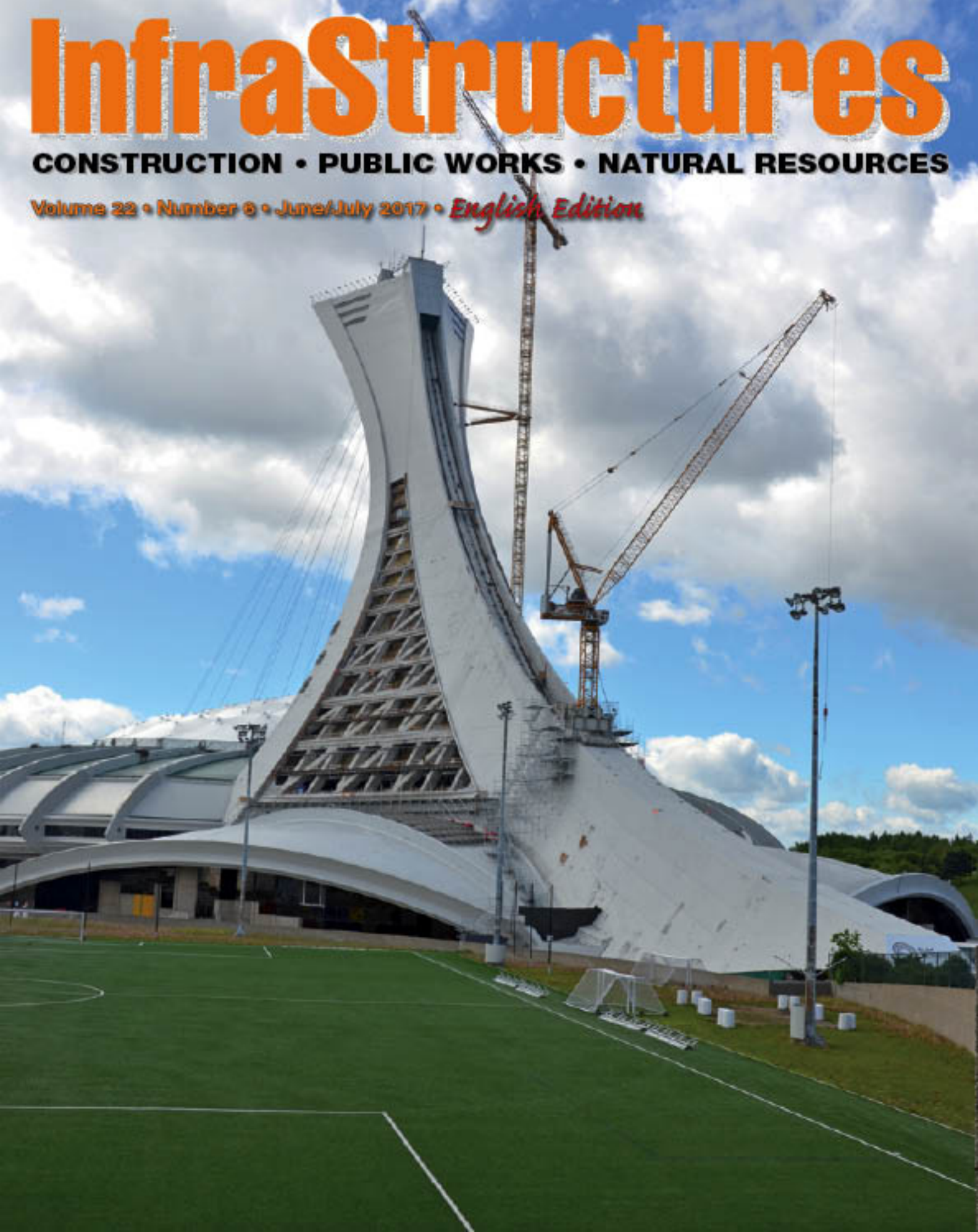


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A Brief Word...

It may not be an ideal spring, but at least jobs should be well underway.

All bets are off as for what the summer weather and other events will hold for the progress of work.

Obviously there is a bonus this year of Variety Projects, particularly in Ottawa as part of the sesquicentennial of Canada. It is always amazing there is money for this sort of thing but not for the basics.

This month's edition focuses on powertrains which can vary vastly between on-road and off-road machinery. On-road powertrains have followed a standard format for over a century. Off-road has had a more eventful history in this same period, but the fundamentals apply to both.

Your equipment's powertrain converts your fuel dollars into profit, so it is important to select the right one and to maintain it adequately.

Mechanics like summertime when being outdoors on a breakdown isn't freezing. Owners and managers can't afford downtime in the peak of the working calendar. Take note of the advice and advancements that will help keep the dirt moving!

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On the cover: Montréal Olympic Stadium is hosting the highest tower crane in Canada.

The cranes, a 710 HC-L and a 630 ECH, are being used in the renovation of the Montréal Tower, one of the country's most recognizable buildings.

THE WIRTGEN GROUP TO JOIN WITH DEERE & COMPANY

The Wirtgen Group announced that it has signed a definitive agreement with Deere & Company to have Deere acquire the Wirtgen Group, a privately-held international company headquartered in Windhagen, Germany, that is the leading manufacturer worldwide in the road construction industry.

"The Wirtgen Group has a legacy of

technology and innovation with market-leading products and a strong focus on the customer. As we looked to the future, we specifically chose Deere as the buyer because of our long-held respect for the organization and our full confidence that Deere is dedicated to the ongoing success of the Wirtgen Group and our employees worldwide," said Stefan Wirtgen, managing partner at Wirtgen.

"Our company's strength and success

comes from dedicated employees, who are focused on helping customers succeed in the road construction industry. We believe this transaction allows the company to be successful well into the future – independent of our family ownership," added Jürgen Wirtgen, managing partner at Wirtgen.

Deere plans to maintain the Wirtgen Group's existing brands, management, manufacturing footprint, employees, and distribution network. The combined business is expected to benefit from sharing best practices in distribution, manufacturing and technology as well as in scale and efficiency of operations.

The Wirtgen Group has 5 premium brands with market-leading positions across the entire road construction segment spanning processing, mixing, paving, compaction and rehabilitation. The Wirtgen Group has more than 8,000 employees and sells products in more than 100 countries.

"The Wirtgen Group's superb reputation, strong customer relationships and demonstrated financial performance are attractive as Deere expands its reach in construction equipment to more customers, markets and geographies," said Samuel R. Allen, Deere & Company chairman and CEO.

"The Wirtgen Group strengthens Deere's strong position in the construction equipment industry, enhances our ability to serve customers across the globe and improves Deere's competitive position through the addition of market-leading products," said Max Guinn, president of Deere's construction and forestry division.

"Spending on road construction and transportation projects has grown at a faster rate than the overall construction industry and tends to be less cyclical. There is recognition globally that infrastructure improvements must be a priority and roads and highways are among the most critical in need of repair and replacement," added Mr. Guinn.

The transaction is subject to regulatory approval in several jurisdictions. The companies said they expect to close on the transaction in the 4th quarter of the 2017 calendar year.

The Wirtgen Group is an internationally operating group of companies in the construction machinery sector incorporating the traditional product brands: Wirtgen, Vögele, Hamm, Kleemann and Benninghoven. As technological leader, the



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Wirtgen Group offers its customers mobile machine solutions for road construction and road rehabilitation, plants for mining and processing minerals or recycling material and for the production of asphalt.

Source: Wirtgen Group

FREIGHTLINER AND WESTERN STAR DEALER INVEST IN CUSTOMER EXPERIENCE IN BRITISH COLUMBIA

P&R Truck Centre Ltd. recently opened a new 1,400 m² state-of-the-art Freightliner and Western Star dealership in Victoria, British Columbia. With the addition of the Victoria facility, P&R offers its customers access to Freightliner and Western Star trucks, parts, and service at 4 stores on Vancouver Island. The new facility offers customers improved service capacity on Vancouver Island with 8 service bays, a covered area dedicated to quick repairs, and factory-trained technicians.

"We're excited about the addition of Victoria to our network of locations, and we're even more excited about offering this extra service capacity to our customers located in Victoria and the surrounding areas," said David Polack, president and CEO, P&R Truck Centre. "We pride ourselves on delivering a consistently high-level of customer experience, and now we'll be able to expand that significantly."

"We share with dealers like P&R Truck Centre a strong commitment to investing in our network," said Brad Thiessen, vice president and general manager, Daimler Trucks Canada Ltd. "The addition of Victoria demonstrates their dedication to providing a consistent, high-quality customer experience. Customers, whether they are local, regional or national, now have another great option on Vancouver Island."

With more than 500 locations in the U.S. and Canada, Freightliner and Western Star trucks are backed by DTNA's unmatched dealer network and factory-trained technicians.

Source: Daimler Trucks North America

ACROW BRIDGE PARTNERS WITH CANAM-BRIDGES FOR TWIN BRIDGE PROJECT IN NOVA SCOTIA

Acrow Bridge recently announced it has supplied a single lane bridge to Nova Scotia Transportation and Infrastructure Renewal (NSTIR). The bridge is being used as a detour during construction of a

galvanized truss bridge in a neighboring location. The truss bridge is a joint project with Acrow and Canam-Bridges, a division of Canam Group Inc.

The 2 existing bridges spanning the Roseway River near Shelburne both needed permanent replacement. It was decided to build the single lane "trail" bridge first so it could lessen a detour inconvenience to residents and tourists alike. The structure is 42.7 m long by 4.2 m wide. After use as a detour for vehicles and pedestrians, it will remain in place permanently to carry pedestrians, equestrians, mountain bikers, cross-country skiers and snowmobiles as part of the Shelburne County Rail Trail.

