

### Tire monitoring

**WABCO's** wireless Integrated Vehicle Tire Pressure Monitoring (IVTM) system was specifically designed for commercial vehicles to continuously monitor tire pressure and detect exceeded thresholds for under- or over-inflation as well as slow leaks. By helping maintain tire pressure at the optimum level, the IVTM system reduces both the need for frequent manual inspections and the risk of tire-related breakdowns. As many as 12 tires can be monitored per system. The IVTM consists of external wheel-fitted modules that are connected to the tire valves with pneumatic hoses. The modules regularly measure and transmit tire inflation pressure data via radio frequency to an electronic control unit, which in turn transmits them to an in-cabin dashboard-mounted display monitor where visual and acoustic signals warn drivers of abnormally low tire pressure, slow leaks, and punctures.

For more information, circle 21



### Ultrasonic flowmeter

Innova-Sonic flowmeters from **Sierra Instruments** are transit-time instruments with digital signal processing. The Bluetooth wireless PDA interface offers portability; available fixed display readout is offered with clamp-on or insertion transducers. Designed for clean liquid applications, Innova-Sonic flowmeters are tolerant of liquids with small amounts of air bubbles or suspended solids common in industrial environments. Features include low power consumption, a self-contained 4-20 mA current loop signal output for instantaneous flow, an easy-to-read seven-digit alpha-numeric display, configurable pulse and frequency outputs, one meter for a range of pipe sizes from 1 to 200 in (25 to 5080 mm), and user-friendly menu selections. Accuracy is  $\pm 0.5\%$  with an operating temperature range of  $-40$  to  $+300^\circ\text{F}$  ( $-40$  to  $+150^\circ\text{C}$ ).

For more information, circle 22



### Tunnel measurement

**Leica Geosystems'** suite of integrated hardware and software solutions for the tunnel construction industry offers improved precision, automation, and efficiency for tunneling operations, according to the company. The tunnel measurement system (TMS) uses a Leica TPS1200 series reflectorless robotic total station and onboard office application programs de-



veloped for tunnel construction. Programs include TMS SETout for one-man setout of points with predefined coordinates; TMS PROfile for automatic profile measurement and accurate geometric information; and TMS Office, which offers multiple applications running within a single database for tunnel profile design. System benefits include long-term access to project data and geometric elements without the need for separate field computers and coordinate calculations. Routine surveying tasks are performed automatically, and software packages are scalable to meet specific job requirements.

For more information, circle 23

### Flexible borescope

The Lenox Fiberscope from **Lenox Instrument** is a flexible borescope designed to handle inspection problems in inaccessible and inhospitable places, including engines, equipment, tubing, pipes, castings, and other hard-to-access cavities. The scope allows for high-resolution inspection to identify flaws as small as 0.001 in (0.025 mm). Construction of the fiberscope ensures a uniform fiber configuration through the length of the probe to produce improved image resolution and moderate distortion, according to the company. The objective lens is placed at the distal tip for focusing, and optical bundles are protected in an enclosed stainless steel housing. Other features include a tight bending radius and a steerable two- or four-way articulated tip for manipulation around corners, through pipe bends, and past blockages. Diameters range from 3.5 to 10 mm (0.14 to 0.40 in) with lengths up to 6 m (20 ft).

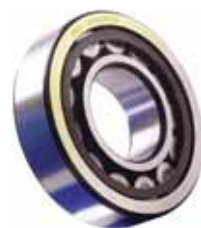
For more information, circle 24



### Roller bearings

**SKF Explorer** single-row cylindrical roller bearings feature optimized design and contact geometry for improved bearing performance and reliability in misaligned conditions and are suitable for applications including compressors, industrial gearboxes, and transmissions. The bearings offer high radial load-carrying capacity and high-speed capability. Benefits include improved contact geometry to reduce stress under high load conditions, cooler running for high-speed operation and longer service life, improved lubrication, reduced friction, quieter performance, and lower operating temperature. Cage materials include molded glass fiber-reinforced polyamide or optional machined brass and pressed steel. Bore sizes range in diameter from 20 to 220 mm (0.79 to 8.66 in); custom designs are available.

