

## Integrated recorder

**Formation** offers

Advanced Integrated Recorder (AIR) systems as part of its submarine communications package. Commercial off-the-shelf (COTS) rack-mount servers, equipped with the company's TD3500 ToughDisk hard drive, are used to withstand the severe humidity, pressure, and shock environments of a submarine. The TD3500 ToughDisk is a rugged, drop-in replacement for a hard drive; and the COTS server on the AIR system suitably accepts the ToughDisk drive. Eliminating the weak, unprotected hard disk creates a stronger computer system to record, store, and replay synchronized workstation screen activity, radar, local area network, and voice data in a single time-tagged system.

For more information, circle 35



## Digital controllers

Two six-digit, dual-channel controllers from **Macro Sensors** are suitable for applications involving linear variable differential transformer (LVDT) based displacement transducers or variable-reluctance half-bridge gaging probes. The DMC-A2 AC-LVDT and DMC-D2 DC-LVDT dual-channel controllers perform arithmetic calculations between two channels or execute differential measurements to gage products for quality control and product sorting. Features include internal signal conditioning to provide proper voltage for operating LVDTs, four independently programmable set points with eight selectable functions, a scrolling display that prompts users to input information during specific stages, and a scalable analog output for use with data loggers and computers.

For more information, circle 36



## Hydraulic sensors

**MTS Sensors'** M-Series line of mobile hydraulic position sensors includes an improved version of the MH sensor that provides a measuring

range of 2 to 78 in (50 to 2000 mm), doubling its available stroke length but preserving levels of accuracy and repeatability. The MH provides three position outputs of 0-5 V, 4-20 mA, or pulse width modulation of 16 recirculations, and operates from -40 to +105°C (-40 to +221°F). Also included in the line are solutions for smaller-diameter cylinders of less than 1.5 in (38 mm) and a sensor for applications requiring extended perfor-



mance and features, such as programmable velocity outputs. M-Series sensors were designed for embedded application inside hydraulic cylinders and can handle stringent shock, vibration, and electromagnetic immunity specifications, making them suitable for on- and off-highway applications.

For more information, circle 37

## Broadband alarm

**Brigade Electronics**

offers the bbs-tek back-up alarm, which uses broadband technology to address potential problems of the conventional bleeper: location and noise pollution. The alarm emits a non-strident, fully directional sound and is effective at 5 dB(A) lower than conventional alarms. By localizing the direction of the sound and quickly dissipating it, bbs-tek alarms allow people in the area to pinpoint exactly which vehicle is reversing, making it suitable for busy and/or noisy work environments. The range for back-up covers heavy-, medium-, and light-duty applications in decibel levels from 107 to 77 dB(A). Other features include a Backchat speaker back-up alarm and a range of constant-tone alarms for use as a forward horn-in-cab warning.

For more information, circle 38



## Rugged joystick

The PRO-6 from **J.R. Merritt**

**Controls, Inc.** is a single-axis controller that offers proportional control for ac/dc variable-speed drives. Heavy-duty and ruggedly constructed, the controller is equipped with a smooth, field-adjustable friction brake with positive center detent for applications where speed must remain constant under continuous shock and vibration. Designed for a mechanical operating life of 20 million cycles, the joystick is suitable for use in mining and other rugged environments. Universal mounting and a variety of standard and custom-engineered electronic amplifiers are available to meet specific control requirements.

For more information, circle 39



## Networked controller

A joint venture between **Bussmann Automotive Products** and **Vansco Electronics** produces the multiplexed Vehicle Electrical Center (mVEC). Designed for managing high currents, the mVEC features up to 30 A per channel to a maximum of 200 A and offers an alternative to high-current, solid-state power dis-

tribution modules in the off-highway industry. Featuring a small footprint, the controller alerts the operator to any system deficiency by sending information on the status of relays and fuses via the data bus to any networked display or telltale module. The mVEC can address vehicle multiplexing through a J1939/CAN interface as well as other industry-standard protocols and is suitable for use on construction, agricultural, heavy trucking, bus, marine, and specialty vehicles.

For more information, circle 40



## Transmission controls

### Dana's Off-Highway Systems

Group features next-generation Spicer transmission controls, compatible with CAN 2.b communication protocol. The ECon essential controller and PCon powertrain controller feature automatic shifting, system monitoring, data logging, safety shift inhibits, diagnostics, and single-pedal drive. The line also features the RD.120 remote display unit, which can be mounted in the vehicle's cab while installing a larger electronic control unit elsewhere to maximize space. Future applications of the transmission controls include compatibility with the upcoming Spicer TE15 powershift transmission and the ability to be engineered to existing machines that require added vehicle control capability.

For more information, circle 41



## Gear pump

The G Series external gear pump from **Bosch Rexroth** can handle rotational speeds up to 2800 rpm and can work with a broad range of hydraulic fluids.

Features include displacements of 32 to 63 cc, high pressures combined with compact size and low mass, broad viscosity and temperature ranges, plain bearings for heavy-duty use, multiple pump assemblies, and threaded or flange port connections. The modular construction enables the gear pump to be used for a variety of applications, including agricultural and construction machinery, commercial vehicles, and industrial trucks.

