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A Brief Word...

There is much new in the world of equipment with many of those "Off-the-Wall" ideas from a few years ago taking tentative steps towards being a daily presence in our lives. We are seeing more regular announcements of alternative power technologies being applied to machines that even the most modest contractor uses. Electric and other motive power technologies are no longer restricted to the biggest machines and the biggest OEMs.

With it comes a potential boon to the Canadian economy. Lithium is becoming the "Must Have" material. Canada has it tucked away under its soil in abundance. Resources are the keystone to the economy, and with dwindling or costly-to-get traditional resources, lithium promises to recharge this critical sector.

With this wealth will come investment, not just in mines but in equipment and related services. Not overnight, but possibly in time to pay the bill for our current crisis.

In the pages of InfraStructures, we shall keep you up-to-date on such announcements, even with "Stay-at-Home" orders, we can tap into our wealth of industry contacts to bring you developments fresh off the engineers' drawing table.

Your informative, colorful, easy to read source that you can refer to no matter where you may be. Is it any wonder you have made InfraStructures Canada's Equipment Magazine.

On the cover: two 145 t rough terrain cranes were used last summer on the Frederick G. Gardiner Expressway, in Toronto, Ontario, to lift and remove existing steel and concrete expressway deck sections and replace with new fabricated deck panels.

EPIROC TO ACQUIRE SOFTWARE COMPANY FOR INCREASED MINE PRODUCTIVITY

Epiroc has agreed to acquire MineRP, a software company specializing in increasing productivity for mines through integrated planning, execution and analytics.

MineRP has offices in South Africa, Canada, Australia and Chile. The company supports large and medium-sized mines globally in strengthening and optimizing their operational efficiency by providing a leading software platform solution that integrates all technical mining data and other information such as machine data and ERP systems.

"This acquisition fits well into Epiroc's focus on supporting mining companies on their digitalization journey. The combination of MineRP's platform capabilities with Epiroc's digital solutions, partners and global presence has the potential to transform the way that mines operate," said Helena Hedblom, Epiroc's president and CEO. "MineRP is a high-quality software provider with significant experience of connecting mines from pit to port, and together we will continue to make mining customers' operations even more smart, safe and seamless."

The seller is a group of owners, including Dundee Precious Metals, a Canadian-based international mining company. The acquisition is expected to be completed, after regulatory approvals, in the first half of 2021. The purchase price is not material relative to Epiroc's market capitalization.

The business will become part of Epiroc's Digital & Technology division.

Source: Epiroc

SPONSOR ANNOUNCED FOR THE *TECHNICIANS OF THE YEAR AWARD*

The AED Foundation is pleased to announce the Knapheide Manufacturing Company as the exclusive sponsor for its *Technicians of the Year Award*, which recognizes hard-working technicians who are critical to AED's success distributor members and the equipment industry.

"We thank Knapheide for their generous sponsorship of these awards, which will also help us continue our Foundation's mission to address the industry's technician shortage," said Jason Blake, executive vice president and COO of The AED Foundation. "We are excited to recognize another stellar class of technicians, which is one of the ways we can showcase the critical role that technicians play in our industry."

The AED Foundation's Technicians of the Year Award began last year to highlight the importance of the technician career, bring awareness to the technician shortage, and promote industry-specific jobs to students, parents, educators, and other stakeholders. The AED Foundation and Knapheide look forward to expanding the visibility of these awards.

"We are excited to be the exclusive sponsor for The AED Foundation's – Knapheide Technicians of the Year Award

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over the next 3 years," said Mandar Dighe, Knapheide's vice president of sales and marketing. "This is a unique opportunity that allows us to recognize top performing technicians from across the U.S. and Canada and to support the work of The AED Foundation in creating a more stable future for the industry."

The winning technicians will be formally recognized at The AED Foundation's Fundraising Gala, held on March 29, during AED's Summit at the Mirage in Las Vegas, Nevada. Additionally, the winners will receive a recognition plaque and be featured in AED's CED Magazine.

Source: Associated Equipment Distributors (AED)

CITY OF LEWISTON REACHES SIGNIFICANT MILESTONE IN WATER TREATMENT PLANT RELIABILITY

The City of Lewiston, Idaho, has reached a significant milestone on its path to maintaining and enhancing water services in order to keep up with growth in the area. Following a robust procurement strategy developed by owner advisor Brown and Caldwell with support from J-U-B Engineers, the City recently selected IMCO General Construction as the design-builder to move the project through design and construction.

"Upgrading our water treatment infrastructure is key to providing uninterrupted, essential water service to our customers, extending the design service life of existing facilities, and planning for future growth," said City of Lewiston engineering project supervisor, Alannah Bailey, P.E. "To achieve this, Brown and Caldwell defined a procurement strategy that allowed us to collaborate with design-build respondents in a meaningful way, ahead of selection."

This US$27.5 million ($35.7 million) project is an important investment for the community. It was made possible by a majority decision of voters in the May 2019 City of Lewiston Revenue Bond Election, allowing the city to borrow funds (invest) in order to make needed improvements to the water treatment system. In 2019, the Lewiston City Council also approved the Water System Facility Plan, which recommended upgrading or replacing the 1924-built Lewiston Water Treatment Plant (WTP) and subsequently decided to use a progressive design-build delivery approach for the project to get early interaction between design engineers and contractors. Retrofitting of the aging WTP is required to reliably and safely meet community drinking water needs for the next 20-40 years.

The procurement approach began with comprehensive market sounding to confirm procurement approach viability with interested proposers and industry leaders. Following the shortlisting of qualified teams, the City used an innovative proposal workshop concept to advance technical concepts. Each shortlisted team participated in workshops targeted at developing their preferred and backup project concepts through feedback from the City. This ensured the City understood the proposed concepts and allowed them to experience each team's approach to collaboration.

"We were able to get a true sense of each team's capabilities and concepts through this unique procurement ap-

proach," said Ms. Bailey. "More than anything, it has set the project on an early, positive path and given the City the confidence to move forward with an innovative technical concept proposed by IMCO."

Anticipated for completion by the spring of 2023, the existing WTP will be largely demolished and a new membrane treatment plant will be constructed with the flexibility to deliver up to 380 million l/day.

"Our team congratulates the City of Lewiston on successfully entering the next phase of this important water treatment project to maintain and enhance essential water service to its customers for future generations," said Brown and Caldwell's Owner Advisor Gus Hrncir.

Source: Brown and Caldwell

MANITOU GROUP RATIONALIONALIZES ITS U.S. FOOTPRINT

Manitou Group recently announced that it will cease operations in Waco, Texas, at the end of March, 2021 and consolidate most of the production in South Dakota.

The articulated loaders production will be consolidated in Yankton, one of its 2 factories in South Dakota, where 50 positions will be created. The forklift production will be moved to Beaupréau, France. The North american importing platform will be concentrated in Baltimore, Maryland.

The rationalization of its U.S. footprint and a streamlined operation will allow the company to boost its performances to always maintain innovation and service to North American customers for the future. Strengthening the Manitou Group position in the U.S. remains its key market strategy target.

"Our priority now is to assist our 148 employees based in Waco with job searches, including providing resume assistance and connecting employees to resources offered by the Texas Workforce Commission," said Alexandre Caharel, vice president of the Compact & Articulated Loaders PU.

Source: Manitou Group

KINEDYNE RELOCATES WEST COAST DISTRIBUTION CENTER

Kinedyne, a designer, manufacturer, and distributor of cargo control technologies, including cargo securement, capacity, and access solutions for the transportation industry, has relocated its West Coast distribution center from Reno, Nevada, to a new, state-of-the-art distribution facility in Azusa, California, to improve lead times and speed product delivery from this facility.

The Azusa distribution center, located in Los Angeles County has the opportunity to better service this major marketplace. With twice as many docks as the Reno facility, it will be able to accommodate more trucks simultaneously to improve delivery efficiency.

"Our new Azusa location will give us the opportunity to provide better service by optimizing our logistical supply chain," said Roger Perlstein, vice president – sales and marketing for Kinedyne. "The new facility is closer to key West Coast ports and has direct access to increased freight carrier routes, allowing us to process orders faster and more efficiently from this facility."

Source: Kinedyne LLC

BALFOUR BEATTY SET TO REDUCE CARBON EMISSIONS ON CONSTRUCTION SITES

Balfour Beatty, in collaboration with Sunbelt and Invisible Systems, has developed a state-of-the-art technology to manage the power supply of site compounds and reduce carbon emissions across its construction sites by up to 80%.

The system, known as EcoNet, works by controlling and reducing the energy output from key appliances in cabins, such as those in kitchens, drying rooms and office spaces.

EcoNet is configured to autonomously manage power demand by automatically turning appliances and equipment off when not in active use. This helps to regulate power consumption during times when demand is highest, such as when site compounds are fully occupied, equipment is being operated and appliances, such as drying rooms and heaters, are in use.

Traditionally, construction sites are powered through connections to the National Grid or with the use of diesel generators. With the use of EcoNet, power demand on the grid or the use of diesel generators is greatly reduced by limiting unnecessary usage, ultimately reducing overall carbon emissions.

The system was first launched in May

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2020 on Balfour Beatty's East Leeds Orbital Route project in the UK – the large-scale highways contract to build 7 km of outer ring roads around Leeds city center, easing congestion in residential areas and supporting increased traffic flow from surrounding towns. Within the first 6 months of use, EcoNet resulted in an 83% reduction in carbon emissions across the site by running on a grid supply, actively managing electric vehicle charging and optimizing the heating, hot water and external lighting running schedules.