The galvanized truss bridge, which was designed, fabricated and installed by Canam-Bridges of Quebec, utilizes Acrow's standard prefabricated orthotropic steel deck units which are fabricated to meet the quality standards of the AISC and ISO 9001 in Milton, Pennsylvania. Due to the orthotropic design and through the use of robotic welding, they are not only very

effective in terms of weight and strength, but very cost effective as well. The bridge is 42.7 m (l) x 9 m (w). Construction began approximately 3 months after the start of the trail bridge project in October 2016. The design engineer is Greg Connors of NSTIR and the contractor is Dexter Construction of Bedford, Nova Scotia.

"We are pleased to have been involved in these important jobs in Shelburne," said Ken Scott, president of Acrow Limited.

"We've particularly enjoyed working with our partners at Canam to supply the deck units. Acrow standard decks could be used for the retrofitting of other existing bridges in need of a deck replacement. Because of their light weight, the decks contribute to a structure with increased load capacity and extended life."

The Shelburne installation by Canam is the 3rd permanent steel truss bridge to be installed in Nova Scotia in the past 2 years. The others are located in Milton, and over Nine Mile River in Hants County.

Source: Acrow Bridge

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FEDERAL SIGNAL EXECUTES AGREEMENT TO ACQUIRE TBEI

Federal Signal Corporation recently announced the signing of a definitive agreement to acquire Truck Bodies and Equipment International (TBEI), a manufacturer of dump truck bodies and trailers.

TBEI is expected to be combined with the businesses within Federal Signal's Environmental Solutions Group to create a single platform providing municipal and industrial customers with a complete suite of maintenance and infrastructure equipment and supporting solutions.

TBEI has successfully built a portfolio of strong brands, which currently occupy premier market share positions in their respective product categories, through a combination of an intense focus on operational excellence, a comprehensive distribution strategy, and continuous attention to its customers' primary requirements for a high-quality product and short lead times.

TBEI's president and CEO, Robert Fines, an executive with over 35 years of industry experience, including a variety of management positions within General Electric and Avery Dennison, will be joining Federal Signal's management team.

"We are excited to join the Federal Signal family and add TBEI's 6 established brands to Federal Signal's portfolio of market-leading businesses," said Mr. Fines. "There are many similarities between TBEI's operations and those of Federal Signal and we are confident in our ability to cross-pollinate manufacturing practices, leverage our distribution networks and create a leading platform to serve the needs of our customers."

Source: Federal Signal

ALLU NEW DEALER FOR IRELAND ANNOUNCED AT CQMS 2017

ALLU is proud to announce that Powerscreen Ireland is to be its new distributor throughout Ireland. The dealership, which was announced at Ireland's Construction and Quarry Machinery Show (CQMS) in April, will see Powerscreen Ireland supplying the comprehensive range of ALLU Transformer attachments, and provide full

aftermarket care, spare parts and dedicated customer service.

ALLU has for many years provided an equipment range that as well as being manufactured to the very highest standards, has helped businesses across the globe with their material handling and separation requirements. A recent rebranding has enabled customers throughout the world to see the benefits of the ALLU Transformer range more clearly.

Powerscreen Ireland was established by its managing director Damien Quinn in 1997, marketing and supporting the world leading range of Powerscreen mobile crushing and screening equipment. The current offices and workshops were set up in 2008 and sees Powerscreen Ireland stand alone as the only Irish distributor

with dedicated premises solely for crushing and screening equipment.

Source: ALLU Group

PETERBILT MANITOBA NAMED PETERBILT FIRST CLASS SERVICE EXCELLENCE DEALER OF THE YEAR

Peterbilt named Peterbilt Manitoba as Peterbilt First Class Service Excellence Dealer of the Year. Peterbilt Manitoba has the highest dealer group performance for First Class Service Excellence.

"Whether it's advanced diagnostic equipment to assess and repair problems quickly or highly skilled technicians who know your application and vehicle, the Peterbilt dealership network sets the bar high when it comes to maximizing our customers' uptime," said Mike Conroy,

Hardox Wearparts Expands as Part of SSAB's Commitment to Customer Service

Today there are 47 Hardox Wearparts centers in North America, and a total of 270 centers in over 70 countries. The number of centers has more than doubled in the last 5 years.

Selecting the right wear parts is critical in order to maximize uptime of the operations and to find the best performing solution at the right cost. Hardox Wearparts assists in selecting the optimal solution by providing services such as wear reviews and monitoring, and by using WearCalc software for predicting wear and 3D scanning for perfectly fitting parts. Always with high availability to make sure that the right parts are supplied in time.

"By partnering with local companies that supply wear services, we can provide our end customers with local and rapid access to quality wear parts and technical support. By growing the network of Hardox Wearparts centers, as well as growing the range of products and services they provide, we are continuously improving our service capacity," says Gregoire Parenty, Head of SSAB Services.

Adding to the Duroxite overlay product line is the new Duroxite 400, a specially formulated hardfacing overlay pin. It is engineered and designed to withstand severe heat and metal-to-metal wear. Duroxite 400 pins have been designed to outlast original equipment and manganese pins.

The maximum working temperature for Duroxite 400 is as high as 900°F (480°C). Work-hardening hardness can reach up to 58 HRC in service. Duroxite 400 was originally developed for dragline bucket components. It has quickly gained acceptance in equipment for heavy mining and industrial applications such as dragline shovels, clamshell buckets, sheave pins, backhoe pins, and crusher shafts.

Source: SSAB



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director of Field Service. "The First Class Service Excellence Award recognizes the best of the best, and is a true testament to Peterbilt of Manitoba and their commitment to customer satisfaction."

Peterbilt service locations were measured by First Class Service Excellence performance criteria. Peterbilt Manitoba had the highest comprehensive dealer group score.

Doug Danylchuk, dealer principal, accepted the award at Peterbilt's annual Dealer Meeting. In addition to the dealer awards, the 2-day business meeting included presentations and breakout sessions, with focused reviews of the enhanced SmartLINQ connected truck technology and PACCAR's position on the competitive landscape of the commercial vehicle industry.

"We are proud to receive the First Class Service Excellence award from Peterbilt," said Doug Danylchuk. "Our team recognizes the importance of servicing our customers and providing premium care for the PACCAR MX engines. Measuring the service performance of dealer groups within the Peterbilt network makes us all rise to the occasion and improve our customers' experiences."

Source: Peterbilt Motors Company

INSEE SELECTS METSO TO SUPPLY AN AGGREGATE PROCESSING IN THAILAND

Insee Aggregates has selected Metso to supply a full-scope, state-of-the-art quarry processing plant for the Suphanburi Quarry in Thailand. The delivery covers all the advanced crushing and screening equipment, full electrical plant design, automation software and hardware, as well as related services and sustainable optimization.

The Suphanburi Quarry is owned and operated by Insee Aggregates, a part of Siam City Cement Company, Thailand's second-largest cement producer. The quarry has a large proven resource. After its completion, the plant will be the most modern processing plant in Thailand for

the production of high-quality aggregates, with an estimated production capacity of 1.8 million t/y. The in-the-pit mining and crushing and screening plant will be located northwest of Bangkok. The new plant is expected to start production in 2018.

"Siam City Cement entered the quarrying business over 10 years ago with a vision to be Thailand's premium, high-performance aggregate supplier. The Suphanburi Quarry is a highly strategic operation, providing aggregates to the Bangkok market. While the expansion objective of this project was to double the existing crushing capacity via the construction of a new line, it was of utmost importance that quality and production performance was never compromised. Our target was to build a world-class plant with sustainable processing operations, using the most advanced equipment and processes available. In summary, we wanted a low-cost/high-productivity, environmentally responsible operation," says Mr. Craig Bickley, CEO Siam City Concrete (SCCO).

Source: Metso

POSITIVE SIGNS FOR IFAT AFRICA 2017

With 4 months to go before the beginning of the trade fair it is clear that IFAT Africa is proving to be relevant to many exhibitors. Close to 100 companies have already registered for the environmental technology trade fair in South Africa in 2017. IFAT Africa will be held at the Johannesburg Expo Centre from September 12 to 14, 2017.

The interest of companies underscores the importance of the trade fair's product categories – Water, Sewage, Refuse and Recycling – for the African market. Companies participating include both local and international key players such as Averda, Bovu Fluid Holdings, C.R.I. Pumps S.A., Endress+Hauser, Grundfos, KSB Pumps & Valves, Memcon, NETZSCH Southern Africa, Ritz Pumps South Africa, Skip Truck Traders, Tecrover, Wamechsi Group and Wilo Pumps S.A.

Joint pavilions are planned for companies from China, Germany, Great Britain, Italy (Piemont), the Netherlands, Austria and Switzerland. The organizers expect around 140 exhibitors on an exhibition area of approximately 5,200 m². Additional open-air grounds offer more space for larger exhibits.

Source: Messe München

LIMA 2019 ORGANIZING COMMITTEE TO GIVE PROCUREMENT UPDATE TO CONTRACTORS

The Lima 2019 Organizing Committee have invited all potential national and international contractors to the Lima Chamber of Commerce on June 19, where it will reveal details of all infrastructure and services contracts which will be up for tender for the Lima 2019 Pan American and Parapan American Games.

Speaking from the Organizing Committee headquarters, Lima 2019 president, Carlos Neuhaus said the event will be open to all companies capable of delivering infrastructure and services. Presentations from the Lima 2019 Organizing Committee will be held on the morning of June 19, followed by a business conference in the afternoon and on June 20.

"On June 19, we will present the process and details for all Lima 2019 projects which will be up for tender to the business community. Tenders will be open to companies from anywhere in the world and with total transparency. Construction works will then have to begin no later than December. All tenders will include anti-corruption clauses," said Carlos Neuhaus.

