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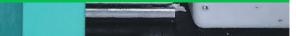


SHAW BROTHERS PROVIDE AGGREGATE KNOW-HOW TO DRIVE MAINE CONSTRUCTION VAC-CON, INC. EXCELS AT CUSTOM-BUILT VACUUM TRUCKS



RECYCL

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Shaw Brothers provide the aggregate and know-how to drive Maine construction



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- Portable plants
- Wash plants



#### Shaw Brothers provide the aggregate and know-how to drive Maine construction

by RockRoadRecycle staff writer

On the cover: Danny Shaw stands proudly in front of his new Telesmith aggregate plant.

Photo courtesy of Shaw Brothers

### **PG** 3

Classifieds

24

### 6

Prairie Dawg Practical

by Tim Holmberg, **DEMI** Equipment



MEMBER

# 8

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### 16

Terex Finlay Triple-Shaft 883+ screen plant debut





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Bird's eye view of the new crushing plant, a 37 acre paved site with extensive conveyor systems reducing emissions from trucking and loading equipment.

haw Brothers Construction, Inc. is now firmly established as southern Maine's premier contractor for site development, heavy construction, highway, infrastructure and utility projects. With a significant bonding capacity, its work spans the transportation sector, local municipal infrastructure, underground utility work, airport work and commercial site development. Furthermore, it provides the region with quality aggregate resources from more than a dozen permitted gravel pits and quarries.

Shaw Brothers' success is a direct result of its hard working and experienced personnel, its vast fleet of up to date equipment and its abundant aggregate resources. This expertise not only drives New England construction, but is now also being channeled into worthwhile causes via a charitable foundation.

#### **Humble beginnings**

Shaw Brothers began in 1977 with two brothers, two employees, one backhoe and a handshake. The company began with the same principles that it lives by today: work hard, satisfy the customer and respect the people you work with. The company now has more than 250 employees, hundreds of pieces of equipment and has completed thousands of commercial projects, ranging in value from \$5,000 to \$20 million, spanning a roughly 100 mile radius around Portland, Maine.

It is not just its contracting arm that drives Shaw Brothers these days, as the company now owns more than a dozen active pits and quarries in southern Maine. The company also sells many recycled products including screened loam, erosion control material and three sizes of reclaim made from crushed bituminous concrete, brick, concrete and gravel. The major stone and recycled aggregates sites are located in Gorham, Dayton, Windham, Westbrook Freeport, Wales and Buxton as well as numerous smaller locations around the state. From these locations Shaw Brothers is able to provide materials for its own jobs and for other contractors, developers, towns and retail customers.

#### **Utilities contractor**

One of Shaw Brothers' first projects goes back to 1977, when the company performed public utility construction for New England Telephone. Since then, Shaw Brothers project supervisors have leveraged their vast experience delivering results for Central Maine Power Company, Portland Water District, Fair Point Communications, Maine Natural Gas, Portland Pipeline and countless other local water and sewer districts. With its experience, knowledge, equipment and exemplary safety record, Shaw Brothers is now perfectly suited to tackle any underground utility project. "Shaw Brothers has been one of CMP's 'go to' contractors for many years. They are reliable, professional and consistently demonstrate a customer-based focus. Dealing with the team at Shaw Brothers is a pleasure and their work has always been exemplary," said Marc D. Geaumont, Portland Service Center manager, Central Maine Power Co.

#### Other contracting work

Shaw Brothers has also completed projects ranging from small site packages for local businesses to multi-acre corporate campuses and distribution facilities for national chains. Its experienced personnel have developed expertise at working in urban areas within extremely tight footprints. This expertise combined with its state of the art GPS enabled



Left to right: Frank Gerrish and Scott Jones of Shaw Brothers with Bill Maccini, Telsmith field service manager.

equipment has enabled the company to become southern Maine's premier contractor for a broad variety of site work projects. This investment in the latest GPS equipment includes 16 base stations, 18 rovers, 10 machine controlled boxes, 2mm lasers and advanced network capabilities. The Shaw Brothers team works as the general contractor — or as a subcontractor — for a wide variety of general contractors and construction managers operating in southern Maine. The commercial site work experience includes shopping plazas, medical buildings, parking garages, school and corporate campuses, factories and bottling plants.

#### **Crushing and screening contracting**

Shaw Brothers was the first contractor in northern New England to purchase a track mounted portable crusher with a magnetic separator. This has grown to now include 10 portable crushing plants, eight of them on tracks, enabling the company to work at multiple sites simultaneously or maximize material processing throughput at one large site. Track mounted portable crushers enable the company to recycle materials on the project site, so it does not need to haul construction demolition debris somewhere else for processing. In many cases, recycled aggregate can be used on the same project to further minimize transportation cost to and from the site, thereby minimizing greenhouse gas emissions.

#### Demolition and recycling

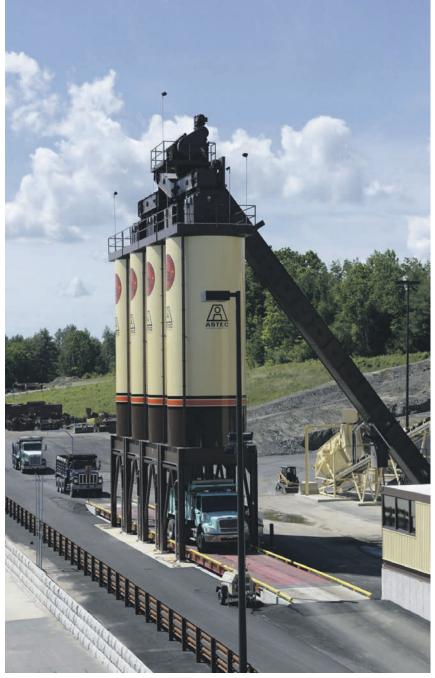
Crushing and screening contracting is directly related to Shaw Brothers' expertise in recycling demolition and other construction materials, as safe and efficient demolition requires specialized equipment and unique skills and experience. Shaw Brothers is fully equipped with a fleet of late model hammers, pulverizers, grapples, shears, loaders and dump trucks to take down almost any structure quickly and with minimal impact to the surrounding environment.