So far, 21 Balfour Beatty sites are utilizing EcoNet, including HS2's Long Itchington site in Warwickshire, Highways England's A63 scheme in Hull and Motherwell station redevelopment in North Lanarkshire, Scotland. Balfour Beatty plans to roll the system out across 50 live sites by summer 2021 and has committed to installing EcoNet on any new site in the UK with more than 6 facility cabins. Once fully embedded, it is expected that Balfour Beatty will save a minimum of 2,200 t/y of carbon dioxide emissions, with individual sites reducing their carbon emissions between 30% to 80% of their normal levels.

"The construction and infrastructure industry traditionally use a significant amount of energy to deliver large-scale projects shaping the communities in which we live. To counteract this, it is our responsibility to modernize the approach to energy consumption and help to reduce carbon emissions from our operations," said Kari Sprostranova, Balfour Beatty's sustainability director. "With solutions such as EcoNet, we can improve our sustainability practices and the impact construction sites have on the environment."

"We are delighted to partner with Balfour Beatty and Invisible Systems to work on this innovative way of reducing carbon emissions on construction sites," added Jamie Fountain, Sunbelt Rentals account director for Balfour Beatty. "Sunbelt Rentals is totally committed to continue working alongside Balfour Beatty, acting responsibly and sustainably and this is one of a number of projects which is an important part of our overarching Sustainability 2025 strategy."

"Invisible Systems are proud to have developed and delivered the solution which enables the construction industry to work towards carbon-neutrality, by leveraging the power of the Internet of Things. The outcomes achieved from our mutual collaboration with Sunbelt & Balfour Beatty will serve as a benchmark throughout the construction sector," said Pete Thompson, CEO of Invisible Systems.

The EcoNet system contributes to Balfour Beatty's commitment to sustainability and supports *"Building New Futures"*, the Group's refreshed sustainability strategy launched in December 2020, which sets bold 2040 ambitions to Go Beyond Net Zero Carbon, Generate Zero Waste and Positively Impact More than 1 Million People.

Source: Balfour Beatty

TRI-LIFT HAS BEEN APPOINTED AS BRONTO SKYLIFT'S DISTRIBUTOR IN CANADA

As a division of TRI-Crane, Ontario-based TRI-Lift was founded by 3 partners, Jason Hanna, Mark Williams and Aaron Hanna in March 2019 and will provide sales, service and maintenance, spare parts and rental of Bronto's non-insulated aerial truck-mounted platforms.

The first unit, a 70 m working height S230XR, has already ordered and will be available for demonstration and rentals in March 2021.

TRI-Lift will aim Bronto equipment at a range of industries, including complex projects in the film industry and wind sector, among other applications. "It's our passion to always find a solution even for the most difficult projects, that nobody else wants to do. When others turn away, we go there," said, Jason Hanna, partner at TRI-Crane.

All 3 TRI-Lift partners have extensive careers in the lifting and rental industry. Mark Williams is a 3rd-generation family business owner and has been in the industry from a young age. Jason Hanna has been in the industry from the late 1980s and served as a crane operator and in various managerial roles, before becoming president of TRI-Crane and TRI-Lift. Aaron Hanna is vice president of sales at TRI-Lift and brings 20 years of sales experience in the industry, having started his career as a crane operator.

"With their extensive knowledge, the

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*Fuel consumption improvements based on comparison of 460E to 460E-II.

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partnership with TRI-Lift enable us to explore and expand our market in Canada," said Janne Pulkkinen, vice president, Bronto Skylift.

Current Canadian distributor Hycotec will also continue to operate as a Bronto Skylift distributor in the country.

Source: Bronto Skylift

CRATOS EQUIPMENT ANNOUNCES PARTNERSHIP WITH CENTEC CORP

Cratos Equipment, a supplier of high quality, battery-powered construction equipment, recently announced their new partnership with Centec Corp for the manufacturing of battery-powered construction equipment throughout Canada.

As an independent manufacturer representative sales group based in Exeter, Ontario, Centec Corp uses a portfolio of brands to differentiate its products and services in the rental, industrial and retail distribution channels.

By partnering with Cratos Equipment, Centec Corp aims to be Ontario's most customer-centric representative group, where customers can rely on them for all rental, industrial and retail operational needs.

"We are excited to have Centec representing us in Eastern Canada," said Bob Maguire, vice president of sales at Cratos Equipment. "Over the last 12 months, we have seen the Canadian market move to green machines for indoor demolition. Centec will help us get to all of our Canadian customers and prospect in a timely and efficient manner."

Jerry Elmquist, Founder at Centec Corp, is looking forward to a new relationship with Cratos and securing a prominent place for Cratos in the Ontario markets. Centec Corp provides many years of experience in the rental and equipment markets in Ontario.

"Centec Corp is very pleased to have the Cratos product lines including the Sherpa as part of our equipment offering to the Rental and Construction industries in Ontario," said Mr. Elmquist. "There is a growing need for 'Green Energy' equipment in the construction industry and the Cratos products meet those needs."

Source: Cratos Equipment

LAFARGEHOLCIM TO ACQUIRE FIRESTONE BUILDING PRODUCTS FROM BRIDGESTONE

LafargeHolcim has signed an agreement to acquire Firestone Building Products (FSBP). Founded in 1980, Firestone Building Products is a business unit of Bridgestone Americas and part of Tokyo-based Bridgestone Corporation. This acquisition is a milestone in LafargeHolcim's transformation to become the global leader in innovative and sustainable building solutions.

"I am excited to be entering the highly attractive roofing business. With Firestone Building Products we are strengthening our biggest market, the U.S., while also building a global growth and innovation platform for the company. Today's milestone is a strategic leap on our journey to become the global leader in innovative and sustainable building solutions, to build a world that works for people and the planet. I have great respect for the high-caliber leadership and expertise of the Firestone Building Products' team and look forward to welcoming them into the LafargeHolcim family," said Jan Jenisch, LafargeHolcim CEO.

"Today is a big moment for the Firestone Building Products team as we look forward to becoming part of the global leader in building materials and solutions. Together, we are in a prime position to accelerate our growth by combining Firestone Building Products' advanced technologies and know-how with LafargeHolcim's global scale and reach," said Taylor Cole, Firestone Building Products president.

Urbanization trends are accelerating the development of the flat roof market, currently estimated at around $70 billion globally. By entering this attractive new business, LafargeHolcim will deliver above-market growth, driven by innovative technologies and branding. It will also benefit from Firestone Building Products' position in the high-growth repair and refurbishment segment, accounting for the majority of its sales today.

Source: Bridgestone Americas, Inc.

CK Power Acquires Crawler Carrier Manufacturer, Terramac

CK Power recently acquired Terramac, a manufacturer of rubber track crawler carriers. The acquisition will allow CK Power to expand their equipment offerings and capabilities with Terramac carriers in North America while growing their footprint in various energy markets.

The integration of both companies is underway and Terramac will continue to operate under its existing brand and base location in Elburn, Illinois. Current infrastructure and the Terramac dealer network will leverage CK Power's extensive knowledge and expertise in manufacturing and distribution. Throughout this transition, Terramac customers will continue to receive the same high-quality products and personalized support they have come to expect.

"Terramac has a strong reputation for providing versatile off-road equipment solutions to a variety of industries," says Matt Slater, vice president of Sales and Marketing at Terramac. "We're excited for this acquisition as it will expand our opportunities for growth from a manufacturing and distribution standpoint while enhancing our customer service."

CK Power, based in St. Louis, Missouri, is a provider of power solutions with over 90 years of experience serving a variety of industries. Their mission to continually expand and improve product offerings is supported by a professional staff and achieved through strong core values.

Source: CK Power, Terramac LLC

Tandem RTC-80160s Work on Toronto Expressway

The Frederick G. Gardiner Expressway is an 18 km east-west expressway running alongside Lake Ontario in Toronto, Ontario. The Strategic Rehabilitation Plan by the City of Toronto will revitalize the 62-year-old expressway in multiple phases. The contractor for the first phase of the project is using bridge building methods (like pre-fabrication) to accelerate construction and lessen noise and environmental impact.

Two 145 t Link-Belt RTC-80160 Series II rough terrain cranes were used last summer to lift and remove existing steel and concrete expressway deck sections and replace with new fabricated deck panels. The new concrete deck panels lifted in tandem weigh between 45 to 100 t and span 20 to 42 m.

Phase 1 included complete replacement of steel girders and concrete for existing on-ramps and road decking between Lower Jarvis and Cherry streets. Poured-in-place deck panels were built on-site east of Cherry street in quality and climate controlled canopies. Approximately 400 sections of deck panel were constructed and lifted into place, and the Link-Belt rough terrain cranes were part of the fleet performing the rehabilitation.

Initial construction of Phase 1 included westbound lanes and ramps, requiring 2 open lanes in each direction for commuter traffic. Crews primarily worked 24/7 to accelerate the project and reduce the length of construction. In roughly 8 months, the contractor has logged 1,200 hours on both RTC-80160 Series II.

Source: Link-Belt Cranes

CN Celebrates the 25th Anniversary of its Privatization

Back in November 1995, the Government of Canada put CN shares up for sale to investors; at $2.25 billion, it was the biggest IPO in Canadian history. At the time, CN was the largest and oldest Crown Corporation in Canada. Today CN is a world-class transportation leader and trade-enabler.

