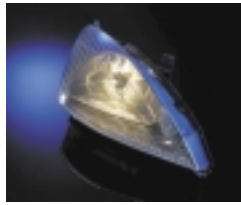
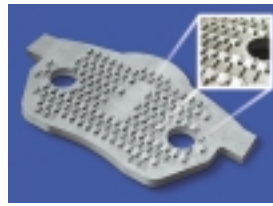


What's New at



SAE 2003

The SAE 2003 World Congress will provide industry suppliers the opportunity to showcase their products, services, and technologies to the global automotive community. *AEI* previews what some exhibiting companies plan to introduce or display at this year's event scheduled for March 3-6 at Cobo Center in Detroit.

Headlamp adhesive

Körarmelt 107 headlamp adhesive from **ADCO Products, Inc.** is a hot melt moisture cure product that provides a wide adhesion spectrum, high strength values, and low application temperatures. The material offers rapid green strength development that enables customers to remove work-in-process capital, free up plant space, and deliver a more reliable pressure-tested product to the market. Available in cartridges, pails, or drums, the adhesive is easily applied using a variety of processing equipment.



For more information, visit Booth 2341 or circle 1

Spot-weld testing

Agfa NDT provides a combination of instrumentation, application-based software, and transducer technology to perform ultrasonic testing of spot welds on coated and uncoated steel sheet-metal products. Automatic evaluation and classification of spot welds is accomplished using **Krautkrämer's** laptop computer-based USLT 2000 ultrasonic flaw detector with the application-based UltraLOG software and specially designed water column transducers. The program stores and manages test results and evaluates spot-weld echo displays, including weld classifications.

For more information, visit Booth 662 or circle 2

Shed simulator

The SHED Simulator from **Analytical Process Systems, Inc.** is a computer-controlled device that uses a mass flow controller to inject a known quantity of sample gas into a SHED. The timed injections may be performed as a single shot or as multiple shots on an hourly



basis for a 24-, 48-, or 72-hour diurnal test. The injections may vary in length from hour to hour and may also vary in rate with each injection. The actual injection will be within 0.5% of the intended injection on a mass flow basis. The system is housed in a suitcase type enclosure for portability. Features include a 6.4-in TFT LCD display, resistive touchscreen, two serial ports, ECA embedded CPU card, DX4-100MHz CPU with 32 MB RAM, Windows 98 operating system, 4-GB hard drive, Ethernet port, and parallel printer port.

For more information, visit Booth 3001 or circle 3

Multi-technology simulation

Ansoft Corp.'s SIMPLORER 6.0 simulation software for the digital prototyping of multi-technology systems is used by engineers at **GM** to design power electronics and drive systems for electric and hybrid-electric vehicles. The software is built on a powerful co-simulation technology, which enables engineers to model systems comprised of analog, digital, mixed-signal electronics, mechanics, hydraulics, controls, and other technologies accurately without having to choose between proprietary modeling languages. The package allows all of these technologies to operate simultaneously, delivering expanded power and flexibility for virtually simulating complex systems. VHDL-AMS is the IEEE standard modeling language for analog mixed-signal design. The software allows the language to be mixed freely with its other modeling languages (circuits, state machines, and block diagrams), creating a flexible design environment. Other features include a hydraulics library with models for powertrain and other hydraulic applications, and an automotive library with models for extensive electrical system analysis including battery and fuel-cell models.



For more information, visit Booth 2121 or circle 4

Pedestrian impact testing

Aries Ingenieria Y Sistemas, S.A.'s P-1N is a flexible system for performing pedestrian impact testing in accordance with test protocols by EEVC WG17 and EuroNCAP. The impact form is launched at free flight. The complete pre-test sequence considers the type of impact form, impact form mass, launch angle, impact angle, local angle of impact location, impact speed, and free flight distance. The system can launch the impact forms at angles between -5 and $+90^\circ$, and between 300 and 2300 mm (12 and 90 in) in the vertical position and ± 1000 mm (39 in) in the x- and y-axis directions. When launching the headforms, care is taken to the target location geometric and underlying structure to determine the point of first impact.