The company has been involved in many different types of projects and proudly states that is has taken down any kind of structure that can be imagined, proving especially adept at managing waterfront demolition, including ferry terminals, mill buildings and dams. "Shaw Brothers' staff, workforce and equipment are second to none. Our relationship over the years was built on trust and respect, things we must earn every day. While we may not have always agreed, we understood each other's positions and were willing to negotiate to resolve any issues. Shaw Brothers has been one of my mentors, colleagues, associates and friends," said Frank Meader, Portland Water District. PG 4

What's more, Shaw Brothers has the means to recycle a wide variety of demolition debris at its DEP-approved recycling facilities, or onsite with its portable crushers. Working hand in hand with the onsite recycling capabilities of its portable crushers are 10 of Shaw's recycling pits that are DEP approved to accept bituminous pavement and concrete demolition materials. These materials are processed (crushed) and sold as recycled aggregate products to be incorporated into a variety of construction projects. Shaw Brothers is also approved to accept stumps and wood debris at six of its pits, where the company grinds and recycles them into DEP-approved erosion control material to be used on project sites or sold to customers.

#### **Aggregates production**

Shaw Brothers owns more than a dozen active pits and quarries in southern Maine, totaling approximately 1,700 acres of DEP-permitted resources. Here the company produces, uses, sells and delivers more than 20 types and sizes of aggregate throughout southern Maine. Products include unscreened and screened sand, private gravel to any MDOT material spec and crushed stone. In addition, many recycled products are now produced and sold, including screened loam, erosion control material and three sizes of reclaim made from crushed bituminous concrete, brick, concrete and gravel.



Shaw Brothers' natural gas powered asphalt plant is capable of servicing all of Shaw Brothers needs along with those of its customer base.



An inside look at one of two of the Shaw Brothers' electrical containers built by Telsmith.

#### Latest addition to the armory

Shaw Brothers has a relationship with Astec Industries and its subsidiary companies going back many years. It now uses a variety of Astec and Telsmith equipment, with the very latest addition to its equipment fleet being a 400 ton per hour Astec asphalt plant. This plant is permitted to operate 24 hours a day, seven days a week, and is said to be the most environmentally friendly plant in New England. The plant has eight virgin cold feed bins and three RAP bins, four 200 ton heated silos, an Illinois Fines System, double-barrel drum drying and mixing technology all powered by natural gas. The plant is capable of servicing all of Shaw Brothers needs along with those of its customer base, and through it, manufactures Maine DOT spec, Superpave hot asphalt mix designs (including 9.5mm, 12.5mm, and 19.0mm) and custom asphalt mix designs.

#### New advanced crushing plant

Even though the company has an extensive fleet of mobile equipment, the real star and the main provider of high quality aggregates is Shaw Brothers' newly installed Telsmith-supplied crushing plant. Located in Gorham, Maine, the plant was built on a new 37 acre paved site to reduce cross contamination and contains 4,099 feet of conveyors. The extensive conveyor system also reduces emissions from trucking and loading equipment and has the ability to stockpile over 800,000 tons of various stone and gravel under the radial stackers.

The crushing and screening plant is equipped with a Telsmith 4448 Giant jaw crusher, two Telsmith T400 cone crushers, three triple deck 8×24 Vibro-King TL screens and a Nesco DustoPro water spray system. In addition, Telsmith also supplied Shaw Brothers with three 42x84 vibrating pan feeders, a 60x24 vibrating grizzly feeder, a 4448 modular support structure and rockbox dump hopper and the plants electrical system.

The key component at the heart of the plant is its 4448 Giant jaw crusher. The Iron Giant<sup>™</sup> is available in two sizes, 4448 and 5060, with the 4448 weighing 126,000 lbs. (57,154 kg) and the 5060 weighing 191,000 lbs. (86,638 kg), respectively. Iron Giant<sup>™</sup> jaws are designed with a long crushing chamber that provides both high volume crushing and aggressive crushing action to deliver reliable performance even with the hardest materials, such as basalt.

To lower maintenance costs and maximize uptime, the Iron Giant<sup>™</sup> jaws incorporate maintenance features not normally found in jaw crushers, such as replaceable liners that are built into several areas to protect major components from wear. Safety is engineered into every Telsmith piece of equipment, with one of the main safety features of the Iron Giant<sup>™</sup> being its trouble free wedge lock adjustment system, which is safe even after years of service in the toughest operating conditions.

When the need arises, in order to begin adjustment, hydraulic cylinders do the heavy work of unlocking the wedge and moving the beam forward. Easy to handle lightweight shims are then used to fix the setting. Hydraulics then drive the wedge in place, firmly locking the beam into position. No special tools are needed to carry out the adjustment. The wedge lock system also incorporates a unique tension spring bracket that moves with the beam during adjustment. This saves time by eliminating the need to reset the spring each time the crusher setting is changed, getting the operation up and running quickly.

Telsmith's Iron Giant jaw crusher and the other components of the aggregates plant were chosen by Shaw Brothers as Telsmith is considered to be easy to work with and has a February 2019

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PG 5



Danny Shaw stands proudly in front of his new Telsmith aggregate plant.



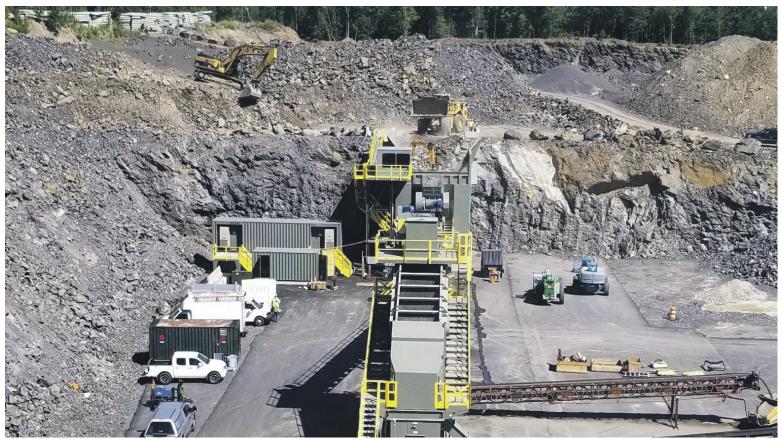
From Left to right: Jeff Gray, Telsmith vice president of sales and marketing, Gary McEachern and Bruce Jedwabny both Telsmith regional sales managers.

good handle on stationary equipment. In addition, Telsmith was able to act as a one stop shop for providing their equipment, electrical, conveyors, parts and service. "We were very impressed with Telsmith's equipment and their sense of urgency on this project. You can tell they stand behind their products, and we can get the parts when we need them. They are good people who know what they are doing," commented Danny Shaw on Shaw Brothers' relationship with the suppliers of its flagship aggregate plant.