For more information, circle 25



## Displacement pump

The A14VG compact, high-pressure variable displacement pump from **Bosch Rexroth** offers high power density, minimum installation space, and improved environmental conditions for modern concrete mixer drives. Available in size 90 for standard mixers and size 110 for larger mixers, the pump has pressure capabilities up to 450 bar (6530 psi). The A14VG offers between 12 and 24 V, depending on existing voltage in the vehicle. A high-pressure, swashplate design features a low and narrow compact profile, with high-pressure suction and drain line connections located on the same side for easy routing within limited space constraints. The pump can be remotely controlled from various positions on the concrete mixer; actuation of the displacement occurs through an electroproportional pressure-reducing valve. Under dynamic loads, including uneven terrain, the pump's components are subjected to minimum loads from low mass, and the seal shaft is designed for quick changeovers.

*For more information, circle 26*



and rescue vehicles. Easily configurable with additional programming options, the controller is more of an electrohydraulic system and transmission control than typical ECU, according to the company. A 210 x 240-mm (8.3 x 9.4-in) die cast aluminum fully sealed housing and smaller footprint were designed for open market use. The 70-pin Cat connector is standard, but flexibility increases with individually configurable input pins and allows the system designer to choose additional input options.

*For more information, circle 29*

## Micro fluidization

The Coolubricator Jr. 210-P is a scaled-down version of the Coolubricator cutting tool lubrication system from **UNIST**. The Jr. version offers minimal quantity lubrication with high efficiency lubricants in both tool room and production applications; it features a smaller footprint and is attached with a magnet, enabling it to be moved from machine to machine. Other benefits include an adjustable 0.033 cc/stroke pump and a pneumatic pulse generator for 100 million-cycle capability. Lack of integration to the machine makes the unit suitable for smaller shops; actuation occurs by a manual on/off valve, connecting only to the shop air supply. Suitable applications include turning, sawing, drilling, milling, tapping, boring, grinding, and punching.

*For more information, circle 30*



## Control system

Unlike gate switches and machine controls, **Fortress Interlocks'** eGard system quickly installs on machinery guarding. The modular eGard access and control system features a self-configuring internal network and a standard quick disconnect. Eliminating the need for a separate gate switch and control panel, eGard offers module connections and clips together to be mounted straight onto standard extruded aluminum without the use of drilling or brackets. Available actuators can be connected to any sliding or hinged door; modules can be easily added or removed.

*For more information, circle 27*



## Ball switches

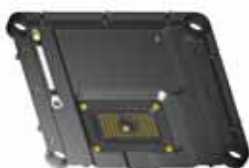
**Control Products** offers two additions to the J4 Series of products: extended travel plungers and actuators capable of operating in high temperatures. All J4 Series ball switches feature a ball carrier design and application flexibility. Variable parameters include mounting thread, plunger length, actuation force, terminations, and travel parameters. The standard J4 is completely submersible, ice-proof, and operates in temperatures from -50 to +185°F (-45 to +85°C), while the latest actuators operate up to 302°F (150°C).

*For more information, circle 28*



## Electronic control unit

**Caterpillar** Electronics and Electrical Systems' A5:M2 electronic control unit (ECU) was designed for use in a range of off-highway applications, including oil and gas equipment, agricultural equipment and implements, lift equipment, and material handling as well as selected on-road uses such as waste and recycling trucks and fire



### Angle sensor

The 424Dxxx angle sensor from **Elobau** can execute angle measurements ranging from 20° up to a complete circle ranging from 0° to 359°. Built to be both precise and robust, the sensor's noncontact design is intended to increase reliability. The measurements are made using a magnetic field detected with a noncontact Hall sensor. With its IP67 protection class, the sensor is protected against all effects of dust and water normally present in industrial processes and vehicles. Other features of the sensor include short-circuit protection, electromagnetic compatibility as per DIN 40389 for automotive applications, and durable ball bearings for the rotating axis. Operating temperatures range from -25°C to +85°C (-13°F to +185°F). Applications include both mechanical and automotive engineering environments.

For more information, circle 31



### Rugged battery

**EnerSys** offers a starting, lighting, and ignition (SLI) battery with improved cranking power and deep cycle performance that lasts up to three times as long as conventional batteries, according to the company. Suitable for power sport applica-



tions including snowmobiles and ATVs, the Odyssey PC310 features a maintenance-free, sealed battery design that requires no water and terminals that do not need to be cleaned and retightened after installation. Rugged construction offers vibration resistance, while sealed drycell construction prevents external corrosion and acid leakage. Other benefits include a six-year service life and two-year storage life at room temperature; non-hazardous and non-spillable certification; installation in almost any orientation; lack of an acid vent tube; slow loss of power at end of life; and fast charge capability.