"The privatization of CN was anticipated with widespread skepticism, but executed with startling success and today it is the source of enormous pride for our employees and all those involved over the years. It allowed CN to unleash the powerful creative and competitive forces of our railroaders," said JJ Ruest, president and CEO of CN. "I want to thank everyone who contributed to this success as well as our employees for their dedication to safely moving the economy for our customers and for the communities where we operate. Twenty-five years after the IPO and with safety as our core value, our future is all about performance and customer service, generating long-term value for our shareholders. It's been an amazing 25 years and the journey continues."

In the past quarter century, CN has expanded its network to reach 3 coasts, from the Atlantic to the Pacific and south to the Gulf of Mexico. It has acquired the Illinois Central Railroad, the Wisconsin Central Railroad, the Elgin, Joliet & Eastern Railway, and BC Rail. Each of those railways, as well as the Grand Trunk Western, are represented by one of the locomotives specially painted by CN for the 25th anniversary of its IPO and they will be rolling on CN's network to move its customers' goods.

JJ Ruest, seen here with locomotives from railroads welcomed in CN's ranks over the years. From l. to r.: BC Rail, Grand Trunk Western, CN, Illinois Central Railroad, the Wisconsin Central Railroad, and the Elgin, Joliet & Eastern Railway.

CN has also become a leader in technology and innovation. Privatization allowed it to pioneer the Precision Scheduled Railroading model, which has vastly improved railroad efficiency since it was implemented at CN in 1998. Artificial intelligence and advanced data analysis are now propelling CN into the next evolution; the digitalization of scheduled railroading.

Source: CN

Cleaning Up the Cold War

Shane Kroeker, director of Strategic Initiatives at K-Tec Earthmovers Inc. Special Collaboration

The McIntosh Pit is a former uranium mine site that has undergone a multi-phase reclamation near Jeffrey City, Wyoming.

The former boomtown of Jeffrey City in Freemont County is located on Highway 287 about 140 km west of Casper. The community experienced rapid population and economic growth in conjunction with the previously profitable and high-demand uranium mining industry during the Cold War era. As the local mining district attempted to meet the ever-growing demand for the radioactive element during the Cold War arms race with the Soviet Union, the focus was solely on political tensions, without a vision for the long-lasting environmental implications.

HISTORICAL UNEARTHING OF URANIUM

The U.S. identified a major concern in the 1950s about the access to the world's small supply of known uranium, the main ingredient in the atomic bomb. A search for new domestic sources was initiated and identified the hills of Wyoming as a key potential location, which triggered a frenzy of prospector opportunity. Bob Adams, a Wyoming entrepreneur, became intrigued by the local stories of million-dollar claim fortunes and began his own quest. Mr. Adams creatively fixed radiation detectors to the wings of his private plane that could signal occurrences of uranium in the ground to successfully find uranium in Crooks Gap, where he staked his own claim and developed a business plan.

In 1958, the venture between prospector, Bob Adams, and financing investor, Dr. Charles W. Jeffrey's Western Nuclear Corporation (WNC) received a new contract from the U.S. Atomic Energy Commission that doubled its uranium milling capacity. This announcement sparked the boom of population growth and development of Jeffrey City, and the expansion of numerous uranium mines in the hills of Freemont County. Approximately 1,000 people were employed by the uranium mine. For 20 years the uranium mining boom continued, which allowed Jeffrey City to develop into a community with amenities where over 4,000 residents could live, work, and be entertained.

WNC began uranium mining operations on Sheep Mountain at the McIntosh Pit in 1975. McIntosh Pit was a 14 ha area of the Crooks Gap-Green Mountain Uranium Mining District where over 4 million t of ore had been extracted, to capitalize on sky-high uranium values. The corporation undertook large production open-pit mining operations and dug deep in the McIntosh Pit to extract valuable yellowcake; a mined uranium ore concentrate that the Split Rock uranium mill processed 1,500 t daily. WNC used a variety of extraction methods including acid leach, solvent extraction, and ion exchange. Proof of the historical mining activities is seen in 2020, as the 60 m deep pit features a brilliant blue groundwater lake walled in by large, stepped banks cut into the rock measuring up to 90 m high.

Unfortunately for Jeffrey City, the uranium mining bubble burst in 1979 with the partial meltdown at the Three Mile Island Nuclear Generating Station, in Pennsylvania, which triggered increased nuclear regulations, and led to an immediate drop in the demand for uranium given the perceived dangers of nuclear power. Subsequently, Western Nuclear Corporation laid off hundreds of employees to react to the changing economic conditions. By the end of 1982, WNC's workforce dwindled down and production ceased. As was common practice at the time, the mine was abruptly abandoned, leaving the sporadic overburden landscape frozen in time. Since Jeffrey City relied heavily on the uranium mining industry, 95% of the community's workforce population had vanished. Jeffrey City's most recent U.S. census data counted a total population of 58 individuals.

RECLAMATION ON THE RANGE

Before the adoption of the Surface Mining Control and Reclamation Act of 1977, the federal government did not

require mining companies to perform site remediation work. Times have changed, as in today's environmentally conscious society, there is a responsibility to rectify the oversights of previous mining activities. The federal government has designated funds devoted to the cleanup of these hazardous land areas disturbed by mineral extraction. Wyoming is one of the leading states in cleaning up abandoned sites. Commencing in 2014, the Abandoned Mine Land (AML) Program administered by the Wyoming Department of Environmental Quality (DEQ) laid out an estimated $26.2 million, multi-year plan with 7 project phases to reclaim the McIntosh Pit back to the original landscape, prior to uranium mining operations. Computer generated 3D models were created to ensure the land transformed back to the pre-mining vista. The goals of the program were abating physically dangerous hazards, improving drainage and site conditions to stable landforms, remediating 9 million m^3 of mine spoils containing elevated radionuclides, and promoting diverse vegetative success for livestock grazing acres. The 2020 phase 5 of the Mcintosh Pit project was to move a total of 0.9 million m^3 from the hillside into the bottom of the pit, thereby eliminating the groundwater lake.

Since 2014, a variety of competitive-bidding contractors have been awarded the various phases of the AML McIntosh reclamation project. These contractors have chosen different methods of earthmoving equipment to complete their respective phases, ranging from mining shovels or excavators top-loading into trucks, and traditional motorized scrapers. The phase 5 contract was awarded to Summit Excavation & Grading in April 2020 who proposed a unique new method of excavation services to complete the challenging 8-month project before November. Summit targeted the average weekly production at an advantageous 38,000 m^3 per week.

Summit utilized 2 Volvo 40-Ton ADTs, each pulling 2 K-Tec scrapers in a train configuration on the long haul from the east spoil pile. Each scraper hauls 28.3 m^3 for a total of 56.5 m^3 in a single pass with a single operator and engine running. The K-Tec 1237ADT train scrapers easily loaded the abrasive powdered granite material with the aggressive center bit cutting edge stinger that allowed for deep excavation and speed loading. Summit used gravity to

their advantage to dive over the spoil pile cliff's steep grade; load the lead scraper first, followed by a heaped rear scraper before reaching the bottom of the slope. Impressive production was realized as it took less than 2 minutes to load up the trains in the cut zone.

"Due to their width and 4-wide wheel arrangement, the scrapers are stable and not prone to tipping even cutting down slopes up to 3:1," said Mark Schmidt, Summit Excavation owner & manager. "The K-Tec's have high ground clearance and can handle the steep gradient ramps at McIntosh."

The loaded trains, which were fitted with 8-caliper disc brakes, sped down an 8% slope on Summit's freshly constructed winding haul road. The haul road was maintained by a Case 620 Tractor that pulled a 6 m wide K-Tec land leveler to blade the path smooth from point A to B with frequent moisture assistance from a dust control water truck. Summit emphasized the value of a well-maintained haul road, as earthmoving efficiency and employee safety was of paramount project importance. On level ground, the loaded scraper trains traveled approximately 55 km/h.

Once the scrapers reached the bottom of the pit, the scrapers drove parallel to the shoreside of the groundwater lake and smoothly laid out a lift of the gritty material by dumping each scraper within 8 seconds. A bulldozer then pushed the scraper dumps into the pit to progressively squeeze out the water while the scrapers turned around at the rock wall to crawl back up the haul road. Full cycles of earthmoving performance clocked an average of 7.5 minutes.

The scrapers proved their worth in the rugged conditions where occasionally, the cutting edges encountered jarring boulders hidden below the sandy surface. An excavator would quickly move in to pluck out the massive rocks and dropped them into a Volvo A40G ADT custom-fitted with a K-Tec EJB 4X ejector body. Once the ejector body accumulated a full load of boulders, the truck would also travel down the winding haul road, and smoothly eject a load of chunky rocks out the back of the truck to splash into the groundwater lake.

To safely eliminate the groundwater lake, as per the project specifications, a series of evaporation mist arrays and water cannons

were positioned atop the water surface and around the reservoir banks. The evaporative dewatering system offset the displacement of the water level and prevented the level from being raised too rapidly.

Elsewhere on the McIntosh site, an Earthmoving Support Tractor (EST) was a wise investment for Summit to have readily available. The Case tractor was fitted with 2 attachments from K-Tec as on the front of the EST, the Ox Block pusher block allowed for the option to push-load scrapers for increased capacity in an expedited cut zone time to improve productivity. On the rear of the EST, the K-Tec Tricerabox is a box blade mounted to the 3-point hitch, engineered to engage the ground and manipulate soil. The 3 functions of the Tricerabox include the leveling blade pulling material forward, ripper teeth sinking down into the soil, and blade backward for pushing material similar to a dozer. The Tricerabox has 7 ripper shanks that are hydraulically lowered for engaging the ground to pre-rip the excavation to expose boulders. The Tricerabox back blade allows the operator to complete backfilling of soil work, fully smoothing out the cut and fill zones. The 3-point hitch was also modified to have a scraper hitch hook-up, making it the ultimate piece of support equipment, where the tractor can fill in as a bulk dirt hauler for another power unit that may be down for maintenance.