Mr. Neuhaus went on to stress that whilst Lima 2019 remain on schedule, there is no time to lose. "62% of venues are already in place and will only need modifications. We are making progress with the Athletes' Village where ground levelling is currently taking place. In 2019, the eyes of the world will be on Peru and the Games will have a tremendous impact on the country. This is the opportunity of a lifetime – an opportunity to promote our country to the world," he added.

"We are only going to build what is necessary. I am more concerned about the next day and what will remain as a legacy. In September, we will advance with the Athletes' Village. We will make savings to our budget by building 7 towers of 20 floors each instead of 39 towers of 10 floors each."

Lima 2019 is constantly assessing the cost effectiveness of its plans and has recently revised its infrastructure projects to optimize stakeholder experience which has also resulted in savings of \$120 million from the original budgets.

Source: Lima 2019 Organizing Committee

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Terex Cranes Helps Construct Bridgewater Residences on the Lake

It is the crown jewel of the waterfront, offering multimillion dollar views of Lake Ontario. The \$210 million Bridgewater Residences on the Lake currently under construction in Burlington, Ontario, brings luxurious mixed-use living to this mid-sized city of just over 175,000 residents.

Built on less than 0.81 ha, the complex will feature 3 buildings consisting of luxury condos, hotel, shops and restaurants. Permanent residents will dwell in the landmark 22-story structure and secondary 7-story building, while the development's 8.5-story final structure will include a 4-star hotel, restaurants and retail outlets.

The nearly 3-year project will require multiple contractors working together to finish all phases of construction. MTN Forming, Inc. of Bolton, Ontario, is tasked with completing structural formwork. Throughout the project, a variety of cranes will be employed to erect the buildings. However, a majority of the day-to-day

lifting will be left to 2 cranes towering over the worksite for approximately 2 years.

On the Bridgewater project site, tower cranes fill the critical link between the ground and the multistory structures. They lift a wide variety of the construction materials, ranging from tools, concrete form work and rebar to structural steel, equipment and concrete. Careful planning for the number, type, height, jib length and capacity of the cranes must be considered, so the entire project site is covered where needed.

MTN Forming relied on the expertise of Cropac Equipment Company and C&C Crane Services of Oakville, Ontario, to supply the right type of tower crane equipment, strategically positioned to efficiently serve all the company's lifting needs. "We had just under 0.8 ha to cover, and we had to lift a variety of materials, including precast steel reinforced with core slab," mentions Kevin Carey, owner of C&C Crane

Services, of Bolton, Ontario. "The heaviest planned lift was 9,1 t at a 50 m radius."

In addition to what was lifted, the crane providers also had to consider ambient factors for selecting the best type of cranes for the job.

"While being on the lake provides spectacular views for residents, we had to account for the high lakeside winds, lake-affect snow and extreme cold for the project," says Joel Hunt, sales representative for Cropac. "Freestanding heights came into play for the project to reduce set-up time and cost, and we chose the cranes that gave us the highest freestanding height capability."

Cropac and C&C Crane selected the Terex® SK315 and SK415. The SK315 crane offers an 8 t to 16 t capacity, while the larger SK415 crane provides a maximum lift capacity of 20 t.

Cropac delivered the cranes to the jobsite in September of 2016, and a crew of

Caterpillar Introduces Portable Generators

Caterpillar is expanding the Cat® RP Series portable generators line with the introduction of the RP12000 E. The new generator fills out the top of the series, delivering 12 kW of running power and new features to meet the specific needs of the "prosumer" – emergency home back-up, DIY enthusiasts and contractors.

The RP Series initially launched in North America in September 2016 with 4 standard models, ranging from 3.6 to 7.5 kW. The series is the first prime product designed, engineered and supported by Caterpillar specifically for consumers. The generators are now available in the U.S. and Canada via over 550 Cat Home & Outdoor Power sales locations, which include regional and local retailers, traditional Cat dealers and online retailers (currently Electric Generators Direct and Amazon).

Like the other products in the series, the

RP12000 E was designed by Caterpillar engineering teams based in Illinois and the UK. The team focused on delivering the key design elements customers value most – power output and quality, ease of



use, run-time, low noise, overall value and durability – in addition to a collection of premium features to set it apart from other generators in its class.

The RP12000 E has a new, larger frame to house a larger, more powerful 670 cm³ V-Twin engine. The engine has a fully pressurized oil system and delivers up to 15 kW of surge power, making it suitable

for powering more equipment and heavy loads. The all-copper generator delivers a clean power with less than 5% total harmonic distortion, which is suitable for sensitive electronics and tools. Engineers



also included a low-idle mode option, which optimizes fuel consumption and noise levels and reduces engine wear. With runtimes over 11 hours (at 50% load), customers will be able to work an entire day without needing to refuel.

In addition to the low idle mode, engineers designed a custom muffler and positioned the extra-large steel fuel tank on

6 workers from C&C Crane and Total Crane Rental, also of Bolton, Ontario, erected the units on-site. To assist in tower assembly, crew members used a Terex® AC 250-1 all terrain crane. The 250 t capacity class mobile crane features a long 70 m main boom length, which allowed crew members to quickly install the tower and jib sections for both cranes.

Each of the heavy duty tower sections for both cranes measured 2,4 m x 2,4 m x 5,9 m. The shorter SK315 crane was built with 9 tower sections under the 40 m long jib for a total freestanding height of 54.5 m. For the first phase of building construction, the SK415 crane was built with 11 tower segments to a height of 65.5 m to clear the SK315 crane when working at radius, and it included a 50 m jib.

As work advances on the 22-story structure, another 5 tower sections with tie-back to the structure will be added to the SK 415 crane for a total hook height of 95.2 m.



Work on the \$210 million complex is quickly progressing with the formwork shell beginning to reach toward the sky. The Terex tower cranes are proving their worth, working in all kinds of weather conditions – sun, rain and snow – to help make sure workers have the tools they need to keep on schedule.

With a professional sales team possessing in-depth industry knowledge and a capacity for listening to customer needs,

Cropac Equipment Company has been equally committed to its customers and quality service since operations began in 1977. It is a factory-authorized distributor for Terex and Demag crane equipment, which includes a complete line of hydraulic truck cranes, all terrain cranes, rough terrain cranes, crawler cranes, boom trucks and tower cranes.

Source: Terex Corporation

top of the engine (versus the side like most competitive models) to further minimize noise levels. The design also prevents damage from vibration.

Like other models in the series, the RP12000 E was designed for simple, safe, fuss-free operation. It includes a lighted, single side-operators station, enabling the user to start and operate the generator without having to walk around or move it. The panel houses 9 receptacles including a 50 A 240 V outlet, which is unique to this model and required for many heavy-duty tools. The RP12000 E also includes a removable lifting eye and handle, and is designed with a balanced center of gravity, which test users noted makes it surprisingly easy to push and pull around. The whole unit is deftly packed into a compact, visually appealing frame – easy to store and a showpiece on any showroom floor.

The RP12000 E is constructed of solid 32 mm steel, which is treated and coated to

prevent corrosion. The large metal wheels include integrated bearings for long life and high-quality solid rubber tires. The RP12000 E comes with a 2-year warranty (extended to 3 years when the product



is registered), which includes parts and service for the entire warranty term, and all RP Series products are backed by Caterpillar's 24/7 customer support.

Caterpillar continues to expand its Home & Outdoor Power distribution channels and product portfolio and anticipates additional product launches in 2017.

Source: Caterpillar

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all aspects of the industry **InfraStructures** offers you the **deepest coverage** available to advertise your products and services.

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Larson Releases New Solar-Powered LED Light Tower

Larson Electronics LLC announced recently the release of a new solar-powered LED light tower to be added to its catalog of products. This solar-powered light plant features a battery charger and a built-in auto timer for customized light activation.

This 1.06 kW solar powered LED light tower includes 4 solar panels, a solar charging system, battery bank, battery charger and manual crank up mast mounted on a trailer with outriggers. The 1.06 kW solar generator system replenishes amp hours of usable battery capacity per day, assuming 5.5 hours of peak charging sunlight. This LED light tower is supported by 4 250 Ah 12 V batteries, equating to 1,000 Ah battery capacity. A battery charger provides flexibility during deployment, which allows operators to supply power to the batteries using an external power source. This feature is useful for sustaining extended periods of illumination and remote sites that lack adequate exposure to sunlight.

Each lamp on this solar-powered tower can be powered on individually, allowing operators to power one lamp or all 4 lamps at a single time to fit the required illumination requirements. An equipped dusk-to-dawn day/night sensor allows for automated operation of the light configuration set within the control center. Operators are also able to set a time/duration for light activation using the built-in auto timer feature. All of the electrical components are encapsulated in a NEMA 3R job box that is bolted to the trailer. Since most of these components are not rated for high heat, a component cooling system circulates air within the job box at 1400 cfm when the ambient temperature exceeds 32°C.

"It is important to always have a back-up plan, especially when you are working in a remote area," said Rob Bresnahan, CEO of Larson Electronics LLC. "Our solar-powered LED light tower enables users to set the lights activation period with a timer, as



well as, a battery charger for when there is not enough sunlight for the solar panels to continue charging the batteries themselves."

Source: Larson Electronics LLC

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Industry-Leading 20,000-Hour Warranty on 944K Hybrid Wheel Loader Power Electronic Components

On the heels of its most successful CONEXPO-CON/AGG ever, John Deere is now offering a 96-month (8-year)/20,000-hour power electronic components warranty on the 944K hybrid wheel loader. The warranty is retroactive to existing machines in the field and provided on new 944K loaders through October 31, 2018.

"We continue to build confidence in our hybrid technology and the high-design life of machine components," said Jason Daly, director, customer and product support, John Deere Construction & Forestry. "As our hybrid experience continues to grow, we feel strongly that this 20,000-hour warranty allows a customer the opportunity to go through a 15,000-hour rebuild/re-life without the expense of worrying about power electronic components."