#### Shaw family foundation

Business is important, and in many cases it's a way of life. However, Jon and Dan Shaw have now created a non-profit private foundation called the Shaw Brothers Family Founda-

tion. This was set up to share the success of Shaw Brothers Construction by giving back to the community. The foundation will be used to support recreational, agricultural or other charitable causes, acquire and preserve farmland in the town of Gorham and construct and maintain a community recreational park and trails for walking, riding and snowmobiling, as well as operating an educational farm providing land for a future farm market to sell local foods. The foundation's vision is quickly coming to fruition through the purchase of a 258 acre parcel of land on Route 25 in Gorham. A large part of this parcel has been cleared for hayfields and currently trails are being constructed. This development should be an enormous benefit to the town of Gorham, its citizens and the surrounding communities.



Shaw Brothers Telsmith 4448 Iron Giant jaw crusher breaks down material before it heads to the Telsmith cones and screens

RockRoadRecycle.com PG 6



### **Prairie Dawg Practical** by Tim Holmberg, DEMI Equipment

#### Hey Prairie Dawg, "What does a wash plant do?"

Due to its name, people outside of the industry may think this is some sort of device that washes rocks, dirt and mud from all of the equipment a contractor or large-scale aggregate producer owns after a job. What are we talking about when we say "wash plant" in an aggregate based production facility? What are some of the key features to a wash plant and what specific function does it provide? What industries can be supported by owning and operating a wash plant?

A wash plant is one of the best moneymakers in an aggregate producer's arsenal and like all other items needs to be maintained to perfection on a daily basis in order to supply a steady steam of accurately sized and clean aggregate to the concrete batch plant.

Over the years, wash plants have evolved to provide cleaner product, more efficiently in order to make concrete one of the most important products delivered to today's construction projects. Whether it be road building, bridge building or even giant-scaled projects like dam building, it all would be impossible without wash plants to wash the aggregate materials after they are extracted from raw earth. This process has so improved, that today we are manufacturing much larger concrete-formed parts many miles away from the jobsite and using semi-truck and rail car for delivery. Many modern large scale construction builds require multiple locations and producers working together to fulfill production schedules.

Today, most wash plants start with a consistent material feeding device such as a hopper belt feeder. The feed material is completely mixed and is often dirty - with excessive fines and clay-bound crushed rock. The belt feeder sends it to the blade mill where it get its first opportunity of dilution and breaking apart using a giant scaled mixer and addition of water, which is often recycled many times for conservation reasons and usage costs. The aggregate is now getting roughed up a bit and are pre-scrubbed and moistened to start the breakdown effect. Next they see a (typically 3-deck) shaker screen — horizontal or inclined depending upon factors of retention time needed based upon the cleanliness or dirtiness of the feed material. Horizontal screens provide longer and better shake times while adding more water to clean uglier material, while inclined screens using gravity tend to pass faster cleaner material using less energy since the material doesn't always require longer wash time. Either system is great and effective, but both have benefits and pricing differences that help decide which one to utilize. Sometimes portability plays into the type of screen one chooses. After screening, the larger-sized material may need to run through a coarse material washer for a final rinse and scrub to satisfy the material code/design specifications required or just because some material is a bit dirtier and clay-bound than others.

From the coarse material washer, the cleaned product travels up the conveyor to huge stockpiles to be loaded into the individual hoppers of the concrete batch plant where — like making cookies — it is carefully weighed out and remixed using the pre-determined recipe of the concrete project requirements.

As with any equipment, there are multiple styles and sizes of wash plants offering a variety of productivity-specific features from basic controls to computer driven optimization and certification programming assistance. The other critical choice is whether the wash plant should be a permanent or portable installation. Most permanent installations are near large-market urban areas where the producer has many years of virgin aggregate base material and anticipates many years of providing finished product. These permanent versions also require a permanent water reclamation sys-

tem versus digging and preparing appropriately lined settling ponds, which are required for some operations (check your state and local regulations regarding water usage/recycling). Portable wash plants can be either small or largescale based upon equipment specified, but are generally designed as being right down the center average. These portable plants are typically used in more rural locations where the demand isn't nearly as consistent. Their productivity can still be as large as 1000tph or as little as 50tph mainly depending upon screen box size and fine material washer size (AKA sand screw). The sand screw is one of the last pieces of the puzzle we have yet to discuss, however is very similar to the coarse material washer or the blade mill having a spiraling shaft or shafts that screw or convey material along while scrubbing. In the sand screw's case, introducing non-turbulent water from the bottom through an aeration grate allows water to rise from below with current (of sorts) and actually floats the ultra-fines away while wet and somewhat controllable. There are actually quite a few more pieces I have not mentioned - some of earlier design and some very recently designed — which can also be extremely important to wash plants choices. However, they are either not always required or require much more space and time than I have in this article space. Maybe we will have to do a more in depth descriptive and maintenance write up of some of these left out pieces in article subjects to come throughout 2019.

Some of the other industries being supported by a typical wash plant are the frac sand producers within the oil and gas industry, gold mining exploration (when and where water is available) and some decorative rock aggregate production.

If you enjoy these random aggregates and quarrying equipment-based subjects, tune back in for more topics to come. Send me a subject or topic you would like brought to light and any associated questions you would like to have discussed and I will gladly provide my best answer based upon my specific point of view and personal experience.