For more information, visit Booth 436 or circle 5



Weathering testing

Atlas Weathering Services Group (AWSG), a division of Atlas Material Testing Technology LLC, and **Intertek Testing Services HK Ltd.**, Equipment Services Div. (ITS-EQT) have entered into an agreement with **Guangzhou Electric Apparatus Research Institute (GEARI)** to be the sole service provider of AWSG-recognized methods of outdoor weathering testing and laboratory accelerated testing services in China. The services will be provided under the name GEARI Weather Testing Center (GWTC). AWSG has trained and authorized GWTC to perform outdoor weathering, laboratory accelerated weathering using xenon and fluorescent devices, and evaluation services as specified in ASTM, ISO, and SAE standards. GWTC operates two atmospheric exposure sites in southern China—a subtropical site in Guangzhou and a tropical site in Hainan.

For more information, visit Booth 217 or circle 6



Exhaust measurement

AVL North America's DVE-150 direct vehicle exhaust measurement device completes an AVL-developed system for the collection and analysis of exhaust emissions, particularly in ultra-low- and super ultra-low-emitting vehicles. Along with the AVL BMD-150 Bag Mini Diluter and the GEM-150 control software, the unit provides an accurate analysis of the mass flow rate of exhaust emissions. This compact device can be seamlessly integrated into the BMD system, in a footprint 70-80% smaller than a traditional CVS (constant volume sampler) system. The U.S. EPA and the CARB have recommended the use of BMD sampling systems for future low-emissions measurements.

For more information, visit Booth 701 or circle 7



Sound/vibration analyzer

Brüel & Kjær's Pulse Lite is a low-cost, entry-level sound and vibration analyzer that comes in three different models: two-channel basic FFT analysis, four-channel basic FFT analysis,

and two-channel CPB analysis. The Basic FFT Analysis packages can perform FFT analysis (up to 6400 lines), impact testing, correlation analysis, and waterfall capability for transient analysis. The Basic CPB Analysis package measures true, real-time 1/1 or 1/3 octave bands (to all ANSI, IEC, and DIN standards), calculates overall Zwicker Loudness, and also includes a waterfall capability. Both FFT and CPB packages include the Spectra View capability, which allows the user to measure the overall level vs. time and in real-time show the spectrum (either FFT or CPB) at any instance in time. Users can upgrade easily from Pulse Lite to Pulse Pro.

For more information, visit Booth 433 or circle 8



Wiring analyzer

CableTest Systems Inc.'s Horizon-1500 wiring analyzer allows automotive manufacturers to perform in-process and final testing of electrical wiring harnesses as part of their manufacturing processes. The unit performs both functional and continuity tests of automotive wiring assemblies. It verifies the correct wiring of all the gauges, radios, engine sensors, and lights.

For more information, visit Booth 1569 or circle 9



Silicon nitride

According to **Ceradyne**, silicon nitride has a unique set of tribological and physical properties—low mass combined with high strength and contact fatigue resistance—that make it a candidate for solving galling and wear problems in the valvetrain and fuel-delivery systems of light- and heavy-duty diesel engines. Ceradyne is in high-volume production of silicon-nitride cam rollers for heavy-duty diesel engines for intake and exhaust valves and unit fuel injectors. Also in high-volume production are rollers or sliding contact parts that are subjected to high stress and low lubrication in common-rail fuel pumps for light- and heavy-duty diesel engines.

For more information, visit Booth 1368 or circle 10



Climate chamber

The Micro Climate test chamber from **Cincinnati Sub-Zero** is a stackable 1.2-ft³ (34-L) benchtop chamber used for testing small components and products. Each chamber simulates a range of temperature conditions from -73 to $+190^\circ\text{C}$ (-99 to $+374^\circ\text{F}$). Standard features consist of a programmable controller, RS-232 computer interface, and a 2-in access port. Benefits include a small footprint for floor space savings, easy installation with no special electrical connections required, and ability to run on a standard 115-V and 15-A circuit.

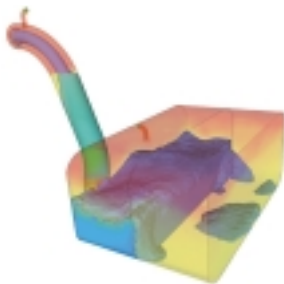
For more information, visit Booth 811 or circle 11



CFD software

CFX-5.5.1 from **Computational Fluid Dynamics Software and Services** provides significant new capabilities. The addition of stage and transient rotor/stator models for multiple frames of reference enables the investigation of various rotating machinery component interactions. This ranges from the efficient analysis of multi-stage gas compressors using one blade row per component with the stage interface, to full dynamic machines simulated using the transient rotor/stator option. In multiphase, the number of phases in an analysis is unlimited, so that fluidized beds and particle separators with multiple particle sizes can be simulated. A surface tension model is also available for free surface flow calculations. This capability is expanded to include a bulk energy equation, low-speed variable density, fluid-specific additional variables, and fluid-specific multi-component fluids. These extend the applicability of free surface models to include mold filling and contaminant dispersion.