The warranty includes a 96-month (eight-year) or 20,000-hour (whichever comes first) non-prorated assurance on wheel motors, generators, power invert-



ers and brake retarders. Certain customer conditions must be met to maintain warranty coverage. This includes component rotation between 15,000 and 18,000 hours; drive voltage cables replacement between 15,000 and 18,000 hours; and an annual dealer machine inspection.

The 536 hp 944K hybrid wheel loader features a Tier 4 interim engine (T4i), and it can provide significant fuel savings over 6.88 m³ loaders with conventional

drivetrains*. The production-class wheel loader's brushless AC generators and motors, water-cooled brake resistors and solid-state power electronics deliver reliable, long-term performance to quarry and large-load applications.

Source: Deere & Company

**Actual fuel consumption rates and savings will vary with machine application, utilization, operator and model of competitive unit.*



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Volvo Trucks and Renova Test Autonomous Refuse Truck

Together with Swedish waste management company Renova, Volvo Trucks is currently testing and researching how automated vehicles can contribute to safer, more efficient refuse handling and create a better working environment for drivers. The automated systems being tested are in principle the same as those fitted to the autonomous Volvo truck operating in the Kristineberg Mine in Northern Sweden since autumn 2016.

"Driving a heavy commercial vehicle in an urban residential area with narrow streets and vulnerable road users naturally imposes major demands on safety, even when the vehicle's speed doesn't exceed a normal walking pace. The refuse truck we are now testing continuously monitors its surroundings and immediately stops if an obstacle suddenly appears on the road. At the same time, the automated system creates better prerequisites for the driver to keep a watchful eye on everything that happens near the truck," says Carl

Johan Almqvist, Traffic & Product Safety director, Volvo Trucks.

The first time the automated refuse truck is used in a new area, it is driven manually while the on-board system constantly monitors and maps the route with the help of sensors and GPS technology. The next time the truck enters the same area, it knows exactly which route to follow and at which bins it has to stop.

At the first stop with the automated system activated, the driver climbs out of the cab, goes to the rear of the truck, brings out the wheelie-bin and empties it exactly the way the job is done today by operating the relevant controls. When the operation is completed, the truck automatically reverses to the next bin upon receiving the driver's command. The driver walks the very same route that the truck

takes and thus always has full view of what is happening in the direction of travel. But why reverse instead of driving forward?

"By reversing the truck, the driver can constantly remain close to the compactor unit instead of having to repeatedly walk



between the rear and the cab every time the truck is on the move. And since the driver does not have to climb in and out of the cab at every start and stop, there is less risk of work-related injuries such as

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strain on the knees and other joints," says Hans Zachrisson, Strategic Development manager at Renova.

Reversing is otherwise a fairly risky manoeuvre since the driver may find it difficult to see who or what is moving behind the vehicle, even if it is fitted with a camera. In certain areas it is not allowed to reverse with a heavy commercial vehicle for safety reasons, in others it is a requirement that a co-driver must stand behind the truck to ensure that the road is clear before the vehicle is allowed to reverse. The solution being tested is designed to eliminate these issues. Since sensors monitor the area all around the refuse truck, driving is equally safe no matter the direction in which the vehicle is moving. And if for instance the street is blocked by a parked car, the refuse truck can automatically drive around the obstruction provided there is sufficient space alongside.

Since the automated systems optimize gear changes, steering and speed, fuel



consumption and emissions can also be reduced.

Although the technical scope already exists, a lot of research, testing and development remains before self-driving refuse trucks can become a reality. The current joint project will continue until the end of 2017 and will be followed by an extremely thorough evaluation of functionality, safety and, not least, how well this type of vehicle

is accepted by drivers, other road users and local residents. Vehicles with varying degrees of automation will probably be introduced earlier in other applications, where transport assignments take place within strictly confined areas such as mines and cargo terminals.

Source: Volvo Trucks



Innovative Equipment in the Quebec City Materials Recycling Facility Marks a New Era in Glass Recycling

Éco Entreprises Québec (ÉEQ) recently inaugurated innovative glass processing equipment as part of the implementation of its Innovative Glass Works plan. The Quebec City Materials Recycling Facility (MRF), which is operated by Société VIA, is among the 5 centers to receive cutting-edge equipment to lead experimental pilot projects with the aim to find a solution for 100% of the glass collected through curbside recycling.

Combining sorting and cleaning equipment in a single glass processing system, the technology developed by Krysteline Technologies and the related equipment installed by Québec equipment manufacturer Machinex will enable sorting centers

to produce high-quality glass that meets the needs of conditioners and recyclers, which will now be able to more easily and cost-effectively reintegrate the glass into new products, including innovative ecomaterials.

"The experimental pilot projects led as part of ÉEQ's Innovative Glass Works plan are an exceptional showcase for Québec in terms of innovation and circular economy," affirmed Maryse Vermette, president and CEO of ÉEQ. "The major investments by the organizations that fund curbside recycling, which we represent, will benefit all stakeholders in the recycling industry. This is a mobilizing project and we are very pleased to work in close collaboration with

the government, municipalities, sorting centers and innovative businesses to develop glass recycling markets."

"For a large sorting center such as ours, which processes over 10,000 t/y of glass per year, the benefits of this new technology are significant", confirmed Jean-Sébastien Daigle, president and CEO of Société VIA, the nonprofit organization that manages the Quebec City MRF. "Now that we can provide high-quality glass to conditioners and recyclers, the doors are wide open for new ecomaterials made with recycled glass."

Announced in January 2016, the Innovative Glass Works plan includes investments of \$6.7 million to upgrade sorting centres across the province and set up experimental pilot projects so that they may produce higher quality glass, as well as support measures for businesses seeking to develop new ecomaterials and outlets for glass collected through curbside recycling.

Source: Éco Entreprises Québec



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ABB Wins \$30 Million Order for HVDC Power Link Upgrade in Africa

ABB has won an order worth more than US\$30 million (\$40 million) from Société nationale d'électricité (SNEL), the national electricity company of the Democratic Republic of the Congo (DRC) for a partial upgrade of the Inga-Kolwezi high-voltage direct current (HVDC) power transmission link. The contract is part of the FRIPT project financed by Glencore and managed by Congo Energy, a subsidiary of Forrest Group International. The link transmits power from the Inga hydropower station on the Congo River to the mining district of Katanga in the south-east of the country. It also exports the excess power to the Southern African Power Pool countries.

The 1,700 km link was built by ABB in 1982 and was, at the time, the world's longest transmission line. ABB upgraded the link in 2009, installing new thyristor valves, high-voltage apparatus and its MACH™ control and protection system. ABB's advanced MACH system, supports

the company's ABB Ability™-based digital offering and acts like the brain of the HVDC link – monitoring, controlling and protecting the sophisticated technology in the stations, managing thousands of operations to ensure the reliability of power supply.

ABB has now been entrusted to carry out a refurbishment that will boost transmission capacity, enhance grid reliability, extend life span and ensure the efficient transmission of hydro-electricity across the region. The retrofit will make it possible to increase transmission capacity from 520 MW to 1000 MW, securing power supplies to the mining region in Katanga and strengthening the power infrastructure in the DRC. ABB's project scope includes system studies, supply of key equipment such as high voltage apparatus and commissioning.



"We are pleased to continue our long association with the Inga-Kolwezi HVDC Link and contribute to the strengthening of the DRC's power infrastructure. This upgrade will boost supply of clean hydropower to

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Trimble and K-Tec Introduce Trimble Ready Factory Option for Scrapers

industrial and domestic customers,” said Claudio Facchin, president of ABB’s Power Grids division. “This order reiterates our leading HVDC position, strategic focus on the service business and our growth drive in Africa. It also reinforces our position as a partner of choice for enabling a stronger, smarter and greener grid.”

ABB pioneered HVDC technology more than 60 years ago and has been awarded more than 110 HVDC projects, representing a total installed capacity of more than 120,000 MW, accounting for around half the global installed base. ABB further developed HVDC in the 1990s by introducing a voltage sourced converter (VSC) solution named HVDC Light® and leads the way in this technology as well, having delivered 18 out of 24 VSC HVDC projects commissioned in the world.

Source: ABB

Trimble and K-Tec Earthmovers Inc. recently announced the introduction of a Trimble Ready factory option for K-Tec Scrapers. Scrapers that ship from the factory are now ready to install the Trimble® GCS900 2D or 3D Grade Control System, which can significantly reduce the cost for the contractor. The Trimble Ready K-Tec Scraper includes an enhanced joystick, a computer software upgrade, wiring harnesses and brackets, allowing a more seamless installation.

“K-Tec Earthmovers is pleased that Trimble Ready scrapers are now available for our customers to efficiently perform precision excavation and finish grading,” said Russ Goossen, CEO for K-Tec Earthmovers Inc. “This new option makes the installation of Trimble GCS900 more integrated and less costly for contractors.”

“The introduction of a Trimble Ready option for a K-Tec scraper further reinforces our commitment to serve equipment manufacturers and their customers with innovative construction technology,” said Cloyce Newton, business area manager for Trimble OEM Solutions, Civil Engineering and Construction Division. “Now it’s less expensive and faster to install Trimble technology, so K-Tec customers can realize an even quicker return on their technology investment.”

K-Tec manufactures pull-pan ejector earthmoving scrapers and accessories for the construction, mining, and agriculture industries. K-Tec scrapers are pulled by tractors or articulated dump trucks, with capacity ranges from 21-48 m³ pulled. This results in the largest scrapers in the marketplace, allowing for greater production requiring fewer cycles per day.