Questions or comments? Email Tim Holmberg at <u>prairie-</u> <u>dawg@pdpractical.com</u> or visit <u>demiequipment.com</u>.

Simply write me a letter and we will send you a T-shirt or ball cap:

Tim Holmberg / 2915 Idea Ave. / Aberdeen, SD 57401





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Volvo Construction Equipment (Volvo CE) has donated an articulated haul truck to train future equipment operators at Lehigh Career & Technical Institute (LCTI) in Schnecksville, PA. Photos courtesy of Volvo CE

olvo Construction Equipment (Volvo CE) has donated an articulated haul truck to train future equipment operators at Lehigh Career & Technical Institute (LCTI) in Schnecksville, PA. The Volvo A35D hauler had been used on Discovery Channel's "Gold Rush" television series and will now serve as a training tool for high school students enrolled in the institute's Heavy Equipment Operations and Preventive Maintenance program.

"We will use the Volvo hauler across the full curriculum. In addition to basic truck operation, it will be a support piece for students who are learning loading techniques with wheel loaders and excavators," said Jim Wabals, instructor at LCTI.

"The hauler will also give students experience on preventive maintenance and help them understand the value it adds to reducing operating costs and increasing productivity over the machine's lifetime."

The Heavy Equipment Operations & Preventive Maintenance program teaches machine operation skills for a range of equipment, basic machine maintenance, surveying, grading and erosion and sediment control techniques. Since its inception in 2005, the program has maintained 90 percent placement rate of graduates directly hired into construction equipment-related positions.

The 2006 Volvo articulated haul truck has over 15,000 hours and is valued at US\$ 80,000. It was used by "Gold Rush" star Tony Beets at his Yukon mine. He added his signature to the front fender as a personal touch-point for the students. Fellow "Gold Rush" miner Juan Ibarra assisted with the truck handover at the school. Ibarra also spent classroom time with the students, sharing his career experiences and exploring where the construction equipment field can take them.

Heavy equipment operators are among the most in-demand employees, with a projected growth rate of 12 percent from 2016 to 2026 — faster than the average for all occupations, according to the U.S. Bureau of Labor Statistics. Closing this operator gap is vitally important to Volvo, as an advocate for the construction industry and as an equipment manufacturer. "Opportunities like this exemplify how business can partner with education," said Stephen Roy, president of Volvo CE Americas. "The availability of the Volvo hauler intersected with LCTI's need to broaden its training. Giving students practical experience in the seat and under the hood will give them a strong advantage when they enter the workforce, where Volvo haulers are a mainstay on many job sites."

Volvo CE has a history of investing in programs that encourage youth to pursue careers related to equipment manufacturing and engineering. This includes being an official partner with SkillsUSA and SkillsCompétences Canada, which are national organizations that develop technical and leadership abilities. Volvo CE also sponsors the Pennsylvania SkillsUSA Heavy Equipment Operation competition each spring, which draws top student operators from across the state, including from LCTI's program.

LCTI is the largest career tech school in Pennsylvania and one of the largest of its type in the United States. It offers more than 45 skills-based programs of study, as well as academic instruction for 2,700 students each year.



Tony Beets added his signature to the front fender as a personal touch-point for the students.



Ibarra also spent classroom time with the students, sharing his career experiences and exploring where the construction equipment field can take them.

### Four things you should know about the quarry and aggregates industry

Quarries deliver vital building materials to construction sites all around the world – but there's a lot more to the industry than that. Here are four things you might not know about the quarry and aggregates business, from what the future has in store to the various uses inactive quarries can take on.

#### • It's bigger than you'd think

Quarrying and aggregates is big business in virtually every part of the world and market figures suggest it's only getting bigger. Experts predict that between 2018 and 2026, the market for construction aggregates will expand at a compound annual growth rate of 6.8 percent. With this kind of growth, the industry will naturally become more valuable too. According to Future Market Insights, it will be worth \$468.2 billion by 2024. As well as contributing to the global economy, the industry is also a major employer. It is estimated that the quarry and aggregates industry employs more than 4 million people worldwide.

Asia Pacific is the largest region of supply, accounting for around 65 percent of the total market in 2017. China, which is also the world's biggest producer of coal, gold and most rare earth materials, was the largest aggregates producer last year, accounting for around 42 percent of the total market.

### • It's not just stone that gets quarried

Broadly speaking, quarried materials include sand, gravel, clay, dimensional stone and crushed stone the latter of which is estimated to hold a significant share of the total market revenue. These materials are used directly in construction and are also key ingredients for manufactured building materials, such as asphalt and cement, making them an integral component in the construction of our roads and buildings. Creating one kilometer of road 10 meters wide, for example, could use over 500 loads of crushed stone from Volvo CE's R100E rigid hauler.

#### • The future is electric

Right now, Volvo CE is working on one of the biggest breakthroughs the industry has ever seen. Together with its customer Skanska, Volvo CE is testing the world's first "emission-free" quarry. This is part of the company's "Electric Site" research project, which aims to electrify each transport stage in a quarry – from excavation to primary crushing, and transport to secondary crushing.

Three concept vehicles are being tested at the Electric Site: the HX2 (an autonomous, battery-electric load carrier), the EX1 (a dual-powered, cable-con-



Experts predict that between 2018 and 2026, the market for construction aggregates will expand at a compound annual growth rate of 6.8 percent.

Photos courtesy of Volvo CE



To create one kilometer of road 10 meters wide, for example, could use over 500 loads of crushed stone from Volvo CE's R100E rigid hauler.



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PG 10



Together with its customer Skanska, Volvo CE is testing the world's first 'emission-free' quarry.

nected excavator) and the LX1 (an electric hybrid wheel loader). Although these machines are still in the prototype phase, they could potentially deliver up to a 95 percent reduction in carbon emissions and up to a 25 percent reduction in total cost of operations.

