

**REVIEW CONEXPO**

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A highlight from **DEUTZ** was the all-electric JLG telescopic handler concept G5-18A, which was developed in collaboration with JLG. The compact 360-V drive system uses a split drive comprising two 40-kW electric motors – one for driving and one for the hydraulics in the telescopic arm.

The **PERKINS** booth featured the North American debut of the company's future hybrid concepts as well as its current 0.5 to 18 L (4 to 597 kW) engine range.

Perkins displayed three hybrid technology concepts. Using the Perkins Syncro 2.8 L engine, each of the four hybrid technologies offers a set of benefits at 75 kW all of which, Perkins said, allow the deletion of the diesel exhaust fluid (DEF) system.

**HATZ** displayed its E1 single-cylinder, air-cooled engine technology for Tier 4 final and EU Stage 5 applications at ConExpo. The engine line-up included the 1B30E with a peak rating of 4.5 kW and 11 ft. lb. of torque at 3600 r/min; the 1B50E, which has a maximum rating of 7.9 kW and 17 lb. ft. of torque at 3600 r/min and the 1D90E, with a top rating of 10.8 kW and 26.5 lb. ft. of torque at 3000 r/min.

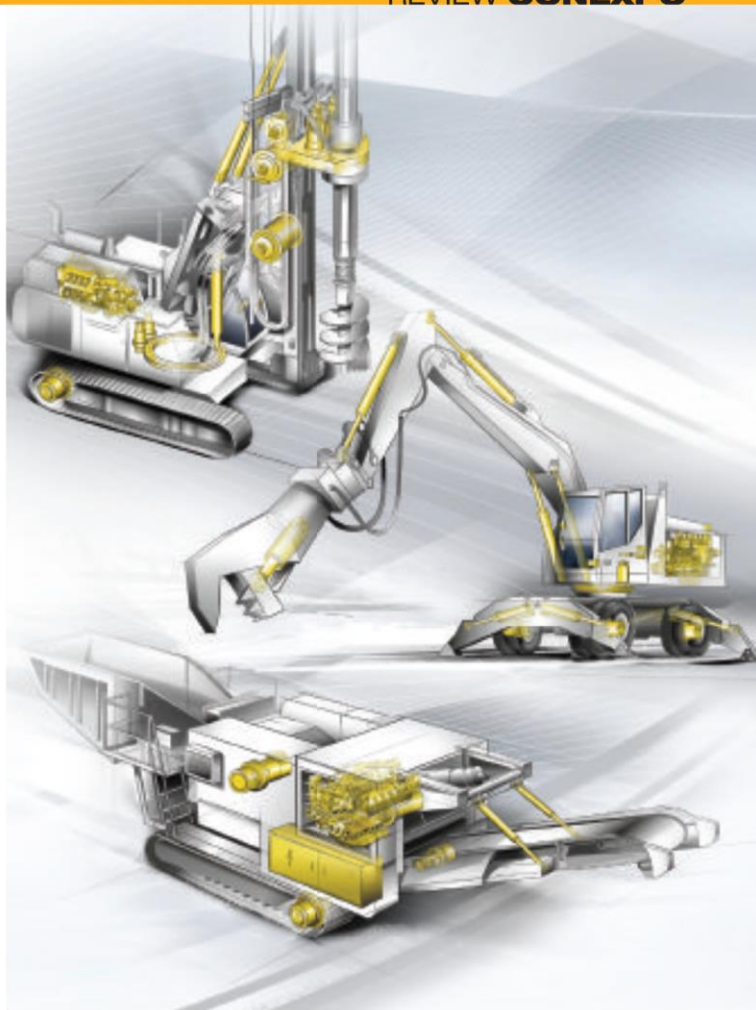
**BRIGGS & STRATTON** showcased its vanguard Commercial Battery system, a line of 5 kWh and 10 kWh modular lithium-ion battery packs incorporating a modular design concept using lithium-ion cells packaged into full serviceable Cell Module Assembly.

**JOHN DEERE POWER SYSTEMS** featured its latest engine – the PowerTech 13.6 L and also 4.5 L PSS and PWL, 6.8 L PTE and PVS and 9 L engines PSS engines.

Among a raft of other launches there were other notable presentations including from **BUCHER HYDRAULICS** which gave a North American debut of its new AX piston pumps and motors at IFPE; **DONALDSON CO.** announced that its Filter Minder wireless monitoring system is now available to monitor engine air filters in off-highway equipment and on-highway trucks whilst **MANN+HUMMEL** introduced a new software solution for fleet operators of agricultural machines, construction machines and heavy-duty commercial vehicles, to receive information on the status of their vehicles.