Source: Trimble



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Remote-Controlled Mowers for Maintaining Steep Slopes in Safety

Mowing steep banks and slopes or around the edges of lakes and ponds across municipalities has always been labor intensive and not particularly pleasant for the guys (or gals) doing the work. With health and safety becoming more important in the management of green spaces, the managers and supervisors are under more pressure to look after the welfare of their teams.

So what can be done to help alleviate these issues? The answer might be the use of remote-controlled mowers, where the operator controls the machine from a safe distance.

Introduced in Europe in 2004, the Spider, a remotely operated dedicated mower for maintaining steep slopes, created a new sector in the turf maintenance industry, almost overnight. Its primary role was to mow slopes and banks in safety, following a toughening of Health and Safety regulations across the industry.

The story of how this unique mower came into being is quite fascinating. It was designed and developed by Lubomír Dvořák, the owner of a road and utilities construction company in the Czech Republic. Following the "Velvet Revolution", which brought an end to communism in Czechoslovakia in November 1989, Mr. Dvořák built up a successful business constructing roads and utility infrastructure for the new government.

One of the clauses in the road building contract stipulated that his company maintain the banks and verges for a year after the road was handed over to the govern-

ment. Having unsuccessfully scoured the planet looking for a suitable machine, he concluded that the only way to overcome this dilemma was to design and build one himself. In 2002, the development of the Spider 1 began in an outbuilding in his backyard and by 2003 it was launched into the market.

By 2004, the Machinery division of Dvořák was established and mass construction of the Spider 1, started. The larger and more productive ILD02, Spider 2, was introduced in 2006 and just 2 years later the Spider range was being distributed in over 30 countries. In 2010, the Spider Mini,



a smaller version aimed at the high-end home owner and small landscape contractor, was launched. Recognizing the huge opportunity in the U.S. and Canada, a joint USA/Czech partnership distributor, Slope Care, was established in 2012, based in Florida.

In 2014, after outgrowing their existing premises in the Czech Republic, a new purpose-built, ultra-modern head office and manufacturing plant was opened on the outskirts of Pohled, some 120 km southeast of Prague.

The first commercial sale of a Spider 1 in the UK was to Swan Plant Services Ltd, late in 2004. The mower was leased on a 30-

week contract to Leeds City Council Parks & Countryside to work in dedicated areas around the city. Chris Simpson, Transport and Fleet manager at the time, saw the machine at an outdoor expo in September 2004. While watching a demonstration, he immediately recognized its potential and began discussions with Swan to organize a demonstration for the Council.

"As a responsible employer we have a duty to pursue all avenues with regard to the health and safety of our operators," said Mr. Simpson. "Hand and arm vibration is a particularly important issue and this machine, being remotely operated, alleviates this at a stroke. Also, it removes any issues of operators sitting on ride-on machines at acute angles and removes the stress on hips, knees, ankles and spine associated with brush cutter operations."

In 2008, soon after its introduction, a Spider 2 was purchased by the Parks and Countryside Department at Sheffield City Council. Larger and more productive than the Spider 1, it has a wider cutting width of 1.23 m and gives productivity of up to 7,500 m²/h. With a 16 l fuel tank it can work for 5 hours on slopes of up to 55° with assistance from an integrated winch.

"Historically we had a particular issue with Stocksbridge Clock Tower Gardens, which we maintain in partnership with Stocksbridge Town Council," said Melvyn Riley, a District Parks officer with the Council's Parks and Countryside Department at the time. "In years gone by gardeners were employed to cut the steep bank on which the clock tower stands with pedestrian mowers. Recently, health and safety issues have meant that we could not continue with the maintenance of this space. It is

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important we get the grass maintenance of this site right as the gardens were overlooked by the town council's offices and is a prominent feature of the town center."

"The Council is committed to the health and well-being of its employees and the purchase of these specialist mowers further demonstrates this commitment, said Peter Barton-Price, Open Spaces Area manager at Conwy County Borough Council in North Wales. "Unlike other bank mowers, the Spiders have an integral winch, which allows the operators to anchor the mowers and prevent them from sliding down the inclines. There are no hand/arm vibration issues either as the machines are remotely operated."

The drive system of any Spider mower allows mowing in any direction without complicated maneuvering. The 4-wheel drive and 4-wheel steering provide unlimited continuous 360° mowing.

Furthermore the ability to control the



mower remotely allows for safe mowing on steep hillsides and in dangerous areas.

For added safety, in case of any disruption in the radio frequency such as loss of signal or interference from another rf device, the entire system shuts down and the mower stops. The aim is not to control the mower at a great distance, but to give the user an opportunity to choose a convenient and safe place where there is no risk when mowing.

Looking at the attributes of the Spider range, Canadian municipalities could now have a cost-effective solution to mowing difficult areas.

Spider remote-controlled slope mowers, are available through 2 new distributors in Canada – J & S Performance and Distribution, in Ontario, and UniForce Distribution Inc., in Quebec.

Source: Dvorak - svahove sekacky Ltd.




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Trelleborg Gives Tough Jobs a Soft Ride

Trelleborg Wheel Systems debuted the Brawler HPS Soft Ride, a new solid tire designed and developed specifically for the waste management and recycling industries, at recycling aktiv Karlsruhe, in Germany, and at WasteExpo in New Orleans, Louisiana.

Demonstrating Trelleborg's commitment to protecting people and assets, this re-engineered version of the Brawler solid tire offers radically-improved operator comfort and equipment-life through reduced vibration, while retaining the signature Brawler life performance in the harshest of applications.

"We challenged ourselves to create a solid tire that matches the benchmark for comfort achieved by foam-filled pneumatic tires but which still performed against all other requirements for tires in this specialist segment. I am pleased to say that we met – and exceeded – our own expectations," says Ditri Zweistra, segment manager Specialty-Mining, Waste &

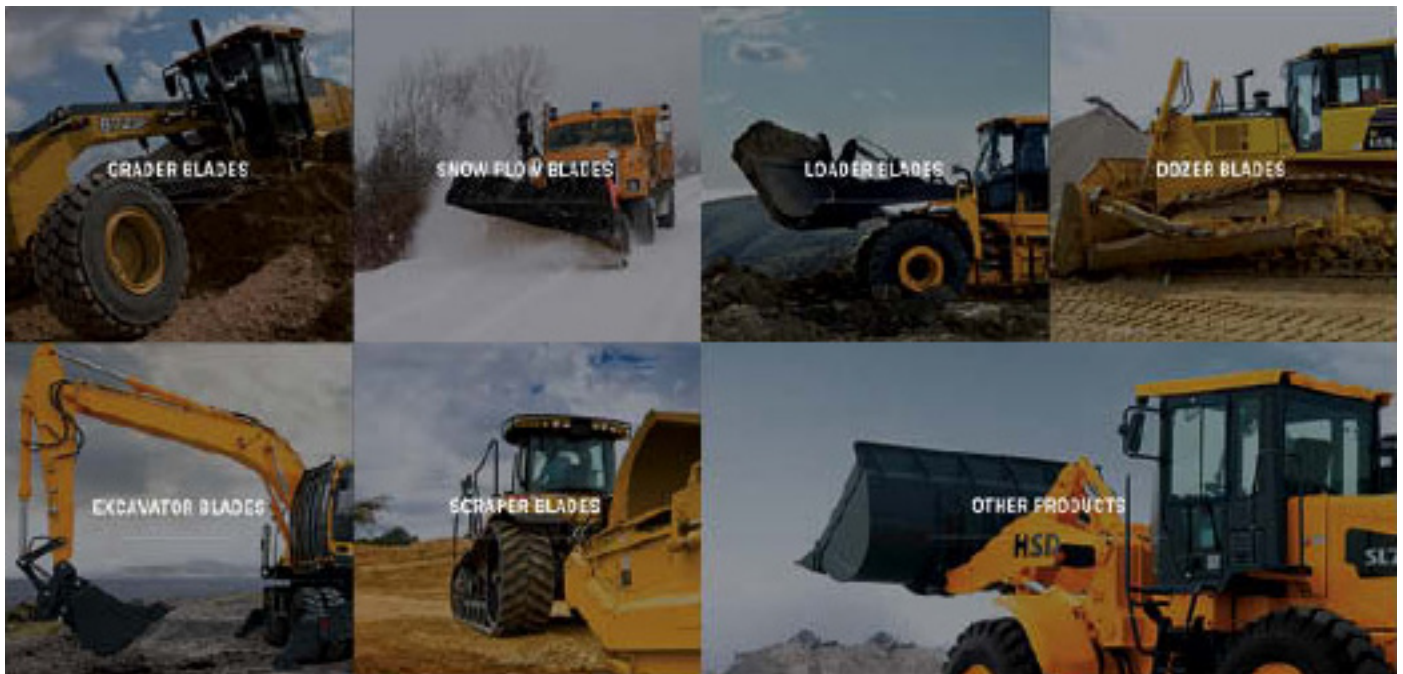


Recycling at Trelleborg.

The Soft Ride tire features a new cushion rubber compound that significantly increases deflection and shock absorption. Combined with the Brawler ultra-cut-resistant tread compound this makes for a solid tire that is very tough, yet much less stiff. This means all the benefits of a premium quality solid tire, plus a much more comfortable ride for operators, no loss of load-index, and increased efficiency

even at higher operating speeds.

"Over the winter we undertook an extensive testing program at an independent facility in Treviglio, Italy, measuring performance against 3 key ISO-standards for comfort and stability. We were delighted when the results confirmed what we believed to be possible: a 35% improvement in comfort compared to the standard solid tires used in this segment. Results that mean the Brawler Soft Ride effectively



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John Deere Introduces Inline After-Treatment Solution

matches the comfort benchmark level of a foam-filled pneumatic tire. For customers in waste management we believe firmly that we have the perfect solution with the best per hour cost of ownership – a tire that is as comfortable as a filled pneumatic tire but with the life performance of a solid tire,” adds Mr. Zweistra.