### • Disused quarries are surprisingly useful

There are roughly 500,000 extraction sites worldwide, producing up to 50 billion tons of aggregates. When quarries are put out of action, they don't go to waste – and

some go on to have surprising uses. A conservation project in the UK by the Royal Society for the Preservation of Birds (RSPB) turned 50 abandoned quarries into nature reserves packed with grassland, woodland and wetland that would be home to more than 50 "at risk" species. A disused limestone quarry in Dalarna, Sweden, has been transformed into a concert venue, playing host to acts including Led Zeppelin and Patti Smith. Other fascinating reinventions include a former granite quarry turned soccer stadium in Portugal.



When quarries are put out of action, they don't go to waste - and some go on to have surprising uses.



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Tier 3 - 235kW / 315Hp Tier 4 - 235kW / 315Hp



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Dealers and new and existing customers made the trip to Cave City, KY to see live demonstrations of the compact crushing and screening range. Photos courtesy of EvoQuip

voQuip® made an impact on the U.S. market with a successful Open Event
 on Nov. 8, 2018. Over 100 dealers and new and existing customers made the trip to Cave City, KY, to see live demonstrations of the compact crushing and screening range.

A customer of Powerscreen Crushing and Screening for five years, Park City Stone was the ideal site to showcase the world-class equipment. Park City Stone is growing year on year and prides itself on being local and supplying to the small contractor and local community.

Commenting on the success of the open day, Matt Dickson, EvoQuip global product line director, said, "We had a fantastic launch event to the U.S. market and I'd like to thank everyone who came by. The show was a huge success and we built on and created some valuable relationships. A special thanks to Chad Crabtree for allowing is to use his site and for all his help leading up to and during the open event. I'd also like to thank Powerscreen Crushing and Screening, who have been instrumental in the planning and execution of this event."

Machines on demo were the Cobra<sup>™</sup> 230R impact crusher, the Colt<sup>™</sup> 1000 scalping screen and the Cobra<sup>™</sup> 290 impact crusher. The Bison 280 Jaw crusher was also on static display.



EvoQuip® made an impact on the U.S. market with a successful Open Event on Nov. 8, 2018.

EvoQuip provides a compact and versatile solution, which can operate in the most demanding of applications including reinforced concrete, recycled asphalt, construction and demolition waste, coal and natural rock, all without compromising on throughput.

#### Cobra 230R impact crusher

The Cobra 230R builds on the success of the Cobra 230. It is a closed circuit version, which incorporates a 2.44m x 1.2m (8' x 4') post screen that ensures the required product specification is achieved with oversize material either being recirculated back to the crusher or stockpiled. The ability to quickly detach the complete afterscreen system including the oversize conveyor, provides the option of either running the machine in standard mode or transporting it separately.

#### Cobra 290 impact crusher

With throughput potential of up to 290tph, the Cobra 290 has quickly established itself as a force to be reckoned with in the compact crushing sector. It provides class leading productivity, unmatched versatility and excellent fuel efficiency. The quick set up times, simple intuitive operation and ease of transport makes this machine an ideal solution for all applications.

Features include patented hydraulic overload protection system, two independent hydraulic controlled aprons, excellent clearance from the rotor to the belt, a short distance from the crusher outlet to the magnet, and the ability to hydraulically raise and lower the conveyor, which ensure optimal material flow through the machine and optional vibrating underpan feeder, which offers complete belt protection in heavy duty recycling applications.

#### Colt 1000 scalping screen

This latest addition to the EvoQuip scalping screen range is the Colt 1000. This highly adaptable scalping screen is able to operate in both heavy duty and precision screening applications and will manage the most difficult of materials.

An aggressive  $4.1m (13'6'') \times 1.22m (4')$  double deck screen, variable screening angle with numerous screen media options, broad fines conveyor, quick set up time and excellent discharge heights ensure the Colt 1000 distinguishes itself among its competition.

#### T-Link telematics system

A number of EvoQuip models can be fitted with the T-Link telemetry system, which provides the customer with real time information on the performance of their machine. Telematics maximizes uptime, parts and service availability and provides factual up to date information from the field.

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The system reduces water consumption by as much as 75 percent over traditional washing systems, such as log washers and other aggregates washing systems.

Photos courtesy of Haver & Boecker

Answers by Duncan High, processing equipment division manager, Haver & Boecker and Michael Honea, process engineer, Haver & Boecker

### Q: What's taking place in the market that's driving some of the current innovation in the arena of portable plants?

*DH:* We've seen increased interest in portable equipment, with more of our customers asking about it over the past couple of years. The most interest comes from western Canada and the western U.S. since those areas include many quick-turnaround quarries and remote sites where portable equipment speeds up and simplifies transportation and setup. Our Tyler F-Class portable plant, for example, can be set up in about half a day — including conveyors and other peripheral equipment. The same task can take around two weeks for fixed equipment. This can save operations hundreds of thousands of dollars in valuable production time.

Many quarries throughout western Canada and the western U.S. also rely on others for screening materials. Rather than purchase processing equipment — especially for a quarry that may only stay active for a few years — operations hire contractors for a year or two to process material. Portable equipment allows those contractors to quickly move in, do their work, then move on to the next quarry. The mobility of portable equipment also allows producers operating on quarries too small to make static equipment economical to quickly move on after they're finished with the site.

Producers also save on fuel costs with portable equipment. The distance from the plant to the mine or quarry face tends to constantly increase, causing fuel and maintenance costs to go up as haul trucks travel farther to reach fixed equipment. The structure, buildings, pads and other features of static equipment often make them too expensive to move.

### Haver & Boecker Portable and Washing Equipment Q&A

Portable machines, on the other hand, can stay nearby, keeping hauling distances to a minimum. Large projects in remote areas, such as interstate work, can also benefit from the fuel savings. If the site is far from an established quarry, the contractor can save on fuel and material hauling costs by setting up at an old quarry nearby or creating a new one to provide material for the project. This can also lower the contractor's bid for the project, making it more likely they will win it.

The mobility also allows operations to "plug and play" that is, move the equipment to a different part of the quarry if crews encounter undesirable conditions, such as water, or the wrong material, such as clay. In addition, operations can choose from many different configurations with portable equipment, such as choosing a crusher to include a vibrating screen on the chassis or connecting conveyors and feed hoppers.

