April, Nevada Automotive Test Center (NATC) heads to West Yellowstone, Montana to conduct winter tire testing. NATC prepares and maintains multiple surfaces and tracks, and builds custom courses based on the customer’s needs. Surfaces can be maintained and tested with soft, medium or hard pack snow, and frozen or melting ice. Courses include handling courses, road courses, grades, ice lane with J-turn, off-road virgin snow mobility courses, and much more. All testing is done at the West Yellowstone Airport where NATC is equipped with vehicle prep and maintenance areas, instrumentation technicians, data acquisition equipment, and all that’s needed to run successful winter tests.

Testing is done at West Yellowstone Airport
Autonomous vehicle test systems

Booth 6006 | Modern ADAS and autonomous vehicle systems require accurate and choreographed control of vulnerable road user (VRU) targets, whether pedestrians, cyclists or even animals. LaunchPad is a self-propelled platform from AB Dynamics that allows complex and accurate control of all VRU targets, and the company will be at Automotive Testing Expo 2018 in Novi, Michigan to show off what it can do. AB Dynamics will also showcase its riderless motorcycle that allows driverless cars to be tested under much more challenging and representative conditions than hitherto available. The company’s cross-platform Synchro technology allows coordination of the motorbike with other moving elements.

High-performance force and torque sensor

Booth 3047 | For steering wheel torque verification, automotive seat testing or validating component specifications, force and torque sensors need to be high performance. ATI Industrial Automation’s Axia80 Force/Torque Sensor is a low-cost, six-axis sensor that offers some of the highest resolution, accuracy and stiffness available today to provide a realistic sense of touch to applications. The Axia80 measures all six components of force and torque, and the monolithic instrumented transducer features built-in electronics and silicon strain gauges. The electronics are built into the transducer body, which keeps the cost down and the footprint smaller, but with IP64 protection it is still a robust unit.

Temperature and humidity test chamber

Booth 2024 | Designed for value, reliability and performance, the C-EVO temperature/humidity test chamber from Tenney/Blue M comes loaded with standard features and advanced technological upgrades. With one of the smallest equipment footprints in the industry, the C-EVO chamber features superior heat capacity (KW), cooling capacity (HP/BTU) and air flow capacity (CFM) to deliver best-possible temperature change rates and uniformity. Redundant user and equipment safety features are standard, and Tenney/Blue M backs its products with a comprehensive service organization that includes factory-trained, courteous and knowledgeable technicians who provide installation, maintenance and repair on site.

Shock and vibration test solutions

Booth 6015 | Since shock and vibration data acquisition and analysis, single- and multi-shaker vibration control and single and MDOF vibration systems are all required for vibration testing, finding multiple vendors with the right technologies can be tough. Thankfully, Data Physics and Team Corporation are showcasing complete vibration test solutions at Automotive Testing Expo 2018 in Novi, Michigan, including the new 900 Series Analyzer/Controller from Data Physics, which offers integrated dynamic signal analysis and shaker vibration control in one compact package. Also on display is a reduced-scale version of the CUBE from Team Corporation, comprising a compact hydraulic 6-DOF shaker test system with five test surfaces.

New products!

AB Dynamics’ range of laboratory test systems builds on more than 20 years of continuous product development.

Environmentally friendly test chamber refrigerants

Booth 5003 | Refrigerants are the latest test products to be highlighted as potentially damaging to the environment. Indeed, European regulations require refrigerants with a global warming potential (GWP) of higher than 2,500 to be banned by 2020. For more than two years Weiss Technik has surpassed this by providing R-449A (1,397GWP) in lieu of R-404a (3,922GWP) refrigerants in its test chambers that are produced in Europe and Asia, with no loss of performance or reliability. Now, R-449A is available for all Weiss Technik environmental test chambers produced in North America, allowing companies to reduce their carbon footprint as part of their global sustainability programs.