Once the hard rock material was scarified, another Case tractor and K-Tec 1233 scraper outfitted with a Trimble GPS system was utilized to move short-haul material from the southern spoil, channel work, local fills, slope work, cover soil placement, and finish grading activities.

Throughout the project, Summit strategically saved and stockpiled the topsoil while the subgrade was being reached. The topsoil was then hauled and spread either with scrapers or in some challenging locations, with the EJB. The technological prowess of the company shone as both the subgrade and finish grades were put in by GPS automated machines to meet the requirements of the 3D model original landscape. The final spreading of the brown topsoil above of the dusty Wyoming sand provided a fertile foundation for the landscaping subcontractor to plant native species. The plants took root to close the phase of the project, leaving future generations without a visible trace of the uranium boom and bust in these acres of Crooks Gap.

As the Cold War tensions slowly subsided in years gone by, the AML initiative is now down the homestretch of closure. Summit Excavation successfully completed phase 5 of the McIntosh Pit uranium mine reclamation project on time by utilizing unique combinations of earthmoving equipment. Throughout the last 70 years, advantages continue to be sought after, for just as Bob Adams used creative equipment to originally find uranium in Crooks Gap, Summit Excavation used their own fleet of creative equipment to return the land back to the beautiful home on the range.

Addition of MICHELIN XTRA LOAD 21.00R33 Rigid Dump Truck Tire Completes Lineup

Michelin North America, Inc., is completing the MICHELIN® X®TRA LOAD lineup with the addition of the 21.00R33 dimension for rigid dump trucks (RDT). The new MICHELIN® X®TRA LOAD GRIP™ and the MICHELIN® X®TRA LOAD PROTECT™ will allow users to increase load capacity or accommodate more distance per hour to maximize productivity.

Both the MICHELIN XTRA LOAD GRIP and the MICHELIN XTRA LOAD PROTECT will be offered in A4 and B rubber compounds.

The new MICHELIN XTRA LOAD tire is available for 2 surface rigid dump truck applications:

- MICHELIN XTRA LOAD PROTECT for hard, sharp, abrasive conditions on flat, dry surfaces, where the priority is protection and damage resistance – conditions often found in quarries and construction sites. This application is for customers who want to carry more load or increase the distances they carry up to a maximum speed of 33.8 km/h. With a longer wear life, the revolutionary tread pattern contains a greater volume of tread rubber and has better load distribution across the contact patch. The interlocking blocks and improved heat dissipation yield a cooler running tire that allows increased speeds. Corrosion-proof cables within the tire structure increase aggression resistance.
- MICHELIN XTRA LOAD GRIP for soft, loose, muddy ground conditions in mining and quarry operations on slopes and inclines, where the priority is high grip and traction. A reinforced casing gives the tire more load capacity per machine – a huge increase in productivity when multiplied by the number of cycles made daily. The tread is comprised of 30% more biting lug edges, which improves braking, cornering and acceleration in loose ground conditions. The tire can handle speeds up to 33.8 km/h thanks to cooler internal running temperatures. The tire also provides a longer wear life with more rubber in the contact patch and improved damage resistance with corrosion-proof steel cables.

The XTRA LOAD series is also available in sizes 18.00R33 and 24.00R35.

Source: Michelin North America, Inc.

Oldcastle Approves WEAV3D Composite Technology for Reinforcement Applications in Polymer Concrete Products

Oldcastle Infrastructure, a CRH Company and leading provider of infrastructure products, has approved WEAV3D composite lattice material for reinforcement applications in their polymer concrete and SMC composite products. Ideal for underground energy, transportation and communication applications, WEAV3D composite lattice is a completely non-metallic reinforcement material that provides high levels of durability and strength, as well as resistance to corrosion and other environmental conditions.

Initially developed for a new polymer concrete cable trench designed for 7,250 kg wheel loads, WEAV3D composite lattice was utilized in place of traditional steel wire reinforcement. The lattice is based on a thermoplastic composite material that forms an adhesive bond with polymer concrete and provides exceptional impact and tensile load resistance.

WEAV3D's lattice reinforcement is able to provide targeted strength around the drain holes and ends of the cable trench, reducing the likelihood of damage during transportation and installation. It also eliminates the corrosion that can occur when products are cut or drilled and steel is exposed. This advanced reinforcement will be available for use in a wide range of Oldcastle's infrastructure products.

As a leader in composite material products and technology, Oldcastle is always looking to utilize innovative materials to bring lightweight, durable and economical products to the market.

"The WEAV3D lattice offers flexibility and performance in the design, handling and placement of reinforcement that cannot be matched with traditional steel reinforcing," said Oldcastle product manager, Chris Schultz, P.E.

"Using thermoplastic composite materials that bond with Oldcastle's resin yields the best possible strength and mechanical properties," says WEAV3D founder and CEO, Christopher Oberste, PhD. "Our composites are also cost competitive with steel reinforcement."

Headquartered in metro Atlanta, GA, WEAV3D Inc. is an innovator in composite materials, manufacturing processes, and processing equipment, having spun out of the Georgia Institute of Technology Materials Science and Engineering department in 2017.

Source: WEAV3D Inc.

BKT Awarded SQEP Gold Certification by Caterpillar

Caterpillar has awarded BKT's Bhuj plant SQEP (Supplier Quality Excellence Process) Gold certification, an important acknowledgement reserved for suppliers who have stood out during the year for achieving the highest levels in terms of quality and control over processes.

It is a great success for the Bhuj production site, in India, already BKT's flagship. Opened in 2015, Bhuj is one of the Group's most innovative factories: an autonomous, cutting-edge plant in terms both of its manufacturing assets and its infrastructure to support its employees.

The radial tires of the EARTHMAX range for CAT vehicles are made there. Specifically, they are tires designed to facilitate better ground load distribution for dump trucks, wheel loaders, dozers, graders and some multi-purpose vehicles. In addition, the tires in the EARTHMAX range stand out for their all-steel, structure, which guarantees resistance for the casing of these products and better distribution of ground loads.

The SQEP Gold certification obtained by BKT, besides rewarding the Indian multinational's commitment in logistics and its range of innovative, high-quality products, is further confirmation of the successful collaboration between Caterpillar and BKT, which lays the basis for even stronger synergies and partnerships in the future.

"This certification really means a great deal to BKT," said Arvind Poddar, Chairman and Managing Director of BKT. "We are proud of receiving this prestigious recognition from Caterpillar and we hope in future years not only to maintain our high standards and performance with our customers, but to even go further by continuously improving: BKT's journey is one marked by continuous evolution and development."

Source: Balkrishna Industries Ltd. (BKT)

Genie Hybrid and Xtra Capacity™ Boom Lifts Receive Awards

Over the last several months, Genie® boom lifts have received awards from several industry trade publications. The Genie Z®-45 FE, Z-60 FE, S®-40 XC™ and S-45 XC™ boom lifts were acknowledged for their innovation, impact on the market, and popularity with readers.

Equipment Today in September 2020 named the Genie S-40 XC (Xtra Capacity™) and S-45 XC among its Contractors Top 50 New Products. *Roads & Bridges* awarded the Genie Z-60 FE a 2020 Contractor's Choice Awards Gold Winner in the Aerial Work Platforms Category. Additionally, the Genie Z-45 FE was recognized with a 2020 Editor's Choice Award, Lift Category, from *Rental magazine* in their October issue, and was named among the Top 100 New Products of 2020 by Construction Equipment in December.

"We are honored that editors, contractors and rental companies have recognized our Xtra Capacity and hybrid boom lifts. This recognition is a testament to the value we aim to add to our customers and end users across all of our products and services," said Simon Meester, Genie COO.

For heavier lifting applications, the XC series offers both unrestricted and restricted 454 kg platform capacities. The dual-envelope design enables up to 3 people plus tools and materials needed for structural, electrical, or plumbing tasks, with maximum capacity available through the majority of the range chart. Load sensing continuously checks the weight in the platform and adjusts the operating envelope according to the load chart. XC models are powered by dual fuel or diesel engines.

With 2 modes of operation (all electric or hybrid), the Z-45 FE, as well as the Z-60 FE articulating boom lifts can be adapted to indoor or outdoor applications. The hybrid technology combines the power and performance of typical 4WD diesel

The Future of Electric Scissor Lifts is Here

machines with the clean efficiency of 100% electric power.

Genie XC telescopic boom lifts and Genie FE hybrid articulating boom lifts are now complimented by the new Genie S-60 J and S-80 J telescopic boom lifts. The J series, introduced earlier this year, offers essential performance for every-day jobs in a package that is cost-effective to operate and maintain. Together, these 3 product lines – XC, FE and J – complement one another perfectly, giving rental companies the flexibility to create fleets that deliver improved productivity and efficiency on any jobsite, while allowing rental companies to manage their ROIC more granularly.

Source: Terex Corporation

JLG Industries, Inc., an Oshkosh Corporation company, elevates the access industry once again with its now available all-electric DaVinci™ AE1932 scissor lift. Featuring zero hydraulics to help eliminate jobsite leaks and zero emissions to help control jobsite pollution, this 5.79 m scissor lift is purpose-built for applications where stringent environmental regulations must be met.

Every component on the DaVinci scissor is fully optimized, including the control, lift, drive and steering systems, to reduce the machine's energy consumption by up to 70% as compared to a traditional scissor lift. This reduced energy consumption allows for the use of a single, lithium-ion battery.