*MH:* There are many reasons operations are using portable equipment more today than ever before. A producer may have a crushing and screening contract with an expiration date, so they need equipment that they can quickly move in and out.

Some operations have several deposits in a geographic region and don't want to invest in stationary plants for each location. Mobile equipment allows them to crush and screen enough material in a couple of months to satisfy their customer in that area for a season before moving on to the next site, leaving only a loader and scale operator behind.

Demand can be another reason. A producer may need to increase production temporarily to satisfy a nearby project but use the portable equipment elsewhere following project completion.

### Q: Tell us about the challenge producers face with water management. What are some of the dilemmas they face?

*DH:* Everywhere we go in North America, we are always thinking about environmental impact and the impact of droughts and regulations on our customers. Water use restrictions and permitting challenges continue to increase, meaning operations need to find ways to stay profitable while using less energy and water.

## *Q*: How do the emerging washing equipment technologies solve or minimize producers' water management challenges?

*MH:* Regulatory restrictions on wastewater contamination are compelling some producers to implement wastewater treatment solutions. Settling ponds require large areas and can be costly to maintain. Solutions such as filter presses and thickener tanks offer an alternative but require a capital

#### F-Class portable plant: faster setup and longer wear life

The portable plant features a new custom-built chassis equipped with six hydraulic runon jacks that quickly level the plant, eliminating the need for cribbing. The run-on jacks also ensure the chassis stays level during operation, which minimizes equipment wear.

"Portable plants should not only give producers the flexibility to move from site to site or within a quarry," said Karen Thompson, Haver & Boecker Canada president. "They should also be fast and easy to set up. We are committed to producing portable vibrating screen plants that possess these qualities, with the same durability, longevity and minimal maintenance as stationary vibrating screens."

Producers can move and set up the portable F-Class in less than 30 minutes. The chassis' hydraulic system raises the vibrating screen to its inclined operating position — usually 20 degrees. Takedown is even faster, requiring less than 20 minutes to lower the unit so it can move to the next location.

In addition to run-on jacks and hydraulic walkways, several other features offer enhanced durability and minimize maintenance. These include a new bolted-on suspension that can be removed during operation to eliminate the risk of damage. The chassis is also sandblasted and coated with a heavy-duty finish for optimal wear life and rust resistance.

Haver & Boecker's F-Class portable plant offers as many as three screen decks. Its feed conveyor, cross conveyor and fines conveyor are hydraulically operated for precise material placement. The plant's fines chute has a full-width access door that allows users to easily

unload material build-up, and an oversize chute features AR liners that are bolted-on for easy replacement.

The F-Class vibrating screen has an advanced double eccentric shaft design, supported by four high-performance, double-spherical roller bearings. The F-Class is ideal for screening situations that require consistent, load independent performance at constant g-force. Featuring a unique and reliable, proven four-bearing technology, the vibrating screen delivers a consistent stroke, which two-bearing screens cannot provide. With the right media choice, the F-Class virtually eliminates blinding, pegging and material contamination.

The F-Class portable plant can be customized to include a crusher, conveyors or other components for enhanced productivity. The machine is ideal for tough applications, such as scalping and classifying ores, minerals, stones, sand and gravel.

Approved applications are eligible for Haver & Boecker's Uptime 36-Month Warranty, featuring a full-service approach to equipment optimization — from parts inspection and equipment assessment to screen media evaluation.

Additionally, Haver & Boecker offers the Pulse vibration analysis program to monitor the ongoing health of vibrating screens through real-time views, logged reports and data analysis. It's designed by Haver specifically for vibrating screens to catch small inconsistencies before they grow into problems and downtime.

investment.

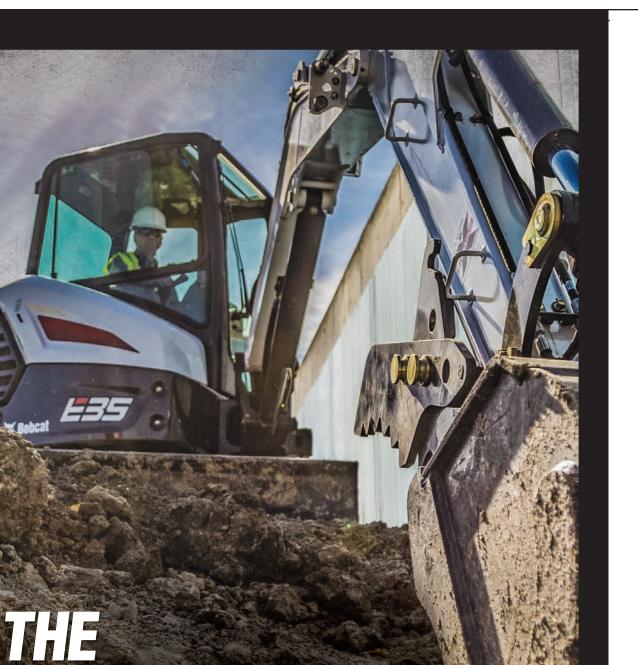
Advanced washing systems, such as our Hydro-Clean, reduce water consumption by as much as 75 percent over traditional washing systems, such as log washers and other aggregates washing systems. This allows operations to significantly cut their water use and limit their water treatment requirements, reducing the size of water treatment equipment and, ultimately, the capital investment. Some advanced washing systems have a small footprint and can save producers as much as 15 percent in energy costs.

# Q: What are some of the next production management "challenges" manufacturers like Haver & Boecker will have to address for the aggregate industry?

*DH:* Manufacturers will need to continue to look for ways to reduce downtime, improve component life, boost efficiency and create environmentally friendly solutions. This might mean offering customers programs that allow them to refurbish their equipment rather than buy new, saving the operation time and money. Manufacturers can also offer long-term maintenance programs that ensure machines run properly, reducing downtime and expenses. Continuing to find ways to cut water and energy use through innovative washing solutions also will be key to addressing evolving environmental challenges.



More producers are turning to portable equipment since it's easier to transport and sets up faster in remote areas than static equipment.