Xcel Converto is an expandable test chamber that results in reduced test setup time and greater flexibility for ever-changing test requirements.
Next-generation materials test software and platform

**Booth 14000** Some materials testing platforms are not as intuitive or as simple to use as they should be. However, Bluehill Universal from Instron has been built from the ground up for real touch interaction, providing an intuitive touch interface that is easy to learn, cutting down on training time and maximizing efficiency. The system also includes Instron Connect, a communication platform with support engineers to provide users with a helping hand whenever needed.

State-of-the-art vibration test hardware and software

**Booth 6046** Troublesome industry issues can often be solved with the right tools. The VR9500 Revolution Vibration Controller and easy-to-use VibrationView software from Vibration Research are ideal for over-and-under testing and predicting a product’s point of fatigue. They include patented innovations used by test labs and engineers in a wide range of sectors across the world. The VR9500 is used to set up and monitor vibration tests and to perform automatic and custom reporting. Vibration Research will also be showing its fully autonomous, specially designed and engineered, portable data acquisition and analysis recorder, the ObserverVR1000.

Cyclic corrosion test chambers

**Booth 5036** To meet the auto industry’s ever-increasing demand for cyclic corrosion testing, Assured Testing Services has purchased several large cyclic corrosion testing chambers. In addition, the company can also provide physical testing of coatings and platings such as gloss, thickness, adhesion and pencil hardness. Other accelerated exposure options include salt spray, humidity, thermal, SWAAT, Kesternich, ASTM G85, CASS, UV, and Xenon exposures. These capabilities can be found at Assured Testing’s new, 26,000ft² purpose-built facility, which is ISO 17025 accredited to perform all automotive cyclic corrosion testing, including GMW 14872, Ford L-467, SAE J2334, and various transplant specs. Testing is performed in automated, PLC-controlled chambers to ensure accuracy and reproducibility, and allows 24/7 exposure to minimize the test duration.

Ergonomic car movers

**Booth 9034** Created to assist in heavy strenuous work and developed for ergonomically correct handling, Stringo’s car movers have been moving cars around factory production lines, test labs, design studios and workshops throughout the world for more than 30 years. Each Stringo car mover is hand-made and customized for every recipient. Not only does it save on personnel, but it also provides clear efficiency gains, time savings and environmental benefits.

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Modular, high-performance drive and DC/DC converter series

Booth 7048  The demand for modern vehicles to achieve higher performance while reducing fuel consumption and emissions creates enormous challenges for test engineers. Fortunately, Bosch Rexroth, which has been helping the auto industry meet engineering challenges with customized technologies for testing applications for over 50 years, will be at Automotive Testing Expo 2018 in Novi, Michigan to showcase its high-performance drive and DC/DC converter series, IndraDrive. As visitors will discover, this space-saving, industry-leading, high-performance test system offers one of the lowest lifecycle costs. Furthermore, IndraDrive’s synchronized pulsing technology for high-speed motor control and precise sensorless torque control make it one of the most reliable testing solutions on the market.

High-speed tire footprint analysis system

Booth 6022A  Tires are the only component on a vehicle to touch the road. Therefore, knowing what they are doing is fundamental to automotive testing because heat and centrifugal forces cause significant physical variations on them. Tekscan’s High Speed TireScan is a tire footprint analysis system for capturing the impact of speed, motion and inertial forces at speeds up to 265km/h (165mph). Using the High Speed TireScan analysis software, tire designers have the opportunity to calculate key metrics of a tire footprint at speeds faster than other tire footprint analysis technologies can allow, enabling users to spot variations in tire distortion, pressure points and centerlines.

Fast and responsive pressure imaging sensors

Booth 14003  Acquiring accurate pressure information during sudden impacts requires fast, responsive pressure imaging sensors combined with powerful software. HS Impact from XSenor verifies the performance of passive safety features with measurement detail that the company says was previously unattainable. The sensors capture high-resolution data at over 2,000fps, enabling safety engineers to visualize and measure interface pressures during the entire impact event.