The machine has a compact footprint, weighs 1,565 kg and 25% gradeability.

DaVinci lifts also comply with the latest ANSI and CSA industry standards, featuring a load sensing system, self-closing gate and the JLG QuikFold rail system. It comes standard with JLG Mobile Control, allowing users to drive, steer and load the scissor lift from any iOS or Android mobile device.

Source: JLG Industries, Inc.

General Tire Earthmoving Expands with Light Construction Lineup

General Tire is expanding its line of earthmoving tires with the introduction of 15 new items for graders, skid steer loaders and backhoes. These new application-specific tires are designed to provide a long life and high performance in rough operating environments.

The expansion into light construction applications complements the existing General Tire earthmoving line with tires suitable for articulated dump trucks (ADTs), rigid dump trucks (RDTs) and scrapers, which launched in February 2020. The comprehensive range is built for customers looking for durability and great value, combined with the reputation of a well-known and trusted brand.

With the addition of light construction tires, General Tire provides a strong solution for all earthmoving applications. All tires are currently available in the U.S. and Canadian markets in varying sizes.

- *General TE11 and TE11 A*: Rugged tire designed for grading and loading operations.
- *General Skid Steer SD*: A multi-purpose design for standard to light duty skid steer operations.
- *General Skid Steer HD*: A heavy duty tire with a deep staggered tread bar design for excellent traction and grip.
- *General Skid Steer XHD*: With multiple arrow shaped tread lugs and superior traction, it is ideal for extra heavy-duty applications and varying surface conditions.
- *General Backhoe HD*: An all around backhoe rear tire suitable for varying surface conditions.
- *General Backhoe XHD*: A heavy-duty backhoe front tire built for challenging construction tasks.

General Tire has over 100 years of experience and expertise in the development and production of tires made specifically for off-the-road applications. The world-renowned brand stands as a trusted partner, while providing a great price-performance ratio for their tires.

Source: Continental Tires, Commercial Specialty Tires, General Tire

Paving Widths of 12 m With the SB 300 Fixed-Width Screed

The fixed-width screed demonstrated its benefits right from the start during a project to lay a major road. It processed complex materials such as porous asphalt and stone mastic asphalt in large widths. The result is a convincing one.

Fixed-width screeds are frequently used when large widths need paving without joints. This was the case for a new section of the B75 in Hamburg, Germany, called the "Wilhelmsburger Reichsstrasse". This major road runs alongside the railway tracks for a distance of approximately 4.6 km. Bundling 2 large traffic routes in one place means that both the town and its inhabitants gain space and the noise pollution of the busy road is reduced for those who live nearby. Paving was performed by a SUPER 2100-3i-type tracked paver. This Highway Class paver of the state-of-the-art "Dash 3" generation from VÖGELE is the machine of choice for a great many highway projects.

For some time, both contractors and operators have had yet another reason to use the SUPER 2100-3i to work without joints in large widths: the SB 300 Fixed-Width Screed. In combination with the SUPER 2100-3i, it can pave a maximum width of 13 m. The asphalt paving work in Hamburg almost reached this limit – the binder and wearing courses were paved in a width varying between 10.5 and 12.5 m. To ensure that the carriageway resists deformation, one part was made of stone mastic asphalt, whilst a 2.2 km-long section was completed in porous asphalt to reduce noise.

When processing materials, compaction performance and the floating behavior of the screed are of key importance. Both are highly dependent on the correct tamper setting. With hydraulic tamper stroke adjustment for the new fixed-width screeds, VÖGELE delivers an innovation which allows tamper stroke to be adjusted at the push of a button. It can be selected between 4 and 8 mm, the important point being that 4 mm are recommended for thin layers such as binder and wearing courses, whilst a stroke of 8 mm is recommended for thick base courses.

Together with his paving team, construc-

CorrVerter® MCI® Rust Primer: The Clear Winner Against Rebar Corrosion in Concrete Repairs

Corroded reinforcement is the chief cause of concrete deterioration, which prompts subsequent repairs. For repairs to be sound, contractors must ensure adequate adhesion of new patch repair materials by proper preparation of exposed reinforcing steel. ICRI's 310.1R-2008 *"Guide for Surface Preparation for Repair of Deteriorated Concrete Resulting from Reinforcing Steel Corrosion"* states that exposed reinforcing steel should be free of any materials such as concrete, dirt, and corrosion products that could interfere with repair material adhesion, although a tightly bonded light rust on the rebar surface is usually not detrimental to the bond of patch materials. When it comes to tackling reinforcement surface prep and ongoing protection, CorrVerter® MCI® Rust Primer stands out among competitor materials with clear performance and application advantages to mitigate rebar corrosion.

Rebar coatings containing corrosion inhibitor typically require a rust-free application surface to work properly. Abrasive or water blasting and intensive labor are usually needed to ensure corroded surfaces are completely clean. This is not necessary for CorrVerter® MCI®, which is recommended for application to rusty or poorly prepared steel surfaces where further corrosion protection is required and good surface preparation is difficult to achieve. It is a unique formulation of chelating agents combined with a high solids waterborne latex with extremely low water vapor permeability. This fast drying, single-component primer converts surface rust into a hydrophobic passive layer and offers excellent protection against re-rusting of metal surfaces. Reinforcement coated with CorrVerter® MCI® Rust Primer has similar bond strength to concrete compared with uncoated rebar.

CorrVerter® MCI® Rust Primer data reports 500 hours of corrosion resistance in salt spray testing (ASTM B-117) at only 75-125 µm) DFT (applied at 217.5-362.5 µm WFT).

When it comes to dependable corrosion protection and easy surface prep, CorrVerter® MCI® Primer is the clear winner among competitive rebar primers and bonding agents. CorrVerter® MCI® Primer offers engineers, owners, contractors, DOTs, and government agencies a convenient, low-labor option when performing repairs on heavily corroded rebar and other metal surfaces.

Source: Cortec® Corporation

tion manager Martin Iske from contractors KEMNA BAU Andreae GmbH & Co. KG managed all the challenges faced on the B75 in style – due, among other things, to the latest screed technology from VÖGELE.

"The new screed is very rigid; the immaculate evenness makes this clear. The new variability is another feature to highlight - paving without joints would have been impossible without it," said Mr. Iske, referring to a key new feature on the SB 300: the hydraulic bolt-on extension.

This extension to the outside of the screed can be extended hydraulically – by 1.25 m on each side, so a total of 2.5 m. This enables VÖGELE to combine the advantages of its extending screeds with those of the fixed-width screeds: a high degree of flexibility plus maximum evenness. On this large-scale jobsite, the KEMNA paving team pushed this advantage, too, almost to the maximum as the pave width varied by around 2 m.

The SB 300 can be combined with several VÖGELE pavers, from the SUPER 1800-3i to the SUPER 3000-3i. It has a basic width of 3 m and a variety of extensions can be used to increase it to a width of up to 16 m. The company team developed the SB 300 together with the SB 350. The latter delivers a pave width of 18 m which can be achieved in combination with VÖGELE's flagship paver, the SUPER 3000-3i.

Other new/further developments on the SB 300 and SB 350 Fixed-Width Screeds ensure that they are ready for action quickly. Whilst the guide and positioning system helps users fit the extensions correctly, the electric heating system brings the screed to operating temperature more quickly and more evenly than the preceding model.

Source: JOSEPH VÖGELE AG

What's New – and What's Next – in Sustainable Asphalt Production

Simone Franz, MarCom Specialist for Plants
Ammann Switzerland Ltd
Special Collaboration

Sustainability has been part of the roadbuilding conversation for decades. Yet improvements that make the methods and machines more environmentally friendly continue to gain momentum.

Industry leaders increasingly see green practices as not only a way to better the world, but a tactic to improve profitability, too.

At the forefront of such sustainable efforts is Dr. Hans-Friedrich Peters, executive vice president of Ammann's Plants Division. Dr. Peters recently provided an in-depth look at how asphalt production has become more sustainable – and a glimpse at what is on the horizon, too.

Conversations about "green" roadbuilding always start with the use of recycled asphalt (RAP). Can these recycled materials really perform as well as mix made from virgin aggregate?

Yes, the conversation does start with RAP – and it should. The biggest reductions in indirect CO2 emissions result from the implementation of RAP.

We should not categorize RAP as waste material. It is a perfectly fine substitute for virgin materials. The aggregates in reclaimed asphalt show little aging and are mechanically and geometrically within the quality ranges of new material.

Bitumen holds up well, too. Its aging is limited and can be compensated by using small amounts of new bitumen. When utilizing RAP you're saving on both aggregate and bitumen costs – while reducing emissions, initially and over the lifetime of a road.

Our technology allows the use of RAP percentages up to 100%. In reality, the percentage is usually much less based on the amount of RAP that is available and the recipes defined by the authorities.

Are countries increasingly adopting recycling, or have we hit a bit of a plateau? And what about the earlier adopters – are they taking further strides or are they content to recycle at existing levels?

Many countries that did not initially adopt recycling are now moving ahead rather quickly. China is an example of this. The country is leveraging some of Ammann's most advanced recycling plants and creating mix with extremely high percentages of RAP.

The earlier adopters are now recycling even more. That can result from governments lifting restrictions, but increasingly it's because the asphalt producers see the value of RAP.

Whatever the motivations, the global community is benefitting. From an environmental perspective, all parties involved should increase their efforts to expand the percentage of RAP being used for new pavements.