For more information, visit Booth 453 or circle 12



Telemetry solutions

Datatel specializes in the application of telemetry to rotating components. Modern electronic methods make it cost effective to use telemetry in locations that previously would have been considered both prohibitively expensive and too restricted for access. These include torque, temperature, and vibration measurement in air-conditioning compressors, torque in cooling fans and clutch flexplates, and tooth stress in gearwheels. The firm adopts a turnkey approach to all projects, and it has the capability to design and manufacture everything needed, both electronic and mechanical, to provide a complete telemetry solution to meet test requirements.

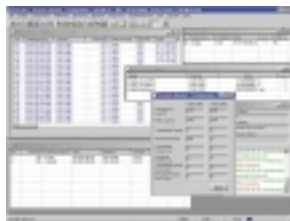
For more information, visit Booth 559 or circle 13



Analyzer tool

Dearborn Group Inc.'s Hercules is a high-performance analyzer tool that supports CAN and LIN protocols, in addition to supporting single-wire CAN (J2411) and CAN (ISO 11898). The latest version of the software application tool features graphical display of signals, ISO 15765 full support, decoding of CAN ID (user specified), CAN remote frame support, and improved database structure. Using this 32-bit Windows-based application in conjunction with the firm's Gryphon hardware interface, users can monitor, receive, filter, transmit, and edit CAN frames over a variety of communication links.

For more information, visit Booth 1747 or circle 14



Air/fuel ratio measurement

ECM's AFM1000 series of air/fuel ratio measurement modules is designed to support in-vehicle powertrain calibration. Key

features include wide AFR measurement range, fast response, linear analog output, SMB bus ports, and easy air calibration. All modules use wide-range air/fuel ratio exhaust sensors, are very compact, and offer a variety of cabling options.

For more information, visit Booth 833 or circle 15



Impact test analysis

The FalCon eXtra Mov3D analysis software from **FalCon** performs 3-D impact test analysis using stereovision. The software supports the "5-rings panel" according to ISO/SAE; additional "coded points" allow the automatic identification of markers. After the user takes several images with different tilt and rotation angles as input data for calibration, the software measures the image coordinates of all points automatically and calculates the modeled camera parameters. A CamFolder module provides access to all calibrated camera/lens combinations in a Windows tree view. The system has been proven accurate and fit for practical use in an experiment conducted by German automotive companies in which the length of a moving pendulum could be measured with a standard deviation less than 0.4 mm (0.016 in).

For more information, visit Booth 325 or circle 16

Brake pad attachment

Feintool's FeinGrip brake pad attachment system meets the highest OEM specs for strength and dimensional tolerances, as well as aftermarket needs for affordability and quick manufacture. The system's steel brake plate features an array of integral, precisely angled teeth that lock pad to plate when friction material is molded and cured around the teeth. The system provides inside/outside ear-to-ear tolerance of ± 0.03 mm (0.001 in), flatness of 0.02/25 mm (0.0008/1 in), edge perpendicularity of 0.05 mm (0.002 in), and consistent tooth height. It is available in OEM and aftermarket versions.

For more information, visit Booth 643 or circle 17



Analog/digital pressure transducer

GE Druck's PDCR 3500 high-accuracy analog and digital output pressure transducer provides digitally enhanced, high-accuracy output coupled with high analog bandwidth. The transducer is a 1-in (25-mm) diameter fluid-isolated analog output device similar to the PMP 4000 Series. It achieves a total accuracy performance of better than $\pm 0.1\%$ full scale over -65 to $+250^\circ\text{F}$ (-54 to $+121^\circ\text{C}$) with the support of internal digital electronics, which correct for the repeatable errors without affecting the analog bandwidth. Due to internal microprocessor electronics, the unit can also give a digital pressure output in engineering units via RS485. The RS485 is also used for re-calibration and housekeeping activities such as serial number retrieval and diagnostics.