Infrared temperature sensor

Booth 9020  Thermal testing can sometimes be a guessing game if you don’t use the correct tools. However, FLIR’s infrared science cameras allow users to see temperatures across an entire target, meaning problems can be quickly identified to enable development of safer, more efficient, higher-performing vehicles. Thermal imagers allow automotive engineers and technicians to improve the design of airbag systems, validate the efficiencies of heating and cooling systems, quantify thermal impacts on tire wear, and perform quality checks on bonds and welds, to name just a few functions. The FLIR A-Series science cameras are among the most affordable cooled camera systems for automotive R&D applications.

The A65 integrates into existing systems and provides temperature linear output through GenICam-compliant software.
Advanced vehicle radar test system

**Booth 13008** Radar has become a common item on vehicles, especially with modern ADAS. With more autonomous technologies advancing rapidly, radar testing is becoming increasingly crucial for automotive manufacturers and component makers. The Konrad Technologies Vehicle Radar Test System (KT-VRTS) from Konrad Technologies is a single modular tester for radar sensor RF measurements and object simulation built on National Instruments VRTS. This technology allows object simulation and generation in real time. It enables the user to define and configure the number of targets, object scenarios and angle of arrival, and add new test cases. Connectivity to HIL also enables Sensor Fusion HIL tests with other sensors, including cameras and lidar.

**Ideal for testing ADAS subsystems!**

Rugged in-line flow meters

**Booth 8020** Designed to measure engine blow-by and air intake for gasoline- and diesel-powered internal combustion engines, the VF563 series of in-line flow meters from J-TEC Associates uses patented vortex shedding technology, a design that is well-suited for rugged applications such as engine dynamometer testing. Rugged and trouble free, and with no moving parts to wear out, the VF563 meters provide an efficient method of monitoring piston ring sealing without any adverse effect on engine performance during testing. Furthermore, its minimal pressure drop means the VF563 meters are ideal for measurement of crankcase blow-by gases and engine air intake. Other benefits of these rugged in-line flow meters include drift-free performance, excellent performance at low flows (down to 0.14 ACFM), easy maintenance, a 40:1 turndown ratio, continuous flow readings, and high accuracy/repeatability.

**Perfect for engine dyno tests!**

Portable emissions measurement system

**Booth 3032** Being tied to a lab or test facility is not always practical when it comes to emissions testing, especially when one needs to know what the measurements are in real-world driving. Being showcased at Automotive Testing Expo 2018 in Novi, Michigan is IAG’s latest development, the NH3 PEMS NMS Mobile exhaust gas analysis system. Based on diode laser technology to ensure precise portable emission measurement of NH3 (ammonia), the highly dynamic and simple-to-operate NH3 PEMS NMS Mobile is operated at a voltage of 24VDC and with standard AC voltage in engine test cells. IAG will also have its FTIR analyzing system, versa06, and a wide range of pre-filters, pressure regulators and gas line switches on display.

**Ideal for IC engine development!**

Durability test solutions

**Booth 11001** When it comes to durability testing, all engineers want to maximize test throughput and improve test lab operational efficiency. This is exactly why MTS Systems is bringing a range of emerging test solutions to Automotive Testing Expo 2018 in Novi, Michigan. First up is the new SWIFT Evo family of wheel force transducers, which was introduced to the market following MTS’s acquisition of PCB Piezotronics. Other components of this productivity-enhancing portfolio on display in Novi include the all-electric ePost Tire-coupled Road Simulator, new long-lasting and efficient DuraGlide actuators, and Echo Intelligent Lab connectivity solutions.

**New products!**
Show Highlights

- More than 310 dedicated automotive testing exhibitors
- More than 7,000 attendees expected!
- Free-to-attend drinks party - October 24, 5-6:30pm
- See more brand-new testing technologies than ever!

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