

What's New from the exhibitors

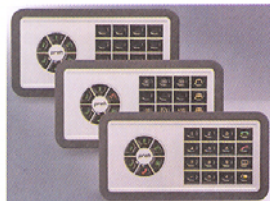
Maintenance-free bearings



American Engineering Group features maintenance-free, self-lubricating bearing solutions guaranteed to operate reliably and safely over a long term. The self-lubricating composite material consists of a steel backing and a sliding layer. The bearing materials can be used with any sliding surfaces (i.e., plain sliding surfaces or sliding layer with clean grooves or lubrication indentations). The material, which is characterized by high-wear resistance, is insensitive to impact stress and resistant to harsh operational and ambient conditions of mechanical and chemical environments. These bearings can be machined to complex geometrical shapes without the loss of self-lubricating properties. With a high static and dynamic load-bearing capacity, the bearings can be used at temperatures ranging from -260 to 280°C (-436 to 536°F). Applications include the automotive, tire, rail, hydro, and steel industries.

For more information, visit booth 643

Programmable button

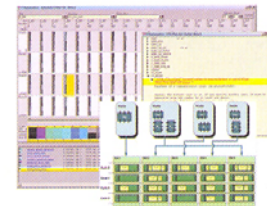


Preh's FPB (freely programmable button) system combines the advantages of ordinary

switches with multiple function assignments. The control system offers 16 control buttons and six main function buttons that together can control up to 96 different functions in the vehicle cockpit, reducing the number of necessary buttons. FPBs are based on projection technology that uses LEDs, a fiber dye, and an LCD for each button. To make operation simplistic, the button surfaces remain black until the car is started, at which point the main function buttons illuminate. When a function is selected, the control button array then displays the icons used to control or modify that particular function. Pressing another function button changes all the icons that appear on the control button array. Tailored choice of functions typically include cruise control, heating and cooling, seat adjustment, and audio and entertainment systems.

For more information, visit booth 1755

FlexRay design and scheduling



TTAutomotive's TTX-Plan FlexRay development tool is suited for automotive applications, providing developers with an efficient means to design FlexRay networks. It combines manual and automatic scheduling methods. It supports mixed manual and automatic scheduling as well as incremental scheduling, thus enabling developers to use spare areas in frames without changing the previously defined allocations. Developers view the generated schedule via the schedule viewer. The tool enables them to check the FlexRay communication specification for consistency

and validates user-specified input parameters against implicit requirements from the FlexRay specification and against the generated FlexRay schedule. It imports from and exports to FIBEX and also provides full support of the AUTOSAR packet data unit concept.

For more information, visit booth 1121

Flexible network access



The flexible bus interfaces CANcaseXL, CANboardXL, and CANboardXL PCIe from Vector support the SAE J1708/J1587 physical layer. They give developers of commercial vehicle networks access to the J1708 bus via the USB, PCI, or PCI Express port on a PC or notebook computer. Interchangeable boards enable quick and easy switching of the physical layer on the CANcaseXL and CANboardXL. A piggyback board is available for the bus physics of J1708 networks. Since the interfaces can accept up to two piggyback boards, the bus interface is also suited for use as a gateway. In particular, simultaneous use of a CAN piggy and a J1708 piggy turn the boards into a universal measurement instrument for use in the commercial vehicle field. When using the J1587 option with the CANoe/CANalyzer, the user can simulate and analyze J1708/J1587 systems.

For more information, visit booth 2101

Miniature accelerometer

Measurement Specialties' Model 53 miniature accelerometer for automotive safety testing



is suitable for extreme impact and road test applications where the sensor is likely to be destroyed. The adhesively mounted Model 53 fits into hard-to-reach places and is resistant to liquid intrusion, making it submersible in water for short periods of time. Second-generation silicon micro-electromechanical piezoresistive technology achieves dynamic range and stability. Model 53 can be powered from 2 to 10 V dc with signal outputs to 300 mV. Features include a low zero offset and $\pm 1\%$ non-linearity and shock resistance to ± 5000 g.