For more information, circle 42



## Comfort seat

To improve comfort levels for operators sitting up to 10 hr in rough conditions, **Grammer** has equipped its MSG 97AL/742 model series with a wide, low-frequency suspension, suitable for self-propelled harvesters. The scissors-type suspension accommodates one-sided loads resulting from use of multifunction armrests and control consoles. An air suspension system was designed to absorb the vibrations of large agricultural machinery, while the seat's reduced resonant frequency allows the driver to sit steadier, absorbs jolts at higher speeds, and

moves strain from the back, according to the company. Additional comfort features include automatic positioning for seat adjustment; a fore/aft travel of 210 mm (8 in); extra-long, ergonomically shaped backrest angled up to 80°; a pneumatic lumbar support to prevent spinal disk injuries; and adjustable head restraint.

For more information, circle 43

## Rail brake

### Nexen Group's Profile Rail Brake

is a spring-engaged, air-released linear motion control device designed for maximum dynamic braking. The compact brake is suitable for power-off safety conditions. It integrates into a profile rail system and allows frictionless movement of the carriage in disengaged mode until air is exhausted and the internal springs apply force on the brake mechanism that clamps the brake onto both sides of the rail. A normally closed, directional control valve is open to the air supply when energized. When powered-off, the valve blocks the air supply, the air escapes, and the springs apply the force to a clamping mechanism. The brake is able to hold large loads in all axes and performs dynamic stops within a short time and distance.

For more information, circle 44



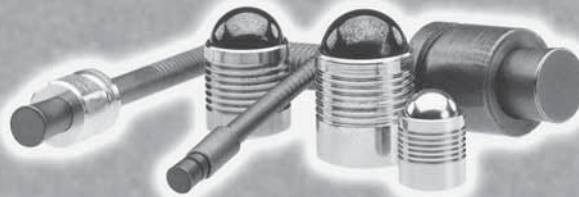
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## Construction tires

**Bridgestone Firestone** Off Road Products Division expands the DuraForce line of construction tires with the AT-R bi-directional radial tire that offers improved traction to backhoes, loaders, telescopic handlers, and rough-terrain forklifts. The DuraForce AT-R tires offer a reduced amount of tire-induced vibration to the vehicle, according to the company, and were designed with innovative tread technology to reduce irregular wear patterns and improve durability.

Multiple-angle traction lugs offer forward/reverse traction in muddy conditions and minimize tread squirm. Other features include radial construction for increased steering and grip, a larger footprint, and improved fuel economy; full sidewall protection to resist punctures and downtime; and a tread compound that is long-wearing and resistant to cuts.

For more information, circle 45



## Rugged pedals

Single and double foot pedals from **ITT Industries** feature a rugged design and contactless sensing system suitable for use in harsh environments, including heavy-duty industrial vehicles and machinery. Both the FP (single) and DFP (double) series have a life of more than five million cycles and were designed to incorporate both standard and custom-designed pedal levers. Both



series are also protected to IP67 and meet EMI specifications of more than 100 V/m. The pedals are configurable in standard or slave versions and are offered with a controller that can be arranged to act as the master device. Output characteristics, operating force, and level deflection angle are customized to suit specific requirements.

For more information, circle 46

## Noncontact transducer

Designed for continuous use at operating pressures up to 350 bar (5075 psi), **Novotechnik** TMI non-contacting transducers can integrate into hydraulic and pneumatic cylinders.

The company's Novostriptive measuring process provides direct, absolute measurements from 100 to 4500

mm (4 to 177 in) with single or multiple position markers. The transverse speed and acceleration of the markers is unlimited, as is mechanical life expectancy. Offered shock and vibration resistance are up to 100 and 12 g respectively; sealing is to IP 67, linearity to 30 µm, resolution to 2 µm regardless of stroke length, and compression peaks at 530 bar (7690 psi). In addition to standard analog, SSI, and start-stop interfaces, the TMI series features DyMoS serial interface to combine output data integrity with an update rate of 16 kHz. Applications include agricultural, construction, and other mobile equipment.

For more information, circle 47



## Water pump

### Honda Power Equipment

launched the WX10K1, a version of the company's WX10 lightweight water pump powered by a mini four-stroke engine.

Replacing the WX10A4, the WX10K1 is suited for light construction applications.

Features include priming time of 80 s at 16.4 ft (5 m); total head lift of 118 ft (36 m); suction head lift of 26 ft (8 m); maximum output pressure increases from 43 to 51 psi (3 to 3.5 bar); and a mass of 13.4 lb (5 kg). The 25-cc overhead cam engine can be started, operated, and stored in any position through the use of a rotary slinger pumping lubrication system that minimizes noise and vibration while improving fuel economy. Other features include a lightweight aluminum centrifugal self-priming pump with an aluminum impeller and volute; a carbon/ceramic mechanical seal; standard garden hose adapter, transport handle, suction hose, and strainer; and a 37 gal/min (140 L/min) capacity.

For more information, circle 48



## Radial tire

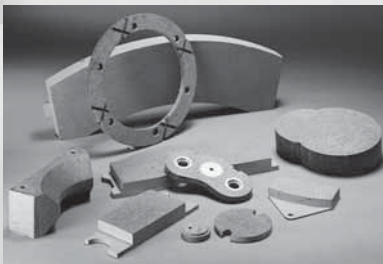
**Michelin Earthmover Group** offers the X-Super Terrain AD radial tire built for articulated dump trucks, scrapers, and loaders. The E4 radial tire was designed to offer long life through deep tread and a durable rubber compound, improved protection from a rugged shoulder and sidewall design, and enhanced traction with a self-cleaning tread design. The X-Super Terrain also improves operator ride comfort, according to the company, by reducing vibrations, while a low rolling resistance improves fuel economy.

For more information, circle 49



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