For more information, circle 32

### Power connectors

Neptune connectors and interconnection systems for industrial markets are designed by **Amphenol Industrial Operations** to provide dependable power interconnects in all portable equipment and in demanding applications, including land or offshore oil exploration. The line includes plugs and receptacles from 30 to 400 A at 600 V featuring the Radsok contact system for increased amperage through a smaller connector. Conductors are terminated to pressure wire terminals, and cable housings with wiring space slip over the conductors after termination to eliminate handling and seating of inserts with conductors attached. Inserts are interchangeable and reversible to suit specific needs; dielectric strength is rated at 1800 V.

For more information, circle 33



### Modular instrumentation

#### Siemens VDO's

Centrobase modular instrumentation for agricultural vehicles is designed to be versatile and adaptive. The Centrobase 300, a round instrument with digital and analog displays, and the Centrobase 500, an instrument cluster with three round instruments and an additional digital display, are compatible with various hardware platforms for different classes of vehicles, and the basic equipment packages differ only in the control and communications features offered. The electronics platform's central element is a 32-bit processor that communicates with other vehicle systems via high-speed CAN interfaces. With its variable architecture, the Centrobase systems are also designed to accommodate future developments in the vehicle and telematics market.

For more information, circle 34



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### Push-pull switch

The M-606 Push-Pull Switch from **Cole Hersee** controls lighting and various motors on trucks by working a master switch that usually controls a group of switches not normally in use, allowing the M-606 to control another set of switches



found at the rear of the truck. Sealed and PVC coated for weather protection, the dashboard-mounted M-606 switch is able to withstand inclement weather conditions and is available with a brass case and stem. The switch has two wire leads and fits panels from 2.67 to 1.25 in (67.8 to 31.75 mm).

For more information, circle 35

### Screen fittings

**Parker Hannifin** develops a line of screen fittings designed for inline or in-port last-chance protection. Not intended to replace typical filtration equipment, the fittings offer nominal micron ratings ranging from 65 to 480  $\mu\text{m}$  and are available in standard sizes -4 through -12.



Constructed with stainless steel screen elements, the -4 size features a basket-style screen, while the remaining sizes are dome style. Typical applications include gage and instrumentation protection; shielding of critical hydraulic components such as pump compensator controls, load-sensing controls, proportional valves, and relief valves; prevention of clogging of precision orifices; protection of costly components in test bench circuits from particle contamination by failed components; and reduction of attachment-induced contamination that damages hydraulic and pneumatic tools and attachments.

For more information, circle 36

### Suspended drive axle

The **Spicer Model 760** suspended drive axle from **Dana**, which is able to accommodate vehicle tractor power of up to 310 hp (231kW), has a hydraulic valve block and accumulators integrated onto the axle body. It also features a planetary



final drive, integrated steering cylinder, 52° steering angle, steering sensor, and 100% multi-disc differential lock system. The Model 760 axle has an overall ratio of 12 to 24 and maximum output torque of 65,000 N·m (48,000 lb·ft). High-pivot and center-pivot rigid versions of this axle are also available. The Spicer suspended drive axles are designed for use in agricultural vehicles.

For more information, circle 37

### Magnetic encoder

A rugged version of the MagRes Magnetic Incremental Encoder from **Baumer Electric** monitors speed and slip on the wheels of trains, transit vehicles, and heavy equipment. Used on each axis of the vehicle and mounted directly onto the wheel hub, the encoder features a maintenance-free, cast iron and graphite housing resistant to liquids. Suited for monitoring safety and maintenance issues including traction control and antilock braking, the MagRes



single turn incremental encoder has a speed range from 0 to 1500 rpm and operates in temperatures from -30 to 85°C (-20 to 185°F). Its 6-in (150-mm) diameter and 3-in (75-mm) depth enable the device to mount into the outer wheel hub and withstand high levels of shock and vibration. A robust cable featuring connector, cable gland, and protective cover prevent kinking, creasing, or bending under harsh operating conditions to ensure that data reaches the host computer.

For more information, circle 38

### Pressure-reducing valves

**Thomas Magnete's** new generation of pilot-controlled proportional pressure-reducing valves boast compact design, variable pressure stages, fast hydraulic function, and reduced pressure drop.



The pilot stage is configured as a pressure regulator valve, allowing the pilot pressure to be adjusted using minimal electrical power. These valves activate operation with a highly sensitive electro-hydraulic control directly on pumps, motors, and clutches—preventing the familiar disadvantages found in pressure transmissions. Lastly, permanent force balance on the valve spool—achieved using barometric back pressure—ensures optimal pressure control.

For more information, circle 39

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