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Following the screen plant demonstration, several attendees took the time to get a closer look at the new high-performance Triple Shaft 883+.

#### by Jon M. Casey

he new Triple-Shaft 883+ tracked, triple deck screen plant made its U.S. debut at the Terex Finlay World Dealer Conference in Jacksonville, FL, Nov. 14 - 16, 2018. This new version of the popular 883+ model demonstrated increased performance over the 883+ MK IV model, as well as a new design with improvements over the previous 883+ heavy duty plant. While show staff demonstrated both units during Thursday and Friday's events, attendees were able to observe the production benefits of the triple-shaft screen box over the MK IV. In either case, each screen plant offered added benefits over previous designs.

Alan Witherow, Terex Finlay product manager, explained improvements also have been made to the standard



883+. He said each conveyor now has its own hydraulic pump, with the fines screening hydraulics increased by 50 percent. Wider belts along with a new chassis design gives greater production and flexibility as well.

The new design enables producers to reverse the fines and mid-grade conveyors. This gives the MK IV the capability to make a two-way split version. Additionally, engine operating RPM has been reduced from 2,200 RPM to 1,800 RPM for better fuel efficiency, as it has also been with the triple-shaft model. Production rates for the triple-shaft model increase hourly production from 610 tons per hour to 772 tons per hour while average fuel consumption only increases from 3 gallons per hour to 3.3 gallons per hour.

Aside from improvements in fuel economy and increased performance, it might be noted that the standard MK IV 883+ cannot be converted for use with the triple-shaft screen box because of the need for increased power and weight requirements of the increased screening capability. With the new triple shaft version, however, the opposite is true. The screen box on the triple shaft model is interchangeable with single shaft and Spaleck model screen boxes, currently offered. Producers will find that when they include the triple-shaft 883+ into their production fleet, they are able to use the same screen media as they did with the single shaft version. The added performance of the triple shaft unit will allow for difficult screening conditions such as sticky and cohesive materials.

Both versions of the 883+ are now available with dual power technology. This technology allows producers the option of operating the machine from an outside electrical power supply or from the on-board power plant as needed. With either model, the 883+ has earned the reputation of being a steady workhorse as a primary tracked screen plant following a primary crusher or by itself in an environment where only screening is needed. For more information visit www.terexfinlay. com .

Left: Product Manager Alan Witherow highlighted new product development at Terex Finlay, which included the introduction of the new 883+ triple shaft tracked, triple deck screen plant.

Right:

Andy Rose, president of Hi-Point Aggregate Equipment LLC of Milford, MI, stands in front of the first 883+ triple shaft screen plant his company sold in the U.S.

Photos by Jon M. Casey









### McCloskey International's newest products take the stage at AGG1/World of Asphalt

AGG1/World of Asphalt visitors will get a first look at McCloskey International's new products that are compact and highly mobile. The newest addition to the stacker range, the All-Terrain ST80T with lift axle, will be front and center, showing off its ability to switch from tracked to wheel in minutes. The latest design for the compact crusher, the I34R, will also be featured at the show in

Indianapolis, IN, Feb. 12 -14 at Booth 37070. Track stack and roll

The All Terrain ST80T

blends all the benefits of

onsite track mobility with the high productivity of a radial conveyor. The ST80T has a lift axle option, which allows it to switch from

inter the inter

The I34R compact crusher line is a solution for aggregates producers needing small footprints and manoeuverability, while having big production requirements.



The lift axle option allows switching from track mode to radial in seconds

Photos courtesy of McCloskey Internaional

#### track mode to radial in seconds.

Designed for use in any terrain, the All-Terrain stackers, ranging from 60' to 150', are easily moved site to site without the need to remove the wheels for transport. Built-in leveling indicators allow operators to position the stacker regardless of the ground evenness with independent hydraulic jacklegs to stabilize once in place. The McCloskey design also eliminates the need for any additional equipment, delivering a clean radius without material buildup.

The stackers feature a unique rear counterweight that counter balances the tracks and wheels, which are behind the stacker's center of gravity. The design enables a much higher stockpile capacity, with the radial wheels set well back. The rear counterweight also firmly anchors the tail end during radial mode, delivering greater stability to the stacker while in operation. Small footprint – big results

AGG1 is also the perfect opportunity for McCloskey International to showcase the I34R compact crusher line as a solution for aggregates producers needing small footprints and manoeuverability, while having big production requirements. The I34R offers the versatility of a full recirculating system and is suited particularly to applications in aggregates, construction and demolition recycling and asphalt recycling.

#### Compact sand plants top of mind for MWS

McCloskey Washing Systems (MWS) will be on-site at AGG1/World of Asphalt to present the latest additions to the CSP (Compact Sand Plant) line, which delivers superior separation efficiency, produces the driest, drip-free final washed sand product, and produces up to two in-spec sands, to desired grade, at up to 250 total tph.

#### Lippmann-Milwaukee's new product range at AGG1

Located at Booth #36102 at AGG1, Lippmann-Milwaukee is a leading manufacturer of aggregate crushing equipment for processing applications and a member of the McCloskey group of companies. Since its inception, Lippmann has become synonymous with highly productive and reliable heavy-duty jaw crushers that are built to last. The new product range, tracked and wheeled mobile crushers, screeners and stackers will be introduced at AGG1, creating a complete product line.

Over the past 12 months McCloskey International has continued to add new dealers across all regions to represent the number of new products that are add-ed regularly to the company's portfolio. Many of these dealers will be attending AGG1/World of Asphalt 2019, and visitors will be able to connect with them during the show and after.

### New mobile classification system separates aggregates without water

LEBANON, PA — Process equipment manufacturer Van Tongeren America has unveiled a mobile version of its breakthrough dry particle classification system that separates materials on-site without requiring water. Developed for processing manufactured sand, frac sand, crushed stone, cement, gravel, lime and other materials, the new, mobile classification system sets the entire processing plant within a standard truck base to permit convenient movement among multiple sites and to make small or remote locations viable where constructing an entire plant would be cost-prohibitive or where water is not readily available.