The challenge with RAP is the heating of the materials. Hot temperatures damage bitumen. In some processes, virgin aggregate is heated, which mixes with the RAP to raise its temperature. But when making mix with 100% RAP, there is no virgin aggregate – and therefore no secondary heat source. How do Ammann plants heat the 100% RAP mix without damaging the bitumen?

On the high end of RAP utilization is the Ammann ABP HRT (High Recycling Technology) Asphalt-Mixing Plant. As stated, it can produce mix with up to 100% RAP. No virgin aggregate is required.

There is considerable technology and innovation involved in the HRT concept, in particular the RAH100 counterflow drying process technology. Essential to the RAH100 is its gentle heating process. During the warm mix process, the dryer heats materials between temperatures of 100°C and 130°C. It also makes asphalt at 140°C to 160°C if a more traditional mix is desired.

The heating is usually where the complications with RAP material arise. RAP must reach its target temperature, but the valuable bitumen will be damaged if the

material is heated too quickly.

The RAH100 eliminates that concern. It consists of 2 connected sections. One is a hot gas generator that contains a burner and forces air toward the second section, which is a counterflow dryer.

The RAP enters at the far end of the counterflow dryer section and moves toward the heat chamber. At the end of the counterflow dryer, RAP is transported to an accompanying silo. The heated RAP mix leaves the dryer before the temperature becomes excessive, so it never reaches the critical temperature where the bitumen is damaged.

One quick point about the ABP HRT: It's an extremely advanced plant – I would say it's clearly the industry leader. Yet Ammann always strives for further improvement, so this system, created more than a decade ago, is constantly improved. That includes the hot gas generator, which has been upgraded on multiple occasions.

The appearance of the ABP HRT is unique, with the recycling system placed above the mixer. What is the purpose of that design?

The plant is designed around the incorporation of large percentages of RAP. What you see is a nod to the fact that the HRT plant has elevated RAP from a supporting role to the lead actor.

As you stated, the most striking difference is that the ABP HRT's entire recycling system is arranged vertically, in direct line above the mixer. This allows materials to be dropped instead of conveyed, which minimizes wear and optimizes transport of the hot RAP. The HRT approach also means that there is enough room in the plant's tower for additive feed components and for carrying out inspection and maintenance work.

Today the HRT concept is the smartest operational method for handling the specific properties of RAP.

Making mix that theoretically consists of 100% RAP is impressive. Yet many mix makers will utilize lesser amounts of RAP. What are the solutions for these customers?

Many of our customers fall into this category, and we most assuredly have products for them.

There are varied heating processes that depend on the amount of recyclables. The RAH60 is a parallel flow dryer where up to 60% hot recycled materials can be fed. The RAH50 is a middle-ring dryer that incorporates up to 40% hot recycled materials.

Recycling can occur at Ammann plants without these specific dryers. Up to 30% cold recycled material can go directly into the mixer, meaning almost every Ammann plant is capable of utilizing that amount of RAP.

At some point, it would seem that manufacturers such as Ammann could only make so much more progress on emissions. Are there opportunities for further reductions?

There are. The newest is in regards to volatile organic compounds (VOCs). These compounds must be diminished in the clean gas stream to cut the total carbon value.

We continually work to reduce CO_2 emissions. This can be accomplished by actively cooling the drum, increasing drying efficiency and utilizing energy sources such as biofuels and wood dust. Ammann technology can diminish CO_2 by 10% or even considerably more, depending on the age of the plant and the technology chosen.

There are other somewhat hidden opportunities to trim CO_2 emissions, including the bitumen tank farm. A traditional farm consists of horizontal tanks heated with thermal oil. Changing to an electrically heated, vertical tank farm results in considerable advantages. There is no oil consumption and therefore no emissions. Electric heating is cost-effective, too. In fact, electrically heated bitumen tanks have become standard in all of Europe and other parts of the world.

There are also other emissions like dust and odor. Their level of importance and the maximum values being allowed differs greatly from country to country and area to area. Our technology allows the lowest values for all of them (e.g. < 10mg/m³ of dust) without causing any restrictions on the plant operations.

Low temperature asphalt (LTA) is another opportunity that is becoming more prevalent. While conventional asphalt is produced at around 170°C, the low temperature processes of today allow production temperatures of around 100°C. Lowering the manufacturing temperature eases energy needs, and therefore emissions, too.

LTA impacts the entire production process – including drying, mixing sequences and recycling. Ammann has focused its research and development on the complete manufacturing process for LTA.

The placement of plants in residential and commercial areas also raises noise issues. Why are plants located in these areas, and what can be done to limit the noise?

A shortage of industrial land means that asphalt plants increasingly must be located closer to residential areas. Local governments can have very strict standards when it comes to noise, so we have to make the plants as quiet as possible.

Ammann has been very proactive on this front. We offer varied sound-suppression packages to meet our customers' specific needs. Some customers need to lower

sound a bit, while others have to take more substantial measures. The efforts start with equipping burners with variable speed motor drives, which are much more quiet, and stack silencers, which control exhaust noise. We offer more and more sound-suppression options, all the way to cladding the entire plant.

That cladding, by the way, makes the plants look like commercial buildings. They are beautiful facilities that fit nicely in urban office parks. Passersby would never guess there is an asphalt-mixing plant inside.

You referenced dust emissions earlier. This is becoming a bigger issue as plants must often be located in sensitive areas. Can anything further be done to limit the dust that results from these plants?

The conversation about dust emissions starts with the baghouse. Ammann Asphalt-Mixing Plants remove dust through a highly efficient baghouse filter. It actually lowers exhaust dust to less than 10 mg/m^3, which is an exemplary benchmark. We are currently working on reducing this value significantly again, to < 5 mg/m^3.

People often focus solely on the dust resulting from the mix-making process, and what comes out of the chimney. They forget that all the logistical operations around an asphalt-mixing plant, and around equipment like trucks and wheel loaders, are creating much more dust than the plant itself. Fortunately, countries like China, and also some areas in Europe, are increasingly considering these other sources.

Ammann and its customers have together developed solutions to further limit dust. We focus on dust reduction points for further improvement. Taking measures at the cold feeder, load-out, skip hood, overflow silo, filler loading area, screen, belts and transfer points makes a big difference. That's in addition to the efforts provided through the baghouse.

To summarize the current state of emissions, I would say the main focus is on trimming CO_2, VOCs and NOx in the combustion process and on reducing the residual dust content after the baghouse. There are also markets in which, for example, the integration of pre-dosing into the dedusting process is also being promoted.

Are local governmental requirements becoming stricter in general? We discussed CO_2, sound and dust emissions, but what about odour – particularly given that the plants are increasingly placed in residential or commercial areas?

Overall yes, the requirements are becoming stricter – but they are extremely different from one country to the next.

We are eager to comply with all the regulations because it's the law and because we want to be good neighbors, too. That means a lot more than shrinking carbon and VOC emissions. It also includes muffling sound, which we just discussed, as well as dust and odor.

Dr. Hans-Friedrich Peters executive vice president of Ammann's Plants Division

In regards to odor… Bitumen fumes are the primary source of odor. Ammann offers different solutions to contain the fumes and the odor that can result. As with dust, we have reduction points – in this case the bitumen tanks, the skip and load-out levels and the stack.

There is a great deal of talk about alternative energy sources, including biofuels. But some mix producers who are contemplating a plant purchase might be hesitant to commit to such fuels, as they are somewhat unproven and their availability might not be as consistent as traditional sources.

Ammann biofuel burners can also utilize more traditional fuels such as natural gas, LPG, light and heavy oil and kerosene. This alleviates the concerns of customers who are hesitant to rely solely on newer fuels.

The use of these new fuels is another meaningful win on the green front. We are taking renewable energy sources or, in some cases, converting a waste product into fuel. This conserves natural resources and puts less pressure on landfills.

On the renewable front, we are very high on the wood dust burner. The burner transforms wood dust, a material that is available from local sources, into a renewable fuel. What makes this dust burner even more exceptional is its carbon neutrality. The carbon dioxide released when burning wood is offset by the fact the tree consumed that amount of carbon dioxide during its life. Therefore, this part of the emissions is carbon-neutral.

The burner has proven effective and is utilized on a number of Ammann Asphalt-Mixing Plants. It can be retrofitted on existing plants as well.

Biofuels of course are another initative. They support climate protection and reduce dependency on mineral oil. Examples of these fuels are rapeseed and sugar cane. Tall oil, which is a waste product of cellulose sulphate production, can be used, too.

We expect that in the near future other fuel types such as hydrogen will significantly reduce gas emission values. These fuels will also be much more important in our industry. Ammann is already working on solutions to be prepared for this.

Plant owners might look at these comments and say, "These are great ideas, but I already own a plant." How can an asphalt producer begin to make the change to a more green operation while utilising their existing plant?

Asphalt producers might be surprised by how much they can accomplish with their existing plant. A very easy first step is to

upgrade the control system.

A modern control system can have a significant impact on efficiency, and that cuts across many parts of the process. Improved efficiency will lessen fuel usage, emissions and material waste. And the as1 is the best in the business at doing exactly that.

Training is another immediate step that can be taken. The best plant and control system in the world will underperform if the operator is unable to leverage the built-in value.

Another option is a more comprehensive retrofit. It still costs a fraction of the price of a new plant and is compatible with products made by Ammann and other manufacturers.

A retrofit has a host of options you can choose from, including recycling solutions. A retrofit enables the use of foam bitumen, waxes and other additives. Special bitumen and alternative mixing cycles can be utilized as well.

Again, the plant owner can determine the level of the commitment. Many retrofit customers incorporate a new dryer, which

optimizes heat transfer – and of course reduces emissions – and enables the employment of an expanded range of materials, including RAP.