For more information, visit Booth 636 or circle 18



Powertrain study

"The Future of Heavy Duty Powertrains," a study by the **Global Automotive Group**—a unit of **Global Insight** (formerly known as **DRI•WEFA**)—is a follow-up to the study of light-duty on-highway powertrain technologies, "Future Powertrain Technologies, the Next Generation, 2008 to 2020." This study of on- and off-highway engines from 100 to 750 hp (75 to 560 kW) will assess the prospects for the diesel and its competitors in mobile applications. It will take a look at the factors that are forcing the diesel to evolve, what powertrain performance objectives can be met within the 2020 time frame, the likely future viability of alternative sources of power as they attempt to gain market share, and the likelihood that alternative means of transport will be able to compete with on-highway trucks for the movement of most of the goods needed for economic vitality.

For more information, visit Booth 1574 or circle 19

Weld stud mount

HellermannTyton's weld stud mount from is a fastener that enhances productivity by helping to streamline production. The mount, when used with a cable tie, secures wire harnesses and hoses to a frame. Eliminating the need for different sizes of p-clamps, the weld stud mount also eliminates the need for additional nuts, bolts, and washers as well as the process of drilling holes through metal frames. Manufactured from heat-stabilized, impact-modified nylon 6/6, the mount will not rust or abrade hoses and harnesses. It is applied with innovative welding equipment that welds through paint, saving labor time as paint does not have to be removed from the welding spot before installation.

For more information, visit Booth 1842 or circle 20



Data acquisition

The Win600e high-speed streaming data-acquisition system from **Hi-Techniques, Inc.** has features such as streaming to disk, remote monitoring of live data, remote control of the data-acquisition system, and multi-system control. The system combines high-speed, high-resolution digitizing of analog signals with deep buffering memories and complete processing capabilities. Along with the keyboard and mouse, the built-in touch display allows easy control of the system. Sample rates from dc to 20 MSps are combined with per-channel memories of up to 128 Megapoints per channel. Complete data analysis, macro-programming capabilities, and report generation are standard on each system.

For more information, visit Booth 2328 or circle 21



Refrigerant circuit

The Mobile R744 (CO₂) refrigerant circuit from **Imtech Deutschland's** Environmental Simulation/Test Bed Engineering Division is equipped with safety measures for high-pressure systems. The compact system is built as a mobile, low-noise unit for comfortable operation in laboratory



environments. A separate stand-alone brine supply module supplies the gas cooler. The following control loops are integrated: R744 (CO₂) compressor speed control, gas cooler outlet temperature, suction temperature, suction pressure, and expansion valve intake pressure.

For more information, visit Booth 537 or circle 22

Exhaust testing

Instron Structural Testing's (IST) exhaust testing system provides accurate simulation of on-road conditions. The system provides better correlation to field failures and more flexibility for input variables than systems based on rigid shaking tables. For the test, an actual engine (or a simulated engine block and exhaust header) is located on a six-DOF vibration table. The exhaust system is mounted on an independently moving clamping plate via open portals for easy installation from the side. Hydraulic actuators apply the loads to the exhaust system. Hot exhaust gas flow can be included by using an engine and dynamometer or a blower. Test rigs adapt to a range of exhaust systems for cars and trucks. Additional modules include IST's Labtronic digital electronic controller and its Windows-based RS-LabSite software.

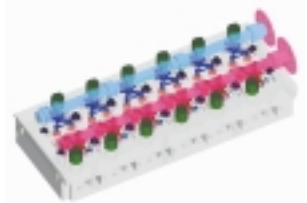
For more information, visit Booth 233 or circle 23



Variable valve actuation

Version 2.2 variable valve actuation from **Jacobs Vehicle Systems** is an integrated design using parts contained in the cylinder head instead of a separate housing. By electro-hydraulically using lost motion to modify valve lift, timing, and rate of opening and/or closing, engines will realize many benefits including increased fuel economy, lower emissions, and higher performance. Just as fuel injection systems have evolved from mechanical to electronic controls, engine valvetrains will follow this trend over the next 5 to 10 years, and the company is ready to provide innovative solutions.

For more information, visit Booth 1338 or circle 24



Exhaust flowmeter

The 2-in (51-mm) VE502 and 3-in (76-mm) VE503 series exhaust flowmeters from **J-TEC Associates** measure volumetric exhaust flow for emissions testing. The systems join the VF563 in-line flowmeter and the VB563 blow-by system that are well established in the engine test industry for blow-by measurement. Features include minimal pressure drop with little effect on engine performance during operation, all-electronic operation with no moving parts, high accuracy, drift-free performance, good repeatability, easy maintenance and cleaning, high durability, a 40:1 turndown ratio, and ability to measure low flows down to 0.14 ft³/min (3.96 L/min).