For more information, visit booth 407

Vision system



The ViSe from CSEM is a miniature vision sensor system that enables broad-based monitoring and interpretation of visual data in real time and in any light condition. The system allows OEMs to develop application-specific image analysis and response systems appropriate for the automotive market. With the ability to rapidly process data in real time and at low cost regardless of changing light conditions, the system has broad applicability for markets where

What's New from the exhibitors

Shock mount system



The dual-structure shock mount system from **American Engineering Group** allows varying static properties and provides dynamic shock and vibration mitigation over a wide load range for automotive and industrial applications. The cost-effective system provides both axial and radial damping and has two hollow spherical elements: top is load-bearing; bottom is vibration shock damping. According to the company, this design formulation concept guarantees higher axial-radial stiffness, vibration damping, and extended life. Finite-element results and prototype testing demonstrate optimal stiffness and damping properties for radial and axial deflection in service conditions.

For more information, visit booth 643

Diesel particulate filter

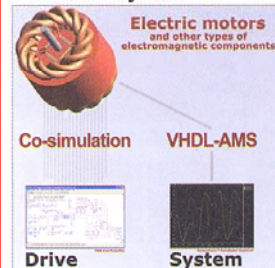


INSAS from **Inergy Automotive Systems** is a smart additive system that stores and distributes fuel-borne catalysts (FBC) for diesel particulate filters (DPF). Integrated into Inergy's fuel systems alongside the filler pipe, the FBC reservoir allows

access to the trap for quick and clean refill without special maintenance work. The nearness of the additive solution to the main fuel system increases its efficiency and ensures via a high-tech pump precise distribution of even highly concentrated additives in proportion to the filled-in diesel volume for dilution in the fuel tank. Features of INSAS include: simplified system architecture; reduced number of interfaces; overall increase of system robustness; accurate dosing of highly concentrated FBC; straightforward, fast, and clean refilling; and overall fuel and DPF system cost reductions.

For more information, visit booth 1938

Flexible multi-domain systems

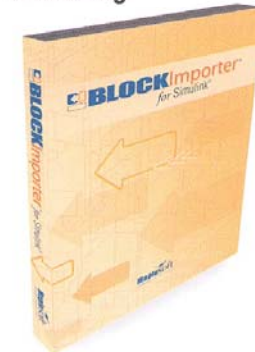


Infolytica offers several software solutions for designers of multi-domain systems, such as electrical, mechanical, thermal, and control components, that can integrate into existing workflows without difficulty. MagNet plugins for co-simulation are suitable for understanding the dynamic relationship between an electric motor and drive by simultaneously performing analysis and exchanging data between each component using an existing system/circuit simulator such as PSIM (participative simulation environment for integral manufacturing) or Simulink. System Model Generator simplifies integration and verification of mechatronic systems into one design environment; electro-mechanical components are

modeled in VHDL-AMS format for migration into any system simulator that supports IEEE standard 1076.1.

For more information, visit booth 2018

High-fidelity modeling



BlockImporter for Simulink from **Maplesoft** enables rapid validation and acceleration of Simulink models by importing Simulink diagrams into Maple and converting them to mathematical expressions for validation, algebraic-loop elimination, and reduction. Once the diagrams are converted into mathematical equations, they can be analyzed, optimized, and mathematically simplified, then converted back into Simulink using BlockBuilder for maximum performance while maintaining model fidelity.

For more information, visit booth 2508

Triaxial accelerometer

The compact Model 63 triaxial accelerometer from the Vibration Design Center of **Measurement Specialties** features a through-hole, screw-mountable design and is suitable for impact, sled, and on-vehicle automotive testing. The unit can be mounted in inaccessible areas and offers abrasion-resistant cables for tight turns. Use of the company's second-generation silicon micro-electromechanical piezoresistive



technology affords dynamic range and stability, with ranges to ± 2000 g and shock survivability to ± 5000 g. Units are shipped with a calibration certificate and a mounting screw.

For more information, visit booth 407

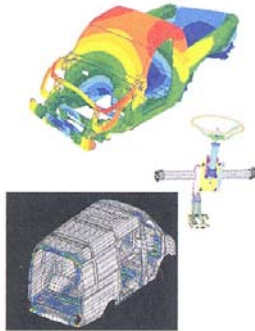
Electrodynamic shakers



The DSX Series of electrodynamic vibration test systems from **Thermotron** includes four electrodynamic shakers—2250 lb-ft (3050 N-m), 4000 lb-ft (5425 N-m), 6650 lb-ft (9015 N-m), and 8000 lb-ft (10,850 N-m). Features include improved acceleration, velocity, force, and shock performance and redesigned rugged, lightweight magnesium armatures. Suitable for various automotive applications including squeak and rattle testing, the DSX Series can perform sine, random, shock, resonant search and dwell, real data acquisition and playback, random-on-random, and sine-on-random capabilities. All models except the DSX-2250 feature a 16-in (406-mm) diameter armature and 1000 lb (453 kg) maximum payload support. An air-cooled DS-940 Series power amplifier drives the shaker to full output capability over the specified frequency range, and integrated