“In addition to these tests, we also rigorously field-tested the Brawler HPS Soft Ride for over 2 years at waste and recycling facilities around the world. While their geographical locations were very different – Oceania, America, Europe – the reactions of both operators and site managers were the same: ‘We don’t want to switch back’. Our investment in this process and time spent with customers to understand and solve their key issues is what we at Trelleborg call applications expertise and is just one of the things that make us industry leaders,” he concludes.

Source: Trelleborg Wheel Systems

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John Deere Power Systems debuted its newest Integrated Emissions Control system configuration at the 2017 CONEXPO-CON/AGG trade show in Las Vegas. Configured with an inline after-treatment device, the system is designed to offer greater packaging and integration flexibility to both internal John Deere and OEM customer applications.

“As we review the specific application needs of our internal partners and OEM customers alike, we continuously look for strategies that help improve application integration,” said John Piasecki,

director of marketing, sales and customer support for John Deere Power Systems. “Our ability to tailor the configuration of our Integrated Emissions Control system allows us to accommodate increasingly complex packaging requirements while meeting the expanding complexity in world emissions standards.”

The new John Deere Integrated Emissions Control system uses an inline after-treatment device that contains a diesel particulate filter (DPF), diesel oxidation catalyst (DOC) and selective catalytic reduction (SCR) system, achieving Final Tier 4 and Stage V emission levels. John Deere initially plans to offer the system in two sizes for the new 13.6L engine and is designed to be mounted either horizontally or vertically.

“Application integration was a fundamental driver for the development of an inline after-treatment device for use in our Integrated Emissions Control system configurations. The device’s scalable design will benefit our internal John Deere partners, as well as our OEM customers, by offering them a streamlined solution in a more compact package,” said Mr. Piasecki.

John Deere designed its inline after-treatment device with an enhanced

diesel exhaust fluid (DEF) management system efficiency and performance. In addition, enhanced interface points ease application integration and reduce leak paths, connection points and heat loss, providing more robust after-treatment performance.

“In its various configurations, the John Deere Integrated Emissions Control system represents continual technology optimization. It achieves Final Tier 4 and Stage V emissions compliance, and delivers the power, performance, ease of operation, fluid efficiency, reliability, durability and economical operating cost customers expect from John Deere,” added John Piasecki.

All John Deere Integrated Emissions Control systems are exclusively designed to meet the specific demands of off-highway applications in the given power categories. With multiple configurations now available, John Deere has made it a goal to improve overall packaging and offer various packaging options for the Integrated Emissions Control system.

Source: Deere & Company



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EnviroKool™ Sealed-For-Life Coolant Gallery Enables Higher Crown Operating Temperature in Heavy-Duty Engines

Federal-Mogul Powertrain, a division of Federal-Mogul Holdings Corporation, has developed a world-first in piston cooling technology by creating a sealed-for-life coolant chamber within the crown of its market-leading Monosteel® heavy-duty diesel piston. Branded EnviroKool™, the technology allows pistons to run safely at crown temperatures in excess of 100°C higher than today's limits, working where appropriate in conjunction with high oxidation-resistant steel alloys and protective crown coatings.

"Future diesel engines with more efficient combustion and greater specific power will have to run hotter combustion chambers, but engine manufacturers are constrained by piston crown temperature limits," commented Gian Maria Olivetti, chief technology officer, Federal-Mogul Powertrain. "EnviroKool enables higher temperatures without compromising the strength or durability of the piston."

Delivering superior cooling efficiency with minimum weight, EnviroKool is the latest evolution of Federal-Mogul Powertrain's well-proven Monosteel® technology. An integral cooling gallery is created within a steel piston using friction-welded construction and then filled during the manufacturing process with a high temperature oil and an inert gas, before being

permanently sealed with a welded plug. The EnviroKool technology has enabled Federal-Mogul Powertrain to overcome the temperature limitations of conventional open galleries that have to use engine lubricating oil as the heat transfer medium.

"The prolonged exposure of engine oil to higher temperatures in the piston oil cooling gallery leads to degradation and carbon

build-up, reducing the cooling efficiency and leading to overheating," explained Keri Westbrooke, director, Engineering and Technology, Federal-Mogul Powertrain. "The superior high temperature properties of the EnviroKool gallery coolant allow it to handle increased gallery temperatures reliably, with the heat subsequently removed from the undercrown – where temperatures are lower – by a standard cooling oil jet."

With no build-up of carbon in the cooling gallery, heat dissipation remains unhindered for the life of the piston. The



new technology is so effective that the oil cooling flow to the spray jets can be cut by 50%, reducing work for the oil pump, lessening parasitic losses and improving engine efficiency. The heat removed from the piston as a result of the spray jets is additional to that which is conducted away through the pin, piston skirt and ring pack.

Federal-Mogul Powertrain has already accumulated more than 1,400 hours of testing on heavy-duty engines fitted with EnviroKool Monosteel pistons. Development programs are underway with several customers on engines scheduled for production launch within the next 5 years.

"EnviroKool is our latest in a succession of enabling technologies designed to help our customers produce engines and vehicles with a reduced carbon footprint, without compromising longevity, durability or performance," concluded Mr. Westbrooke.

Source: Federal-Mogul Holdings Corporation

FPT Industrial Unveils New 20 I Engine

FPT Industrial unveiled the V20, its powerful, top-of-the-range engine, at CONEXPO-CON/AGG 2017 in Las Vegas, last March.

The new FPT V20 is a 20 I engine with a 90° V8 architecture engine, which delivers a maximum power of 910 hp @ 1,800 rpm and a maximum torque of up to 3,024 lbf ft @ 1,500 rpm. It features a proven 2,200 bar common rail Injection system and ECU – the same adopted by FPT Industrial's Cursor engine family – resulting in high system efficiency and low fluid consumption. At the same time, the lean V8 design with no-EGR, as well as the single-stage WG turbocharging and high resistance materials, guarantee system reliability.

Source: FPT Industrial



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DEUTZ to Supply Remanufactured Engines for Terex AWP Reconditioning Services

DEUTZ Corporation will provide Terex Aerial Work Platforms (AWP) Reconditioning Services, located in Oklahoma City, Oklahoma, with DEUTZ Xchange remanufactured engines. These remanufactured engines will be installed in reconditioned Genie® aerial equipment, including boom lifts, scissor lifts and telehandlers.

"Terex's new streamlined remanufacturing operations in Oklahoma City will produce high-quality machines fitted with our DEUTZ Xchange engines," said Robert Mann, president and CEO of DEUTZ Corporation. "These engines carry a 3-year, same-as-new transferable warranty that is supported by our global service network."

DEUTZ's remanufacturing facility will ramp up engine production to meet Terex's requirements, using Terex's new-machine-production logistics channels in Oklahoma City to ensure a seamless transition. DEUTZ will provide "plug-and-play," dressed Xchange engines with pre-

installed mounting components and ancillary systems to minimize cycle time and manufacturing complexity.

"Terex's AWP Reconditioning Services provide customers with a cost-effective alternative to purchasing new machines," said Bob Bartley, senior director of Genie product support and reconditioning for Terex AWP. "The popularity of reconditioned Genie aerial equipment is increasing, due in large part to a strong warranty, short lead times and an excellent service network. DEUTZ Xchange engines support these elements that are mandatory for the success of our reconditioned units."

"Due to the growth of its reconditioning business, Terex needed to partner with an integrated supplier that has a long, proven track record. The reconditioning business is highly dynamic due to the wide variety



of Genie aerial equipment and engine models available. It would be challenging to grow this business without a flexible, capable supplier. That's what we've found with DEUTZ."

"We're honored to continue growing our partnership with Terex," said Steve Corley, chief sales officer for DEUTZ Corporation. "By supplying Terex's new reconditioning operations in Oklahoma City with DEUTZ Xchange products, our mutual customers be able to easily access high-quality alternatives to new machines."

Source: DEUTZ Corporation

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Cleanfix Reversible Fans, A Solution to Your Radiator Plugging Issue

When you combine the increasing thermal loads brought about by lower emissions diesel engines in the environments which heavy duty OEM off-highway machines often work in, it is clear to see how cooling can be a challenge. A challenge not just in terms of having enough cooling capacity for effective, efficient heat transfer in engines and high flow hydraulic systems. There can also be significant issues resulting from dirt, debris and other contaminants that can clog radiators, coolers and air intake screens. Airflow restriction caused by dirty or plugged coolers can result in a range of problems, everything from overheating of engines and powertrain components to higher fuel consumption and increased maintenance for the machine operator/owner. It can even result in less comfortable cabin conditions for machine operator as a plugged A/C condenser will reduce the efficiency or stop the A/C system from operating.

A major benefit is to have a Cleanfix Reversible fan installed on the engine or hydraulic fan drive. Cleanfix Reversible fans have been in production since 1998. They have been an OEM factory option for several years – amongst them: Case, New Holland, Fendt, Oxbo, Caterpillar, Flory, Komatsu forestry, and many others. The principle of radiator/cooler cleanout has remained the same since the beginning. The blades of the Cleanfix fans have a curvature which creates a high static pres-

sure. When the fan performs a cleanout, the blades rotate approximately 180° which changes the air direction and creates the same static pressure in the opposite direction.

Cleanfix offers air control and hydraulic

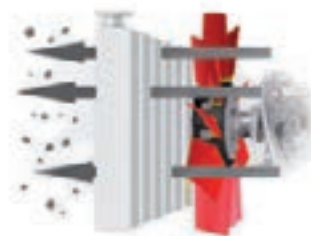
the blade angle increases. This reduces fuel consumption, because the power consumption of a fan depends on the angle of its blades. This is all performed without the need of complicated electronics. In a defined temperature range, Cleanfix auto-



COOLING



REVERSING AT FULL THROTTLE



CLEANING

control systems. For air-controlled fans, it can be tied into the onboard compressed air system of the machine. If there is no onboard compressed air system on the machine, a compressor can be used to control the fan. For hydraulic-controlled fans, it is tied into the machine's hydraulic pilot pressure circuit. Both of these control systems can be equipped with the Cleanfix timer module. The hydraulic Cleanfix fan has a patented smart seal design which prevents the chance of external hydraulic oil leakage from the fan.