For more information, visit Booth 1248 or circle 25



Low-temperature cleaning

The low-temperature Recover cleaning process from **Kolene Corp.** operates in the 250 to 300°F (120 to 150°C) temperature range for enhanced cleaning and removal on a broad range of soils and coatings. Processes are formulated to remove cured paints, powders, e-coats, baked-on oils and greases, and coked carbon deposits. Metals that can be safely processed include aluminum, brass, zinc, iron, and steel (galvanized and aluminized). When processed within the operating temperatures, the immersion times range from 30 to 90 min. Highly polished surfaces are virtually unaffected, requiring little or no finessing or repolishing.

For more information, visit Booth 1167 or circle 26

Shaker system

The LDS V9-105 shaker system from **Ling Dynamic Systems Ltd.** is designed to test heavy loads at high stress levels over long continuous periods. For maximum reliability, engineers have developed a design that combines proven coil technology with advanced carbon-fiber armature construction and a new concept in shaker structure. The shaker has a maximum sine force rating of 105 kN (23,600 lb). Velocity is 3.2 m/s (10.5 ft/s), and displacement capabilities for shock testing can reach 3 in (75 mm pk-pk). The use of composite materials in the armature and the field coil design means that the shaker can be more compact for a given force rating. In place of the usual shaker design—one flux gap with two field coils running in opposition—the V9 has two magnetic gaps driven by one field coil. Two additional coils near the air gap concentrate the magnetic field within the shaker, ensuring a low stray field. The two-coil design eliminates rotational force, so the shaker does not try to rotate.

For more information, visit Booth 253 or circle 27



LEDs

The Luxeon LED from **Lumileds Lighting** is available in all colors and in three different radiation patterns. It is claimed to offer the highest flux per LED family in the world. It is a reliable, life-of-vehicle light source that is suitable for any automotive lighting application, including forward lighting. The firm's Luxeon V LED offers up to 120 lumens per LED and up to 60 times the output of competitive devices. A white Luxeon 5-W produces 120 lumens; green, cyan, blue, and royal blue Luxeon 5-W packages deliver luminous output ranging from 30 lumens for blue to 120 lumens for green and cyan.

For more information, visit Booth 2268 or circle 28



Online information

MarkLines, an online information service provider, provides a service built around the ability to gather detailed resources on the automotive industry and the capacity for both automotive suppliers and manufacturers to come together, communicate, and conduct business. Three service plans are offered. The Suppliers Support System combines both information

gathering and marketing tools. Under the plan, members have access to a growing Supplier Database presently consisting of over 16,000 companies; at least eight Auto Industry Analysis Reports released every month; and the Global Top 500 Supplier Reports. The Automotive Parts Database Plan is geared for companies seeking information, statistics, and parts data. It does not offer the opportunity to market or seek products of other companies, but it provides current data and trends in the automotive industry. The e-Presentation Plan spotlights marketing tools to disseminate suppliers' product information to buyers.

For more information, visit Booth 2354 or circle 29

Calibration board

Messring's Type NA33-86-00 calibration board provides static and dynamic calibration of any data-acquisition system. The calibration procedure is freely programmable and fully automatic. It runs with CrashSoft 3 under Windows NT. Eight analog channels as well as 16 digital channels can be calibrated simultaneously. The system generates arbitrary signal waveforms including sine, triangle, and pulse with 0 to 10 kHz and 0 to ± 5 V or 0 to ± 0.05 V at 16-bit resolution. It is a plug-in board for the NA33 data-acquisition system.

For more information, visit Booth 445 or circle 30



Corrosion protective coating

GEOMET from **Metal Coatings International** is a chromium-free

corrosion protective coating that contains no hexavalent or trivalent chromium, nor any other heavy metals that are considered hazardous to health. The coating is VOC-compliant, which means

no harmful solvents are used that could escape into the air. It can be applied by dip spin, spray, or dip drain methods and is used on parts ranging from fasteners to disc brake rotors. It provides good corrosion prevention, consistent lubricity, solvent resistance, and bimetallic compatibility; in addition, the process is hydrogen-embrittlement-free.