A retrofit can include environmental upgrades to the bitumen tank and baghouse. It can incorporate noise reduction solutions, too. A host of technological improvements can be made – including revamped burners, mixers and the control system.

What is the next step for a business that wants to explore some of the solutions you referenced?

They should get in touch with Ammann sales or support teams. If they don't have a specific contact, they can visit the website Ammann.com. There is a "Find A Dealer" link prominently displayed on the home page. The website also has a host of information on all Ammann products, including asphalt-mixing plants.

X-ray System Lets You Look Through Conveyor Belts

When testing steel cables in conveyor belts, a magnetic resonance method reaches its limits. A mobile X-ray system was able to help Vulkanisierungstechnik Mahnke GmbH with extensive analyses.

At the end of 2020, a steel cord belt of a conveyor system ran backwards down the conveyor bridge while the belt was being changed and "piled up" on the conveyor system. A magnetic resonance method was used to check the condition of the steel cables, but the results were only quantitative, i.e., not enough information to determine the inherent quality.

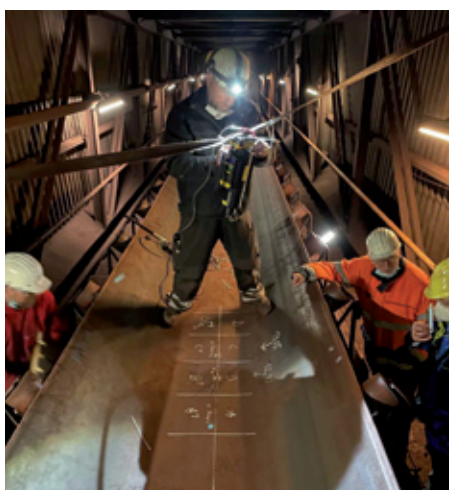
More precisely, 3 large suspicious areas, as well as about 30 other small potential damages, were detected. However, due to the technology on hand, combined with external disturbances, it was not possible to clearly determine whether the steel cables were torn or crushed. In addition, the results were not reproducible due to the prevailing environmental influences.

That is why Vulkanisierungstechnik Mahnke approached VisiConsult, a specialist for customized X-ray inspection systems, for a solution.

The system had to be set up on short notice. The X-ray method clearly showed the structure of the steel cables with a very high resolution, and the X-ray analysis was able to rule out breaks, tears or even warping of the steel cables at all detected points.

For this application, an Xplus Mobile System consisting of a digital detector and a portable X-ray tube was used to visualize the steel inside of the conveyor belt.

Due to image filters, details of the individual wire ropes can be made even more visible.



"Under difficult conditions it was possible to create absolutely high-resolution images. So, we're pretty excited," said Sven Gross, authorized signatory at Vulkanisierungstechnik Mahnke. "We see a huge potential in performing condition monitoring of large, especially non-redundant conveyer belts."

Source: VisiConsult X-ray Systems & Solutions GmbH

Excavation Pit With a View

To ensure that the waste water system of the German cultural city of Aschaffenburg will be fit for the future, a new waste water facility for the city's mixed water system is currently being constructed in the immediate vicinity of the historical city center. With a view of the imposing Johannisburg castle and near the Willigisbrücke bridge on the banks of the Main River, 2 structures for waste water management are being constructed that will be combined and brought together in 1 complex: a rainwater overflow buffer with a capacity of 2,000 m^3 and a new waste water pumping station.

"Because this stretch of the Main is a very popular area for leisure activities and local recreation, green spaces will be restored on the surface after the end of the general construction activities," explained Mona Feilner, project manager for Bauer Spezialtiefbau.

BAUER Spezialtiefbau GmbH is working together with Michel Bau GmbH from Klingenberg under the umbrella of the Willigisbrücke joint venture. The client is the civil engineering office for the City of Aschaffenburg. Bauer is carrying out the specialist foundation engineering works, which are expected to conclude in summer 2021. These works include the execution of a tied-back, water-resistant box for construction of the shell. Specifically, a retaining structure will be executed with a secant pile wall using the CFA method up to a depth of about 24 m; additionally, a low lying jet grouting cut-off base (HPI) will be installed. In some places, removable anchors will be used to tie back the retaining structure. This is the first time GRP anchors will be used in Germany. In addition, the shell will be secured against uplift with a micro pile foundation.

Work must proceed with particular caution, and success depends on the preparation and coordination of individual tasks as well as their execution by the dif-

ferent trades involved. A further challenge is ensuring that the service roads are kept operational at all times. A variety of largely unknown obstacles in the construction soil also requires heightened attention. "The right equipment technology is particularly important, as are quality assurance measures to achieve a 'leak-proof' excavation pit – particularly during construction of the HPI," said Nicolai Guegel, construction supervisor for the execution of the HPI base at Bauer Spezialtiefbau.

Various equipment from the Bauer portfolio is used for these works, including a BG 40 for construction of the CFA piles and a BG 15 with HPI mixer technology and drilling slurry regeneration that is currently being used to carry out the HPI works. Following this, the anchors will be installed using a KLEMM KR 806 and uplift prevention will be executed using a BG 20.

Source: BAUER Group

Hydra-Slide Low Profile System Skids Transformer Under Bridge

A 310 t capacity Hydra-Side low profile skidding system was the centerpiece of a multifaceted transformer delivery and installation in Sweden recently.

The LP350 was used to skid a 240 t transformer under an overpass along the 40 km route from Sundsvall to Nysäter, and then into its final position. The 11 m long, 3.8 m wide, 4.7 m high transformer was delivered by Jinert, a Swedish lifting and material handling company, for its customer, DSV, a global transport and logistics firm. Including the truck, the entire transportation weighed in at 327 t.

An overnight road closure was implemented to facilitate the underpass slide. Cold weather and snow presented further challenges for the night crew; trucks were called in to salt the road surface to ensure the equipment had sufficient traction.

In addition to the skidding equipment and gantry, Jinert also utilized jacks and a heavy trailer.

Jinert has a fleet of crawler cranes, mobile tower cranes, mini-cranes and crane trucks ranging in capacity from 22.5 t to 680 t, in addition to trailers for heavy transport, wheeled loaders and telescopic loaders.

Source: Hydra-Slide Ltd.

Weather Resistant Cameras Offer Enhanced Road Safety

During wet and cold months, road conditions can be extremely hazardous. Snow, fog, and heavy rainfall can all combine to build up on cameras to limit visibility and increase the risks of accidents and collisions.

According to research, approximately 22% of road traffic incidents are caused by poor weather conditions. Drivers of commercial vehicles can feel particularly vulnerable in storms. While travel advice should always be followed in extreme conditions, commercial drivers will continually be under pressure to deliver goods on time. Routine checks of commercial vehicles should always be thorough regardless of weather conditions, yet it is extremely important to ensure cameras can show a clear image by removing any dirt that could be on a cameras lens when weather conditions are particularly poor. Clearly, protecting drivers and other road users from hazardous weather conditions is a priority. Advances in vehicle safety technology in recent years are helping to address the issue. These include camera monitors, which not only eliminate vehicle blind spots, but also aid driver visibility even in the toughest conditions.

"When weather is poor, visibility from camera monitors can be compromised. For example, large vehicles travelling at speed will create a vortex that draws grit and dirt onto the back of the vehicle. This can very quickly cover any rear view camera lens, making it difficult for drivers to see what is behind them," explained Warren DiMarco, a road safety expert at Brigade Electronics Canada.

Shutter cameras, found in Brigade's Elite and Select ranges, are helping to solve this issue. The cameras feature an automatic shutter to protect the camera while it is not in use. The shutter is only triggered to open when a vehicle enters reverse gear, meaning the camera lens remains clean and the life of the camera is increased.

"Our range of cameras offers superb durability whatever the environmental conditions. They operate at temperatures as low as -40°C and with IP ratings of up to IP69K – the highest possible rating to protect against ingress from water or dust and sand. So in heavy rain or high wind and the harshest conditions, they remain an excellent driving aid, eliminating blind spots no matter what the weather," continued Mr. DiMarco.

Brigade's shutter camera range also feature an integrated heater to prevent water on the lens and the shutter itself from freezing; an instrumental feature in upholding driver safety during frosty months.

Source: Brigade Electronics

2021 Jeep® Grand Cherokee Breaks Ground in the Full-size SUV Segment

Nearly 30 years ago, the Jeep® Grand Cherokee began its legacy as the most awarded SUV in history. Today, following 4 generations of the vehicle, the Jeep brand reenters the full-size SUV segment with the all-new Jeep Grand Cherokee L.

The newest iteration is designed and engineered to deliver an unmatched combination of even more 4x4 capability, superior on-road refinement, premium styling and craftsmanship inside and out, and a host of advanced safety and technology features.

Its renowned 4x4 systems, air suspension and traction management system instill Grand Cherokee L with the Jeep brand's legendary 4x4 capability. An all-new architecture and sculpted aerodynamic body style combine to improve vehicle performance, safety and reliability, while significantly reducing vehicle weight, noise, vibration and harshness. Designed to maximize overall passenger safety, comfort and convenience, Grand Cherokee L packs a powerful punch with features and technologies that make it a stand out in the full-size SUV segment.

The 2021 Jeep Grand Cherokee L will arrive in Jeep dealerships in the second quarter of 2021 and will be available in 4 different trim configurations.