In addition to the reversing function, Cleanfix offers a continuously variable blade angle adjustment. Blade angle is based on the temperature of the air passing through the radiator/cooler package. When air temperature is low, the blade angle is low, as air temperature increases,

atically adjusts the angle of the blades in order to meet the cooling requirements of the engine at the minimum possible power draw. Variable pitch fans can also be used strictly to prevent overcooling in the cold months. When you have a variable pitch fan, the larger the fan diameter and/or the higher the fan rpm will result in a more significant fuel and horsepower savings.

Many heavy-duty OEM off-highway machines are operated and/or controlled by either viscous clutches or hydraulic motors. The fan RPM gets matched based on the cooling need of the ECU and the temperature underneath the enclosure to better address cooling requirements. Contamination such as debris and/or clogged radiators increase the static pressure. A restriction of airflow due to contamination can be compensated with an increase of

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fan speed, but this costs power! Power which is required by the engine and power which costs fuel.

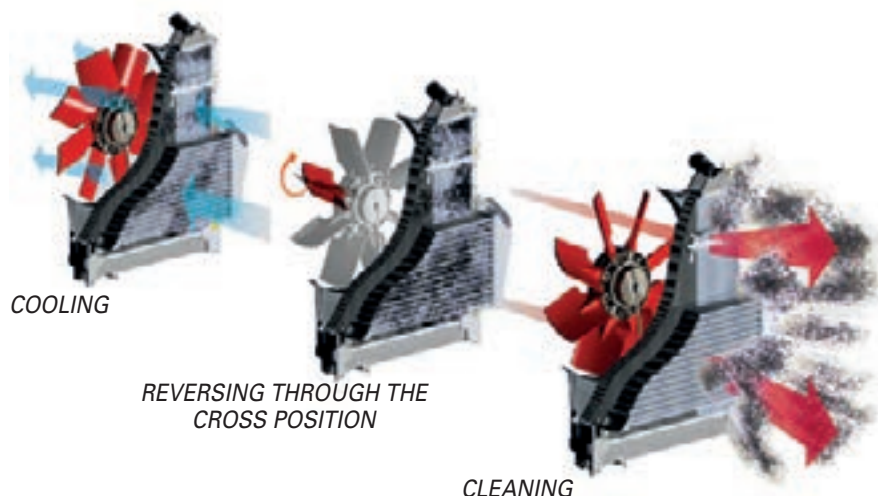
The viscous clutch, or the electronically-controlled hydraulic-motor will increase the fan speed automatically perhaps unnoticed (as long the temperature gauge is not in the red range) to the machine user.

Cleanfix offers the Pulstronic and Hytronic fans for machines requiring continuous OEM controlled cooling.

For OEM's requiring full ECU fan control for cooling and/or cleanout, Cleanfix offers a fan with hall effect sensor which communicates the fan position to the machine ECU.

Seasonal fans can be used on machines that require reverse airflow in cold months to prevent overcooling of the engine and hydraulic systems.

Fans can be specified with 12, 9, 8 and 4 blade arrangements, based on the cooling requirements, fan diameters and engine



size. Fan diameter range from 350 mm to 1,300 mm.

Different fan blade types are available. From narrow blades to wide blades, fixed pitch blades, variable pitch blades, heavy-duty blades, puller and pusher blades.

Overheating damages engines, hydraulic, and hydrostatic systems. Even minor failures can put your machine down at the worst time, and major component failures

can cause significant downtime and expense. Cleanfix Reversible fans eliminate tedious cleaning of cooling components. This ensures that critical machine cooling systems operate at their best, when working in the field and provides a substantial long term payback to the operating/maintenance costs of the machine.

Source: Cleanfix

Eaton Updates X20 Open-Circuit Piston Pumps

Eaton's X20 portfolio of open circuit piston pumps now feature electronic displacement control across all X20 displacements, an updated pressure/flow control and a new torque control for the 620 Series pumps.

"The latest updates to the X20 portfolio will help machine designers improve equipment accuracy and safety," said Sonya Anderson, product manager, Mobile Open Circuit Piston Pumps, Eaton.

The electronic displacement control (EDC) varies displacement in proportion to the current signal sent to the EDC solenoid, providing greater flexibility in machine design, enhanced safety and improved productivity by providing direct control over the displacement of the pump. This allows multiple functions with different system requirements to operate in their most efficient state, while delivering the most efficient use of the power available.

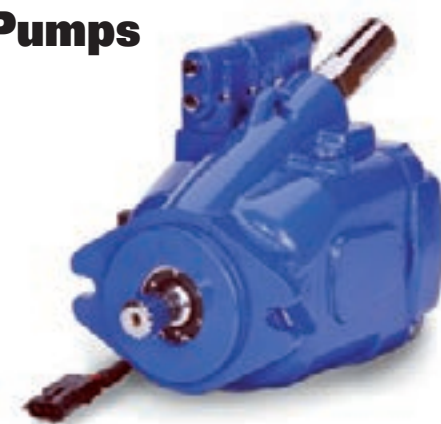
The X20 portfolio EDC is available on all displacements from 28 cm³ to 98 cm³ with 2 different configurations, default to full displacement or default to zero displace-

ment upon loss of electronic signal.

The new torque control feature, available on the 74 cm³ and 98 cm³ displacements, limits the torque required by the pump based on the setting, similar to Eaton's industry-leading PVH Series design. By limiting the peak input torque demand across the range of pressures, speeds, and temperatures, the pump prevents engine stalling while maximizing the use of the engine power, thus reducing fuel consumption in applications such as telehandlers, excavators and forestry equipment.

The externally adjustable torque setting simplifies adjustment as compared with other products that require disassembling the pump to change settings. The torque control feature can be configured with all other X20 controls except EDC and is available with an optional minimum displacement limiter, which will override the controls to ensure a minimal flow.

"The updated X20 pump with torque control is designed with hyperbolic power limitation, allowing the pump to maintain a constant torque limit exactly rather than



approximating the limit using springs – adding efficiencies on top of efficiencies," added Ms. Anderson. "Eaton is also excited to announce an improved next generation compensator (NGC) to replace the existing load sense control on all displacements. The NGC is faster responding, tunable to system requirements through orifices in the control, and more stable and compact."

Additionally, all pumps in the product line are now available with auxiliary mount capabilities, giving customers the option for tandem pump configurations.

Source: Eaton

Keep Your Cool and Carry On

An integral and often overlooked part of any powertrain system is the cooling and lubricating circuits and componentry.

Lubricants must be maintained within a predetermined temperature window in order to perform their dual tasks of lubricating and cooling moving parts. This is even more critical in a hydraulic system where the fluid is also the prime mover.

To achieve this and to maintain critical tolerances between moving items the mass of the powertrain structure must be kept at a stable temperature, regardless of ambient conditions. This is the responsibility of the machines cooling system.

To complicate matters, modern technology is such that the mix of materials used may have vastly different thermal characteristics. An example of this can be found in most late model automotive designs which use plastic tanks and aluminium cores in cooler construction. The stress caused by vibration and heat, tax the durability of such designs, often to the very

limit. These materials also make service and repair difficult, usually impossible. Typically replacement is the only remedy.

When reliability is critical, the selection of pieces and their design becomes a significant factor. These applications are usually more remote than automotive ones. Productivity/profitability of an operation rely heavily upon the dependability of the equipment in use.

Dust, debris, vibration and other elements are common to most mobile equipment environments. They are also enemies to efficient cooling and longevity of cooling systems and components. Maintaining adequate air flow through a cooler is the main obstacle to maintaining efficient heat dissipation. Moisture

and bitumen in dust adds to the problem making the particulate rigorously adhere



to the gilling, accumulating and inhibiting heat transfer.

A traditional soldered, folded fin core

Cylindrical Roller Bearings Built for High Speed, High Load Capacities

C&U Americas, LLC, the North American subsidiary of the C&U Group, one of the world's top 10 bearing manufacturers and China's largest bearing producer, offers world-class quality Cylindrical Roller Bearings for high speed, high temperature, and high load capacity applications. The

bearings are made to the highest quality standards, and are more affordably priced than most competitive bearings.

C&U Americas' line of Cylindrical Roller Bearings delivers excellent speed capability and features a high radial load capacity with optional designs offering thrust load

capabilities, too. These versatile bearings are available in extra capacity designs with a wide range of cage material options including steel, brass, and polyamide. Depending on the exact needs of the application, C&U Cylindrical Roller Bearings can be configured to meet a variety of

The 750 hp Shelby F-150 Super Snake

Shelby American, Inc., recently unveiled the Shelby F-150 Super Snake truck. Marking the return of the Shelby muscle truck, only 150 total of the street-oriented vehicles will be offered by select Ford dealers for the 2017 model year.

Based on the Ford F-150, Shelby American collaborated with partners like Ford Performance and Borla to transform it into a Super Snake. The team sharpened the handling and developed a supercharged version of the 5.0L V8 engine that pumps out over 750 hp.

The Shelby F-150 Super Snake wears unique Shelby styling. It features a new hood, rockers, spoilers, grills, rear bumper panel and tonneau cover. Additional styling cues also include Shelby Super Snake stripes and badges. Inside, the theme continues across the seats, dash and floor.



Source: Shelby American, Inc.

will clog quickly, and depending on the composition of the dust may not be cleanable in-situ. Likewise debris and vibration may compromise the core and surrounding structure requiring removal and replacement.