For more information, visit Booth 1169 or circle 31



Analysis toolkit

PowerPlay Version 5 from **Microsys Technologies** is a data analysis toolkit used in analyzing airbag deployments and high-g sled data. In addition to the standard Microsys TST test format, the following file types may be opened: TIF/TIFF, BYR, BMP, JPG, GIF, and AVI. The displayed image may be sharpened or softened to improve its appearance. Other features include an enhanced linear measurement function, AVI creation flexibility, and greater zoom capability.

For more information, visit Booth 340 or circle 32



Battery monitoring

Midtronics' inGEN EV is an engineering evaluation unit of the inGEN platform. It provides vehicle and electrical system designers an ability to view and assess the advanced features of inGEN technology on any 14-V lead-acid automotive battery. These features include continuous voltage, current, temperature, and conductance measurements that enable real-time state-of-charge and state-of-health diagnostics to provide advanced warning of battery problems. The diagnostics can also enable deliverable energy, charge acceptance, and state-of-life calculations for advanced electrical and charging systems in 14-, 24-, 42-V, or EV/HEV applications. InGEN technology can also be used to optimize the charging system and prioritize electric loads, providing improvements in fuel economy, customer satisfaction, and system costs.

For more information, visit Booth 2115 or circle 33



Metal-stamping assemblies

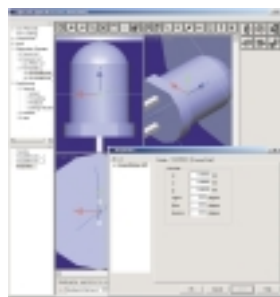
Precision metal stampings and assemblies from **Olson International Ltd.** include chassis, cases and covers for infotainment systems, brackets and inflator housings for airbags, and small to midsize stamped and assembled parts for electronics and appliance OEMs. Presses range from 65 to 400 ton (59 to 363 t), and secondary assembly operations include welding, tapping, staking, and finishing. Recent investments are new coordinate measuring machines; implementation of innovative in-die tapping, welding, and stud insertion processes designed to improve efficiency and lower costs; expansion of use of the latest sensor technology to increase tool life and improve die protection; and improvement of the SyteLine APS planning and scheduling system to allow synchronization of materials and resources to customer orders while minimizing operational overhead.

For more information, visit Booth 2714 or circle 34



Illumination design

LightTools 4.0 3-D illumination design software from **Optical Research Associates** contains a new user interface designed to make both novices and advanced users more productive and efficient. The Windows-based interface includes functionality such as navigation windows that allow users to locate and edit information quickly, right-click menus that display context-sensitive menu choices, and context-sensitive help for toolbars, dialog boxes, and command buttons. Additionally, all dialog boxes are redesigned to make them easier to read and use. Options are reorganized to help simplify and organize steps for accomplishing complex design tasks. Other improvements to simplify design tasks in-



clude direct spreadsheet-style access to analysis results, source apodization, and spline data. Technical improvements include faster converging illumination simulations using a new ray generation scheme and a new module for CATIA data exchange.

For more information, visit Booth 2314 or circle 35

Engine design and optimization

Automated Design with Virtual Engines from **Optimum Power Technology** takes the established engine simulation technology of Virtual Engines and combines it with advanced optimization methods and parallel processing to create an expert system for engine design. OEMs, Tier 1s, and motorsports teams using the product will achieve better engine designs faster and increase their competitive advantage, according to the firm. The process begins as a base engine model is created. Then, an engineer selects which parts of the engine can be changed in the search for improved performance. Running simulations in parallel, Automated Design creates new engines and compares the solutions. It uses built-in intelligence to assess which direction to move within the design space to create a better engine. Many engines can be evaluated automatically using the system.

For more information, visit Booth 2432 or circle 36

Condenser microphones

Series 130 microphones are prepolarized, array, and precision condenser microphones from the Vibration



Div. of **PCB Piezotronics**. Prepolarized pressure and free-field units are available in both 0.25 in (6 mm) and 0.5 in (13 mm) sizes. Prepolarized random incidence models are available in a 0.5 in (13 mm) size. The firm's prepolarized microphones operate from ICP sensor power and are designed for applications including sound power testing, engine noise, outdoor noise monitoring, and acoustic chamber testing. Series 130 array microphones will function with any ICP sensor power supply for large-channel-count sound pressure measurements. A system can be assembled using the 130 Series microphones with a multi-channel, simultaneous sound pressure data-acquisition system consisting of 16 or more channels. The external free-field microphones have low sensitivity to severe humidity and temperature conditions.