Legendary off-road capability begins courtesy of 3 different 4x4 systems. On top of the Quadra-Trac I and Quadra-Trac II systems, the Quadra-Drive II, with a 2-speed active transfer case and rear eLSD, delivers industry-leading tractive capability. The system instantly detects tire slip and smoothly reacts distributing engine torque to tires with traction. In some cases, the vehicle will anticipate low traction and pre-emptively adjust in order to limit or eliminate tire slip.

The Jeep Quadra-Lift air suspension with electronic adaptive damping delivers class-leading ground clearance and water fording. The system automatically adjusts the shock tuning to changing road conditions for enhanced comfort, stability and control. Quadra-Lift adds up to 106 mm of lift span supported by 4-corner air springs that provide an air cushioned, premium ride. The crawl ratio on the Grand Cherokee L is 44:1.

With the available Quadra-Lift air suspension, the 2021 Jeep Grand Cherokee L features a 30.1° approach angle, a 23.6° departure angle and 22.6° breakover angle.

The 2021 Grand Cherokee L's class-leading Selec-Terrain traction management system lets customers choose the on- and off-road setting for optimum 4x4 performance. This feature electronically coordinates up to 6 different powertrains, 4x4 torque split, braking and handling, steering and suspension systems, including throttle control, transmission shift, transfer case and traction control, stability control, anti-lock braking system (ABS) and steering feel.

For the first time ever on Grand Cherokee, the front axle is bolted directly to the engine to allow for better management of noise, vibration and harshness (NVH) and superior driving dynamics thanks in part to its lower center of gravity. New active/electronic engine mounts absorb more vibration and movement when at idle, but stiffen at higher speeds to optimize ride glide. This is a new feature available on Grand Cherokee and offers a new level of comfort, versatility and performance. An enhanced active noise cancellation system, along with a double-dash body, door seals and acoustic glass round out the enhancements that bring NVH and wind noise down to a whisper.

The standard engine is a 3.6 l V6, rated at 290 hp. Buyers who want more power can opt for a 5.7 l V8, rated at 357 hp.

The vehicle's 3,091 mm wheelbase creates generous interior room and gives passengers expansive legroom in the second row. When the 2nd and 3rd row seats are folded flat, the maximum cargo space is 2395 l.

Source: Fiat Chrysler Automobiles (now Stellantis)

Appointments

CZM Foundation Equipment recently announced the appointment of **Wes Gibson** as sales manager for Electric and Utility market for the company. Mr. Gibson will oversee all aspects of sales/consulting in the Electric and Utility industries.

Wes Gibson has over 15 years of sales experience in the drilling industry including 6 years as the Northeast regional sales manager for CETCO Drilling Fluids, 4 years as the National sales manager for Pengo Attachments, and 3 years with Nesco Specialty Rentals as the director of sales.

CZM Foundation Equipment offers a comprehensive line of machines engineered for a variety of foundation applications, including portable and truck-mounted equipment, mini-crawler, excavator, and crane-mounted equipment. CZM Foundation Equipment is the American division of CZM Corp., the leading foundation equipment manufacturer in South America, founded in Brazil in 1976. CZM Corp. manufacturers distributes a wide range of models worldwide.

Source: CZM Foundation Equipment

Bridgestone Americas recently announced leadership changes to drive operational excellence and strengthen the company's position as a global leader providing sustainable mobility and advanced solutions.

Bridget Neal, currently president of the company's Off-the-Road (OTR) tire business in the U.S. and Canada, has been promoted to senior vice president, logistics and supply chain management (LSCM), Bridgestone Americas. In this role, she will oversee the company's global supply chain, designing and implementing supply and distribution strategies that enable business growth and improve product cycle time.

Ms. Neal joined Bridgestone in 2002 as a supply planning and sourcing engineer. During her 18-year tenure, Bridget Neal has served in various roles of increasing responsibility in both LSCM and the company's Commercial Tire organization. She accepted her current role as president of OTR in 2017. Under her leadership, the OTR business achieved record performance and successfully delivered the global launch of MasterCore, a world-class giant mining tire engineered for ultra-high durability. Ms. Neal is a graduate of the Georgia Institute of Technology.

Rob Seibert, currently executive director, OTR sales, will succeed Bridget Neal as president, OTR, U.S. and Canada, Bridgestone Americas. As president, Mr. Seibert will have accountability for all aspects of the OTR business, including strategic planning, sales, marketing, engineering and global support. He will also play a key role in developing go-to-market strategies that drive growth for the overall Commercial Group at Bridgestone and support the company's vision to become a sustainable solutions company.

Rob Seibert joined Bridgestone in 2015 and has served in marketing and sales roles of increasing responsibility in the OTR business. Prior to joining Bridgestone, he worked in multiple field and corporate leadership roles at P&H Mining Equipment (Komatsu), and served 8 years as an Army Aviation Officer. He has a bachelor's degree from the University of Tennessee at Martin.

Source: Bridgestone Americas, Inc.

EllisDon recently announced the appointment of **Frank Bruni** to the role of vice president and area manager for South Western Ontario.

Mr. Bruni joined EllisDon in 2000 as a project coordinator at the York University Computer Sciences Building in Toronto. His next project was as a project manager on the Microsoft Building in Meadowvale, Mississauga. From there he went on to work on the University of Ontario Institute of Technology project in Durham Region.

During his career, he managed a number of projects in his hometown of Sault Ste. Marie. From 2013 to 2017, Frank Bruni operated in the capacity of construction manager and managed a number of projects in Saskatchewan.

Source: EllisDon

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Mauldin System 2021 P.O.R.

Asphalt Trailer KM8000 TEDD IMG-859

Year: 2018 Price: 36,700$

Caterpillar CB2.7 Roller IMR-1298

Year: 2017-18-19-20

Bomag CR-552 Paver IMP-1075 1200 hours

Year: 2016 Price: 129,500$

Wirtgen W150 CFI Wirtgen W200 CFI

Year: 2017 Price upon request

Caterpillar AP225E Paver IMP-1057

Year: 2018 Price: 145,000$

Hamm HD12VV Roller IMR-1279

Year: 2016 Price: 28,500$

Hot Glue Distributor Trailer MarathonTPS250 IMG-935

Year: 2020 Price: 15,500$

Hamm HSI Roller IMR-1228

Year: 2020 Price: 112,500.00$

Liberty Mark III Air Sweeper IMB-1001

Year: 2020 Price: 189,000$

Bomag BW177PDHS Roller IMR-1269 300 hours

Year: 2020 Price: 112,000$

Dynapac F1200C Paver IMP-931

Year: 2016 Price: 125,000$

Hamm HD10CVT Roller IMR-1213

Year: 2020 Price: 40,500$

Mauldin M415XT Grader

Year: 2020 Price: 195,000$

Ingersoll Rand DD24 Roller IMR-1322

Year: 2007 Price: 28,500$

Bomag BW190AD-5 Roller IMR-935 1240 hours

Year: 2017 Price: 180,000$

Case 621F Grader IML-1184 8822 hours

Year: 2013 Price: 105,000$
Winter tires available

Winter tires for chargers and loaders

17.5xR25 Price: 975.20$
20.5xR25 Price: 1,275.20$

Skeer Blade Pro PLUS

Year: 2021 Price upon request

Witzco HGB-50 Trailer IMT-827

Year: 2019 Price: 50,000$

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Appointments

Robit Plc has appointed **George Apostolopoulos** as vice president Global Sales of Robit as of December 2020.

Mr. Apostolopoulos will be focusing on development of Robit's global sales operations and distribution network together with the company's sales teams.

George Apostolopoulos has approximately 20 years' experience of managerial positions in the drilling industry in Europe, West Africa, and Central Asia. His latest positions were located in Ghana, Kazakhstan and Greece focusing especially on sales development of drilling equipment and tools in mining industry.

"I am happy to welcome George to join the Robit team," commented Tommi Lehtonen, Group CEO of Robit. "George has an extensive and long experience of international drilling industry, and he will further strengthen Robit's global sales operations."

Source: Robit Plc

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Agenda

Because of measures taken in many countries to counteract the coronavirus pandemic, it is essential to check whether an event you are interested in will take place and... on what date.

World of Concrete
Rescheduled to June 8-10, 2021
Las Vegas, NV USA

The ARA Show
Rescheduled to October 18-20, 2021
Las Vegas, NV USA

bauma CONEXPO INDIA
Rescheduled to April 20-23, 2021
Greater Noida/Delhi, India

***inter airport* south east asia**
February 24-26, 2021
Singapore

Intermat INDIA
March 4-6, 2021
Mumbai, India

Work Truck Show
Rescheduled to March 8-11, 2022
Indianapolis, IN USA

World of Asphalt
Rescheduled to March 29-31, 2022
Nashville, TN USA

Atlantic Heavy Equipment Show
March 31 - April 1st, 2021
Moncton, NB Canada

stein*expo*
April 14-17, 2021
Homberg/Nieder-Ofleiden, Germany

INTERMAT Paris
Rescheduled to April 2024
Paris, France

InnoTrans
April 27-30, 2021
Berlin, Germany

The BIG Event Canadian Mining Expo
June 1-3, 2021
Timmins, ON Canada

AORS Municipal Public Works Trade Show
June 2-3, 2021
Barrie, ON Canada

International Rental Exhibition (IRE) / APEX access show
June 15-17, 2021
Maastricht, the Netherlands

Hillhead
June 22-24, 2021
Buxton, Derbyshire, UK

The Utility Expo
September 28-30, 2021
Louisville, KY USA

inter airport europe
November 16-19, 2021
Munich, Germany

IFAT
May 30 - June 3, 2022
Munich, Germany

Svenska Maskinmässan
June 2-4, 2022
Stockholm, Sweden

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