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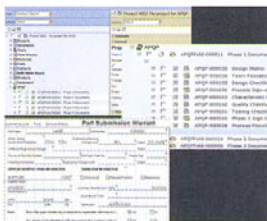
NVH analysis



American Engineering Group's product design and engineering solutions offer a focused NVH team with a core competency in solving design issues pertaining to automotive and aerospace with high-performance computing resources, such as a SGI-Al-tix, 16 GB RAM, 1500 GB HDD, MSC.Nastran 2005 R2 DMP system. The team consists of experienced and skilled individuals with backgrounds in various engineering disciplines who can help designers analyze NVH attributes before the first prototype is built. Thereby, engineers can understand potential problems and identify solutions early in the design process.

For more information, visit booth 643

Product planning solution



Advanced product quality planning (APQP) solutions from Dassault Systèmes provide an efficient way to maintain compliance with Automotive Industry Action Group standards by managing a company's APQP process and documents.

These ENOVIA solutions enable a company to drive quality improvements in product design and manufacturing, improve process efficiency and tracking, and reduce the administrative burden of the APQP-compliance process. The benefits of APQP solutions include: on-time and on-budget introduction of new vehicle programs; improved communication with cross-functional teams including suppliers; improved decision-making to work-in-progress tasks and related items such as parts across projects; enhanced product quality and customer satisfaction through timely change notifications; increased knowledge re-use through reviews of previously completed deliverables; and lower design-change costs as FMEAs can be completed faster and earlier in the development process.

For more information, visit booth 1767

Battery components

Degussa offers a product range specially for hybrid drive systems. The company manufactures customized solutions such as versatile battery performance components like separators and electrodes. For example, Degussa has developed a ceramic composite material called separtion, which increases the safety and longevity of lithium-ion batteries. A Honda Civic IMA with 40,000 km (24,855 mi) and outfitted with a lithium-ion battery made by Degussa will be on exhibit. The company is focusing on development programs that are making batteries more efficient, lightweight, and smaller. Lightweight construction, fuel savings, surface, and lighting technologies are the company's specialties.

For more information, visit Salon B

Projection lenses

Docter Optics showcases its new lenses for LED headlights and reflex-free lenses for front-



view camera systems. The company has designed a test configuration of projection lenses for use in LED headlamps. Additionally, Docter Optics has developed lenses specifically for front-view camera systems that deliver reflex-free images to permit improvement of the front-view systems. Several new lenses that feature the DOC3D brand will also be on display.

For more information, visit booth 1129

Carbonitriding process



ECM USA's low-pressure vacuum carbonitriding process allows parts to resist fatigue and respond to higher impact. Parts can be carbonitrided in the company's ICBP low-pressure vacuum carburizing and gas quenching systems, supplied in more than 125 systems worldwide. The carbonitriding process provides another alternative to designing new parts for higher torque applications.

For more information, visit booth 1941

Permeability testing

GTR Tec's gas, vapor, and liquid permeation analyzer directly tests sections of resin tubes, pipes, gaskets, and containers, eliminating the need to ex-



trapolate data from component material analysis. According to the company, high-sensitivity gas chromatography (TCD/FID) is used to separate permeate into individual components providing an accurate assessment of the sample's performance. Test modules can be customized to accommodate specific sample configurations; three or six samples can be simultaneously measured. The analyzer features three temperature controls: constant temperature, temperature cycle (oven), and temperature cycle (liquid). The permeation amount can be monitored over time and by liquid concentration. Contract testing service is available.

For more information, visit booth 612

Polishing pads



Healthylife Technology showcases four Qualityquick polishing foam pads. Featuring a beveled edge, the HT-001-9L permits buffing and polishing on hard-to-reach areas. Designed with loop backing for simple changing with the plate, the 229-mm (9-in) pad has custom-made holes in the foam that permit standard bolt-on method use. The HT-002-8L's cellular structure provides constant pres-

MECHANICAL PRODUCTS

Pressure-medium bushings

ETP Express bushings lock components to keyless shafts by pressurizing a medium inside the double-walled bushing sleeve and flange. The walls of the bushing expand and clamp components to shafts with a precision of less than 0.0008-in. runout. The pres-

sure is adjusted by means of a radially oriented Allen screw.