For more information, visit Booth 901 or circle 37

Near-net-shape components

Piper Impact's design and marketing capabilities enable it to provide strong, lightweight, near-net-shape critical components. The product offering includes airbag canisters, shock housings, driveline yokes, filter housings, steering yokes, A/C canisters and caps, ordnance cartridge cases and flare cases, and high-pressure cylinders for various markets and industries. Custom solutions are available in addition to the standard product offering.

For more information, visit Booth 2512 or circle 38



CAN devices

CAN products from **RM Michaelides Software & Elektronik GmbH** include CANview Bluetooth, CANview Bluetooth TCP/IP, CANview USB, and CANview GPRS devices. CANview Bluetooth allows users to exchange CAN data between devices with a Bluetooth interface via the serial port profile. A CANview Bluetooth TCP/IP version provides access to the Web. The firm's CANview USB has a USB interface that allows data to be exchanged quickly with a PC. Data can be transmitted unfiltered to a PC from CAN bus systems with baud rates of 1 Mbit and a high bus load. The CANview GPRS device allows users to transfer data in packets so the user is only billed for the amount of data actually transmitted. It supports downstream transfer rates of up to 57.6 kbaud. An integrated TCP/IP protocol stack enables communication with the connected CAN bus system via Internet services and protocols such as e-mail, FTP, and basic TCP/IP client/server.

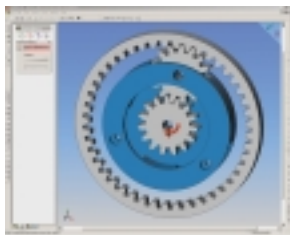
For more information, visit Booth 1712 or circle 39



3-D CAD software

SolidWorks 2003 is the latest version of **SolidWorks Corp.**'s 3-D CAD software that streamlines product design. It features hundreds of new enhancements that will help users analyze their design's structural integrity, easily communicate design information to others, locate downloadable parts via online supplier catalogs, and accelerate the design process with new modeling features. Users have the flexibility to import and work with various file formats including AutoCAD and CADKEY. This capability helps users embrace 3-D and integrate third-party designs into their CAD files, so they can finish designs quickly. The software lets users simulate realistic motion so they can easily check how gears in an assembly, for example, will function in actual operation and address any design flaws prior to manufacturing.

For more information, visit Booth 2201 or circle 40



Wheel torque transducer

The Model WFT-6 wireless wheel torque transducer from **Soltec Corp.** measures six components simultaneously with real-time data output. Designed for public and off-road automotive testing, it operates without slip rings and protruding portions, allowing the wheel to look and function normally. The transducer uses a thin, lightweight sensor mounted directly onto the wheel rim along with an angle detector to acquire data for three orthogonal axis forces and three moment forces around each axis. Data sampled at rates up to 1 kHz are transferred via a wireless PCM telemetry transmitter to an on-vehicle data-acquisition processor that performs functions including editing data, reproducing data, histogram analysis, arithmetic



calculations, and statistical processing. A large-capacity memory allows the system to collect data over a long period of time (2 hours/wheel).

For more information, visit Booth 343 or circle 41

Tactile pressure measurement

The I-Scan system from **Tekscan** uses thin-film array sensors for pressure distribution measurement. The system includes software, a data-acquisition handle that performs analog to digital conversion, and an interface that brings the data into the computer. The array sensors are available in various sizes and shapes for different applications, and have pressure ranges from 5 psi (34 kPa) to 30,000 psi (207 MPa). Automotive applications include wiper blades, brakes, airbags, tire beads, tire footprints, gaskets, fuel cells, seating, crash studies, catalytic converters, and door seals. I-Scan System for Brakes uses sensors that are inserted between the friction pad and brake rotor or clutch plate to indicate the evolution of pressure distribution between these mating surfaces as they come together. I-Scan System for Fuel Cells allows users to ensure good contact between adjacent thin fuel-cell plates.

For more information, visit Booth 741 or circle 42



Metal extrusion

Textron Fastening Systems' metal extrusion system combines stamping, deep drawing, and cold forming to produce complex, fully integrated, and durable automotive components. The system integrates all parts into one engineered system that increases joint strength and process efficiency. Fasteners become part of a single component, eliminating the need for weld nuts, stamp-in nuts, and self-piercing nuts. The system more than doubles the thickness of walls of base metals, allowing applications with high stress loads such as suspension systems, drivetrains, and seatbelt anchors. No heat treatments are required to strengthen the metal. A 2000-ton stamping press is equipped with computerized controls that adjust instantly to 100 different component designs. One component is complete with each stroke of the machine, which has a capacity of five million parts per year.