The cooling system design may be dictated by initial cost and may not consider the true life-cycle costs of a particular choice in design. Just like selecting the correct coolant, oil or tires for your fleet, life-cycle costs must balance an item's price in order to make a value judgement on a cooler's suitability.

Recently a paving contractor had issues with their CMI milling machine radiator clogging due to bitumen dust. Steam cleaning provided modest relief and the coolers were regularly removed/replaced during the working season in order to ensure productivity.

A solution in the form of an individually, shock-mounted, "V" tube core radiator from MESABI flexible core heat exchangers



was presented to this contractor.

The "V" tubes provide a free passage for dust and debris without reducing cooling efficiency. The individual rubber-mounted tubes eliminate fracturing of solder joints from high vibration as experienced when milling or crushing RAP. Maintenance has been reduced to a more normal interval and does not impact daily operation in the working season.

Depending on the application these coolers and radiators are available in various sizes, configurations and materials (ie. copper, aluminium, brass etc.) and come as standard on many OEM-branded models such as Caterpillar, Komatsu, Liebherr and Atlas-Copco. They can be fitted aftermarket and are also readily serviceable and field repairable making them ideal for a variety of applications and customers.

The cooling core can be further enhanced by the type, pitch and drive of the fans used with them. Variable pitch and reversible fans are available for most applications and enhance the ability to keep the core free of debris as well as reduce fuel costs by matching blade pitch to rpm.

Most cooling systems are designed with "worst case" situations as their backdrop. This means that often the fan size and pitch may be less efficient when idling or operating at reduced capacity. By manipulating the pitch, the airflow through the core can be maintained, but the horsepower requirement is reduced. This results in quieter and more fuel efficient operation. Often the ability to reverse the fan can permit the automatic removal of larger debris (leaves, paper, etc.) from the face of the core.

Cooling systems are deceptively simple so generally do not receive the specialist attention they deserve. Leak and pressure testing of coolers requires experience and equipment most general repair shops lack. To get the most out of your equipment and maximize the life of its cooling system, always consult a specialist for advice and repairs.

Source: Armand Signori Auto Radiateur Inc.

noise, speed, vibration and temperature requirements.

Developed in both single row and double row configurations, C&U Americas Cylindrical Roller Bearings are available in all types of precision classes and feature both matched and interchangeable inner and outer ring designs. This wide range of design options positions the bearing line as an ideal solution for all kinds of applications.

C&U Americas offers a full line of bearing types and styles for use in original equipment manufacturing, aftermarket replacement, and MRO operations. The C&U portfolio includes over 30,000 types of bearings in a wide range of specifications and sizes ranging from 1.5 mm ID to 4,000 mm OD.

Over 819 million high-quality bearings are annually produced from C&U's 7 major bearing manufacturing centers,



36 bearing plants, and 18 vertically integrated component plants. Each of the manufacturing centers is independently certified for ISO9001 Quality Management Systems, QS9000/VDA6.1 Quality Management Systems, ISO14001 Environmental Management Systems, and SO/TS 16949 Quality Management Systems.

From its North American headquarters in Plymouth, Michigan, C&U Americas is able to offer its NAFTA customers exceptional value along with complete application engineering and customer service support.

Source: C&U Americas

Appointments

Xylem recently announced the appointment of **Harry Steyn** as International Rental Development manager, Dewatering, based at Xylem's European headquarters in Schaffhausen, Switzerland. In this role, he is responsible for the growth and development of Xylem's extensive European rental fleet of dewatering pumps and accessories. Mr. Steyn previously served as Dewatering manager for Xylem South Africa, managing dewatering rental and sales in mining and industry markets for over 7 years.

"At Xylem, we complement our portfolio of cutting-edge technologies with a committed and dynamic team who share a passion for solving our customers' most complex water challenges," said Jim Mowbray, general manager for Xylem's international dewatering business in EMEA/APAC. "During his tenure with Xylem South Africa, Harry made an outstanding contribution to the growth of our dewatering business in the region and he will now bring this expertise to bear at a European level, expanding revenue opportunities for Xylem's international pump rental offering. I wish him the very best in his new role."

Source: Xylem

Daniel Riendeau, president and general manager of the Longus Group is pleased to announce the appointment of **Steve Lalonde** as the general manager of the **J.R. Brisson** locations recently acquired by the company.

Mr. Lalonde's mandate is to develop the Ottawa and Casselman, Ontario, locations that operate under the CASE Construction banner in order to ensure the growth and evolution of J.R. Brisson, a company which has been in business for over 100 years.

Holder of a bachelor's degree in Commerce with an operation and production management specialization from the University of Ottawa, Steve Lalonde has a wide range of management experience in the heavy equipment industry. His dynamism and expertise in various sectors within the heavy equipment industry make him the ideal candidate to pursue the advancement of the company.

Source: Longus Group

Mika Virtanen has been appointed the Group CEO of **Robit Plc** and a member of Robit Plc's Global Management Team.

Mr. Virtanen has made a career of over 20 years in several management positions in metal and automation industry. He has worked since 2002 for Cargotec Corporation in international operations, where his positions have been among others president (Bromma), senior vice president Spreader Division (Kalmar), vice president Kalmar Intelligent Solutions, vice president Kalmar STS & RTG Cranes Business and managing director (Bromma Malaysia). He has also worked a long period at Outokumpu Pori-copper Oy. He has gained international experience by operating in Malaysia, China and Singapore.

Mika Virtanen's education is M.Sc. in Economics and Production Technologies and he has graduated from Tampere University of Technology in 2002 majoring in industrial economy and production technology.

Source: Robit Plc



The **Ontario Asphalt Pavement Council** elected **Mike McLean**, marketing and sales manager for McAsphalt Industries Limited, as its Chairman during its 43rd annual general meeting. Mr. McLean is taking the over helm of the council from Donn Bernal, general manager of Yellowline Asphalt Products Ltd., who served as Ontario Hot Mix Producers Association (OHMPA) president for 2016 and OAPC chairman for part of 2017. As of January 1, 2017, OHMPA officially amalgamated with the Ontario Road Builders' Association and is a council of ORBA.

Mr. McLean, is a graduate of Canadore College with a 3-year degree in Small Business Administration. He got his start in the asphalt industry early in life through his family's asphalt paving business McLean Paving KL Ltd in Kirkland Lake, Ontario. He joined McAsphalt Industries Limited in 2002.

In 2009, Mike McLean first joined the OHMPA Board of Directors as John Carrick was stepping off of the board. "Joining the Board of Directors was one of the best decisions I ever made," said Mr. McLean. "Subsequently, I joined the Membership Committee and the Marketing Committee and learned from the great leaders before me and became a chair of both committees. This experience has been invaluable."

In addition to his involvement on OAPC's Board of Directors, Marketing and Membership Committees, Mr. McLean is active on the ASPHALTopics subcommittee.

Source: Ontario Asphalt Pavement Council



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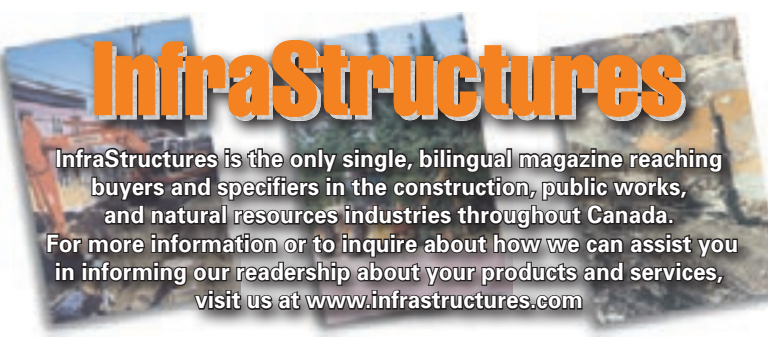
The high performance dual steering gear system is designed for an extra tight turning radius, and the electrical system is designed for dual steer from the ground up, with no third party splicing into a wire harness.



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Agenda

SIMA Snow & Ice Symposium

June 20 - 23, 2017
Montreal, QC Canada

14th Moscow International Oil and Gas Exhibition / MIOGE 2017

June 27 - 30, 2017
Moscow, Russia

Minexpo Africa

August 10 - 12, 2017
Dar es Salaam, Tanzania

Expo-Champs

August 29 - 31, 2017
Saint-Liboire, QC Canada

Asia-Pacific's International Mining Exhibition (AIMEX)

August 29 - 31, 2017
Sydney, Australia

MatExpo 2017

September 6 - 10, 2017
Courtray, Belgium

IFAT Africa

September 12 - 14, 2017
Johannesburg, South Africa

APOM Technical Day

September 14, 2017
Charlesbourg, QC Canada

ICM MEMO 2017 (Maintenance, Engineering and Reliability / Mine Operators Conference)

September 24 - 26, 2017
Saskatoon, SK Canada

CanWest Hort Expo 2017

September 27 - 28, 2017
Abbotsford, BC Canada

International Construction & Utility Equipment Exposition (ICUEE)

October 3 - 5, 2017
Louisville, KY USA



AWWA's Annual Conference & Exposition

October 4 - 6, 2017
Las Vegas, NV USA

inter airport Europe 2017

October 10 - 13, 2017
Munich, Germany

Waste & Recycling Expo Canada / Municipal Equipment Expo Canada

October 25 - 26, 2017
Niagara Falls, ON Canada

The Big 5 Dubai - International Building & Construction Show

November 26 - 29, 2017
Dubai, United Arab Emirates

Landscape Ontario's Congress '18

January 9 - 11, 2018
Toronto, ON Canada



InfraTech

January 10 - 12, 2018
Essen, Germany

World of Asphalt 2018

March 6 - 8, 2018
Houston, TX USA



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