Meanwhile hydraulics company **WALVOIL** exhibited the new Adaptive Load Sensing (ALS) system, particularly suitable for the construction machinery sector, **ISUZU MOTORS AMERICA LLC** displayed the newest versions of its gaseous-fueled engines and power units and **WALTERSCHEID POWERTRAIN GROUP** launched the new business Powertrain Services North America at IFPE.

One of the highlights of the **CATERPILLAR** stand was the company's C18 hybrid engine concept. The



**Liebherr Components exhibited an array of drivetrain components, including diesel engines, hydraulic pumps, bearings and gearboxes.**

18.1 L, six-cylinder engine provides 597 kW from the diesel and a further 500 kW from the hybrid.

The company said the engine was part of its "electrification roadmap" with low noise and zero emissions. It is a plug in hybrid so it can also run off the grid, Caterpillar said.

**LIEBHERR COMPONENTS** exhibited large-scale technology for construction machines, such as the hydraulic double motor DMVA D 165-165, the hydraulic pump DPVG 140 as well as size 85 of the series 20 of the LH30VO medium pressure pump. The latter pump can be used to power, for example, the equipment, ventilation systems or steering of the machines. On display also the inline diesel engine D976, Liebherr's biggest and most powerful in-line engine with a displacement of 18 L and a power range from 350 to 620 kW in its standard version.

**MTA** introduced the MEC 97 electrical protection unit for off-highway application with printed circuit board (PCB) technology. MEC 97 is made with press-fit, a technology that MTA has chosen as an alternative to welding.

The unit is designed for the engine compartment while, for installation in the cabin, the new C-MEC

46

## REVIEW CONEXPO

138 is in charge to distribute power in the vehicle and protect the primary electrical services and is designed and built with similar features to the MEC 97; it includes a base that always remains the same and a customisable mask with unconnected connectors.

PCB technology allows the same functions as with wired units but with the advantage of optimising cables, facilitating assembly in production lines and direct supply to the OEMs for installation in the machine.

MTA also introduced to the North American market its Idea dashboard, a customisable cluster through MTA's Studio proprietary software. The device is specially designed for off-highway applications and can be used also as a display, available both in portrait and landscape version.

MTA announced the supply of its Black Hawk stand-alone display to Case Construction Equipment to equip the new B Series of CASE skid steer and compact track loaders. Black Hawk is a 203-mm colour thin-film transistor display, flanked at the bottom by a six-button keypad, which allows it to have the status and settings of the machine under control quickly and intuitively.

**SPAL**, a specialist in cooling systems for mobile machinery including electromobility, expanded its range of brushless motors and fans with 48-V variants. A new 2-kW brushless drive was introduced, featuring a 48-V sealed and spark-free motor compliant with IP6k9k protection class.

The intelligent drive manages fan speeds between 900 and 3,200 r/min and is suitable for blades from 400 to 600 mm. The diameter of the drive is 232 mm with 75-mm height; shaft diameter is 10 mm. The system operates at ambient temperatures between -40 and 120 °C.

According to SPAL the new brushless system has a drive efficiency of 90%, measured during a test at 25 °C temperature and a speed of 3,000 r/min.



**Spal's new 2-kW brushless drive with 48-V sealed and spark-free electric motor.**

**RHEINTACHO** introduced the speed sensors FE series, available with different output signals: 1-channel for speed detection; 2-channel for detection of speed and direction of rotation; and a pulse-width modulated current signal, also for speed and direction as well as for diagnostic options.

The FE series sensors can be specified and approved for an application, while

their mechanical interfaces remain the same regardless of which signal the customer chooses. They meet the highest protection requirements with IP67 and IP6K9K.

**ZF** exhibited forward-looking solutions for construction machinery, setting its focus on Efficiency, Electrification and Smart Construction.

At the basis of ZF's approach to the off-highway market is an offer for tailor-made and efficient drive solutions for all vehicle classes and technology levels, with a "Best Choice" strategy that provides the right solution according to the respective customer and market requirements. ZF also presented Smart Construction technologies with a focus on Safety and Connectivity.

Driveline specialist **CARRARO** exhibited its new portfolio of hybrid electric machines and electric powertrains with dedicated ECUs. On display, with the help of a special Augmented Reality tool, were: the eTCH90 Long Drop torque converter full powershift transmission - designed to become a parallel-electric hybrid unit; the eTB220C gearbox, specifically developed for full-electric applications; and the FLS 3.2 full powershift hydrostatic gearbox, suitable for machines ranging from small wheel loaders to telescopic boom handlers.

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