For more information, visit Booth 2938 or circle 43



Electronic module testing

The **Thermotron** Automotive Functional and Parametric Test System allows for cost-effective testing of electronic modules. It is designed as a generic tester with a product-specific interface test adapter, which permits quick changeover from testing one product to another. Applications include hardware and software troubleshooting and debugging. Commercial, off-the-shelf instrumentation using an open hardware platform provides reliability to satisfy the cycle rates and monitoring requirements of single-head testing applications. Operation is possible in either manual or automatic modes. Manual mode allows the user to configure input parameters to the product and to observe the product's outputs. Input

signals can then be changed interactively, while measuring product outputs and stepping through a test sequence. Automatic mode allows simple test selection and appropriate pass/fail status indications.

For more information, visit Booth 1445 or circle 44

Pressure transducer

Viatran Corp.'s Model 148/248/348 is a durable, high-accuracy, pressure spike resistant gauge and absolute pressure transducer in a 1.5-in (38-mm) diameter stainless steel machined housing with a NEMA 4X rating. Features include accuracy greater than 0.15%; 3X overpressure rating; vibration and shock resistant; all-welded design; watertight/submersible design; pressure ranges from 3 to 15,000 psi (0.02 to 103 MPa); and 4 to 20 mA, 0-5 V, 2 mV/V output.

For more information, visit Booth 864 or circle 45



Shaker vibration control

The 8500 shaker vibration control system from **Vibration Research Corp.** has an Ethernet interface, which eliminates the need for installation of boards on the PC. Another advantage of this feature is that it is not necessary to locate the computer close to the 8500 signal processing unit. This eliminates many 50/60-Hz noise problems and removes long accelerometer cable runs between the control room and the shaker amplifier. The system has 24-bit A/D and D/A, which allows separation of input signals 120 dB apart. It also eliminates the need for pre-scale circuits on the inputs and outputs and allows 90+ dB of dynamic range on the China dynamic range random closed-loop test. The device also features the TEDS IEEE standard, and it controls sine and random tests to 20,000 Hz. Random control of 13,000 lines provides fine frequency control.

For more information, visit Booth 659 or circle 46



High-speed imaging

The Phantom v7.0 from **Vision Research, Inc.** is built upon the firm's proven SR-CMOS high-speed sensor technology. It offers a full frame resolution of 800 x 600 pixels with image quality that is comparable with pin-registered 16- and 35-mm film cameras. High recording speeds make it the first true digital replacement option for 16-mm rotating prism film cameras. Recording rate is 4800 pps at full resolution, and over 10,000 pps when windowed to 512 x 384 pixels. The unit is small and rugged; it is equally suited to onboard vehicle crash tests, fixed camera positions, or troubleshooting manufacturing problems on the production floor. A real-time streaming output option enables transfer of image data to an external storage system for extended recording times. Software provides camera control and



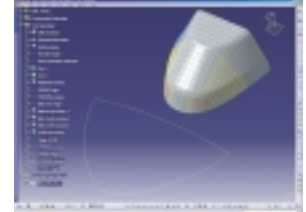
playback functions, on-site image analysis, and compatibility with previous camera models.

For more information, visit Booth 523 or circle 47

Composite part development

VISTAGY, Inc.'s FiberSIM 4.0 software, which creates a specialized CAD-integrated environment for designing and manufacturing composite parts, is available for the CATIA V5 platform. FiberSIM tools automate the design process, assess the producibility of a composite part, and generate manufacturing information including documentation, flat patterns, and data to interface with laser projectors, automated cutters, and fiber placement machines. It allows users to drive all aspects of preliminary design, analysis, detailed design, and manufacturing from within a single CAD master model, providing a complete digital product definition of a composite part. The software incorporates XML tools to share composite data with other applications throughout the enterprise, such as software for procurement, quality assurance, and manufacturing. This latest release has a new user interface with the look and feel of **Microsoft Windows** on PCs and **Motif** on UNIX systems.

For more information, visit Booth 2218 or circle 48



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Revolutionary intake port design improves volumetric efficiency across an engines rpm range. With this design more fuel efficient and/or powerful engines are possible.

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US patent 6,371,068 US patent application 10/153,212