The bushings handle torques from 39 to 6,416 lb-ft and axial loads from 1,506 to 47,212 lb. English diameters from 0.625 to 2 in. and metric diameters from 15 to 80 mm are available. Standard



bushings are formed from hardened steel. Optional stainless-steel bushings come in metric sizes from 15 to 50 mm supporting torques from 34 to 1,400 lb-ft. Both materials withstand temperatures from -22 to +180°F.

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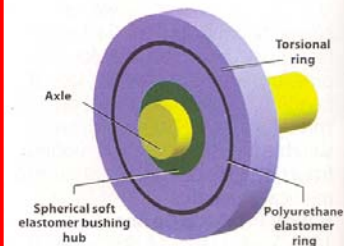
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Torsional-damper system

The Dual Torsional Damper System is designed to reduce torsional vibration of crankshaft systems in multicylinder vehicle engines. The dual-mode damper consists of a self-aligning spherical soft-viscous



bushing hub connected to a drive-shaft and an inertia ring connected to the hub by a polyurethane material layer. The dampers protect engine and transmissions components from excessive wear. Torque capacity of the torsional system is 9,000 lb-ft.

American Engineering Group, 934 Grant St., Suite #101, Akron, OH 44311, (330) 375-1975, engineering-group.com

Circle 629

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Crash-test dummy



The production version of the Hybrid-III 5th Female iDummy from **First Technology Safety Systems (FTSS)** meets both weight and center-of-gravity requirements of the standard H-III 5th Dummy. It has the capability for 64 data-acquisition channels through two **Diversified Technical Systems (DTS)** TDAS G5 modules. FTSS has improved the iDummy by implementing rugged NanoD connectors, which replace the strip Omnetics seen in World SID. The TDAS G5 modules and the T-4 accelerometers are accessible through a hinged spine box on the H-III 5th Dummy. By removing six bolts, access to the TDAS G5s is available therefore providing the flexibility of the modular DAS.

For more information, visit booth 429

Fender module

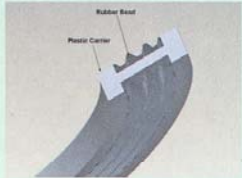


Plastic Omnium's fender module was designed for function integration, pedestrian safety, improved quality, weight reduction, and freedom in vehicle design. A body-shade painted thermoplastic fender is preassembled onto a polymer structure, and the module is delivered fully equipped and ready for vehicle mounting. Features include a headlamp mounted onto the fender cover with geometrical

positioning system; wheel housing and air guide; thermoplastic absorber for pedestrian protection; a headlamp cleaning system; windshield cleaning reservoir; auxiliary lighting including fog lamps; extra cooling devices; and an airbag sensor safety system. The module also offers improved gap and flush, a decrease in mass, improved access to the engine compartment, and removal of the classic seam between the fender and the bumper. Composite materials are used for interface parts to simplify the body in white.

For more information, visit booth 1572

Fuel-cell seal



The nanocomposite double-lip seal from **American Engineering Group (AEG)** is a nanotechnology-based over-molded seal for use in fuel cells. This ethylene propylene terpolymer-based elastomer formulation has a nano-blowing agent that helps to maintain

high, long-term sealing force retention in a fuel-cell thermal cycling operational environment with vibration loads. The technology demonstrates resistance to creep and fatigue with flexibility and clear film along with chemical, UV, and weather resistance. With a primary and a secondary sealing surface, this technology is adaptable to various planar fuel-cell designs, according to the company. AEG has technology-driven design tools to provide optimum sealing on the customer fuel-cell stack design using the following types of analysis: volume fill, compression tolerance stack-up, lateral tolerance stack-up, design failure mode and effects, and finite element using a 3-D CAD.

For more information, visit booth 643

Rearview camera



The rvAid panoramic rearview safety camera from **HCL Technologies** consists of three cameras that are embedded in an automobile's rear bumper. Developed by HCL's automotive practice, the rvAid solution captures real-time video footage with a 190° view as well as minimized blind spots. It is the newest addition to HCL's Advanced Passenger Experience (APEX) suite of engineering solutions targeted toward helping OEMs and Tier 1s differentiate their products through electronics enhancements for infotainment, driver assistance, safety, and performance. According to the company, when combined with HCL's concept to manufacture services, APEX can help companies reduce product development costs and time-to-market.

For more information, visit booth 635

Elastomer modifier



Solvay Solexis has designed an internal elastomer that reduces buzz, squeak, and rattle (BSR) problems inside automobiles. Fluorolink polymer modifiers and additives can be directly added to elastomer compounds, eliminating additional molding steps or slip coats. Fluorolink's chemistry, based on a

difunctional perfluoropolyether backbone, delivers controlled anti-stick properties and a low coefficient of friction to reduce wear and improve chemical resistance without surface blooming. Doors, trunks, hoods, lift-gate seals, weatherstripping, and sliding components perform better and without chronic sticking, according to the company, while BSR, stick, slip, and adhesion problems are reduced or eliminated and processability is improved.

For more information, visit booth 2407

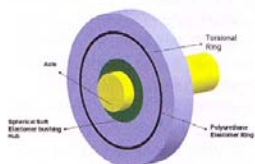
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What's New at

SAE 2008



AEI, continuing with its preview coverage from last month's issue, takes a detailed look at the products, services, and technologies to be displayed at the SAE 2008 World Congress scheduled for April 14-17 at Cobo Center in Detroit.



Torsional damper

American Engineering Group's dual-torsional damper system for automotive and industrial applications allows varying static properties and provides dynamic shock and vibration mitigation over a wide load range. This dual-structure system provides both axial and radial damping. It features two elastomer elements, with the top one functioning as a vibration damping element and the bottom spherical elastomer element as a noise and harness damping element. The company's dual-mode damper system includes: a viscous soft elastomer spherical hub that eliminates transmission noise; a polyurethane elastomer torsional damper that reduces torsional vibration, which contributes to gear NVH and wear in transmission; a self-aligning spherical hub that eliminates concentricity concerns; and torsional stiffness up to 900 lb-ft (1220 N-m) of torque capacity. This design is suitable for truck, off-highway vehicle, marine, agricultural, and military vehicle engine applications where higher-performance torsional damping

and vibration eliminating solutions are important. For more information, visit booth 615



Calibration services

Trilon provides calibration services on a wide range of environmental chambers, HVAC systems, chiller and process water systems, controllers, digital displays, and limit controllers featuring 24/7 services and support. ISO/IEC 17025-certified for calibration services, Trilon's EPA-certified technicians are available to examine how to lower a company's overall costs and equipment downtime.

For more information, visit booth 606



Fuel-cell fleet

More than 100 **Chevrolet Equinox** petroleum- and emissions-free fuel-cell electric vehicles have been sent to Los Angeles, D.C., and New York for market testing. Drivers will pro-

vide feedback on their experience and help define **GM's** future fuel-cell technology and marketing plans as part of its "Project Driveway" initiative. Various drivers will have access to the electric Equinox and the hydrogen fuel needed to make electricity on-board for three months and will be required to report their experiences. GM plans to take what it learns and apply it to the advancement of electric-drive vehicles such as the Chevy Volt with E-Flex (flexible electricity) system. The Equinox electric vehicle is a functional crossover powered by the company's fourth-generation fuel-cell propulsion system.

For more information, visit booth 1045

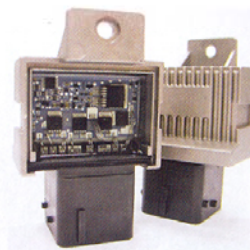


Turbo engine

In an effort to reduce fuel consumption and emissions while improving power and torque, **FEV** introduces the Spray Guided Turbo engine. The 1.8-L I4 has direct injection centrally located in the combustion chambers for a clean burn. Benefits include improved cold starts, reduced oil dilution, and enhanced use of flex fuels. The Spray Guided Turbo

engine delivers 160 kW (214 hp) of power and 320 N-m (236 lb-ft) torque and supports homogenous and lean-burn concepts while approaching diesel brake mean effective pressure levels, according to the company.

For more information, visit booth 1625



Diesel engine control module

The fast glow plug diesel engine control module from **Nagares** features a reverse battery protection function. The ECU is operated via microcontroller and several power stages (from four up to eight, suitable for diesel engines between four and eight cylinders). It is implemented with a custom intelligent power switch featuring short circuit to ground, over-current, and over-temperature protection. The module is controlled by pulse-width-modulated input signal and includes diagnostic output.

For more information, visit booth 1210

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