The mobile classifying system integrates the company's proprietary Gravitational-Inertial Classifier (GIC) system for particle separation and recovery with its Multicell cyclone system for safely managing exhaust gas at such high particle efficiency that ancillary baghouse dust collectors and precipitators may be eliminated. The pneumatic air classifier separates particles at any cut point from 300µm to 63µm (50 to 230 mesh) and consistently runs unattended in 24/7 operation with no moving parts for dependable service and virtually zero maintenance. Custom conveyors and other accessories may be added as needed.



The pneumatic air classifier separates particles at any cut point from 300µm to 63µm (50 to 230 mesh). Graphic courtesy of Van Tongeren America

### New CAT<sup>®</sup> C13B engine delivers more power in a compact lightweight design

The new Cat® C13B leverages a proven, reliable core engine with over 109 million off-highway field hours combined with design improvements to create customer value, allowing OEMs to downsize their engine platforms, lower installation costs and maximize uptime. The 12.5-liter engine features a patented non-EGR aftertreatment system to meet EU Stage V and U.S. EPA Tier 4 Final emission standards and is available in multiple power ratings from 340 kW (456 hp) to 430 kW (577 hp) with peak torque reaching 2634 Nm (1943 lb.-ft.).

The new engine offers peak power across a wide speed range, enabling OEMs to optimize machine performance based on their application needs, plus it features high torque rise for excellent load acceptance.

"With a proven, reliable core engine and our extensive experience across all industrial sectors, the C13B represents a continuation of our commitment to develop engines that deliver improved performance, simplify installation and reduce operating costs," said Jeff Moore, product director, research and development for 7.2- to 18-liter engines.

The new aftertreatment system utilizes diesel oxidation catalyst (DOC), diesel particulate filter and high-efficiency selective catalytic reduction (SCR) technologies, eliminating the need for exhaust gas recirculation. The Caterpillar-patented design technology delivers a compact, lightweight system that is 63 percent lighter and 65 percent smaller than its current equivalent. Features such as integrated NOx sensors offer a 50 percent reduction in customer interface connections, optimizing component packaging and integration requirements. Aftertreatment regeneration is transparent to the operator without impacting machine performance, offering maximum uptime.

The C13B is fully configurable with a wide variety of factory installed options offered that allow OEMs a choice of transmission interfaces, rotating electrics and many other machine interfaces. The C13B will be available with engine-mounted aftertreatment and installed radiators from the factory, offering plug and play solutions that minimize machine design, validation and installation costs. An established customization manufacturing system at the factory in Seguin, Texas, enables production of these options while maintaining high build quality.

"We understand that not all customers have the resources to design, manufacture and validate on the same scale," said Moore. "For that reason, Caterpillar designs its products with the flexibility to accommodate various OEM requirements, resulting in lower installation costs."

Ideal for high-hour and long-life construction, agriculture and industrial applications over 10,000 hours, the Cat C13B engine offers increased performance while lowering operating and maintenance costs. High efficiency SCR and the elimination of EGR are the key enablers to improving fuel consumption by up to 6 percent while maintaining neutrality of total fluid con-

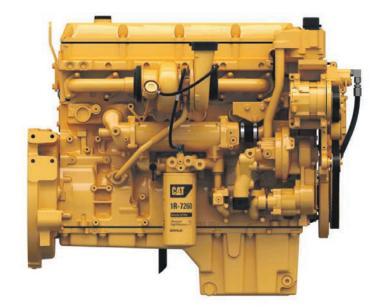
sumption. Factory options such as remote mounted fuel/oil filters and right- or leftside fluid gauges improve serviceability. Standard service intervals of 500 hours, under normal operating conditions, and up to 5,000-hour DPF ash service intervals deliver low-cost maintenance.

Product support to keep the C13B engine operating at maximum efficiency is provided by the world-class global Cat dealer network. Cat dealers offer genuine Cat parts and a variety of services including scheduled maintenance with SOOISSM sampling, customer support agreements (CSAs) and extended service coverage (ESC) to optimize engine life and lower operating costs. In addition, dealer service technicians are trained to service the entire Cat industrial engine line.

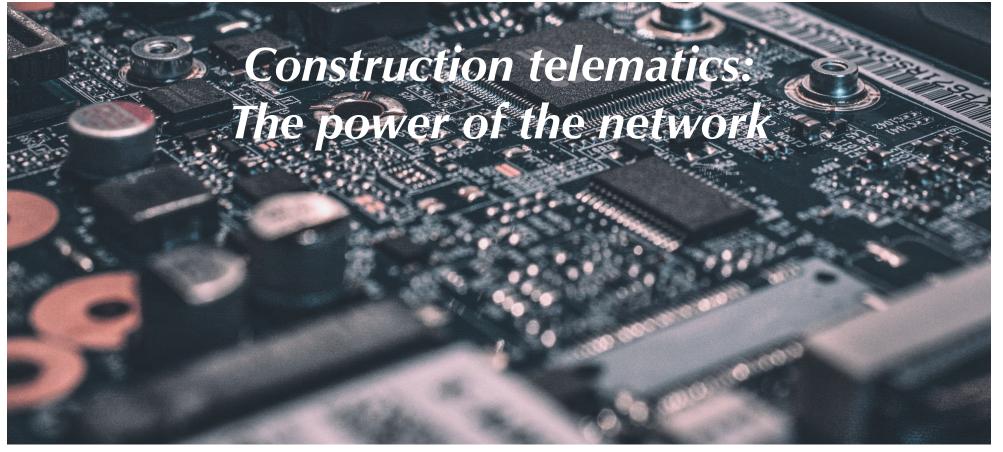
The new C13B engine has undergone extensive lab and field-testing to ensure durability and reliability. With a successful pilot program underway, the C13B will enter full production in 2019.



machine performance based on their application needs, plus it features high torque rise for excellent load acceptance.



The new engine offers peak power across a wide speed range, enabling OEMs to optimize The new Cat® C13B leverages a proven, reliable core engine with over 109 million off-highway field hours combined with design improvements to create customer value. Photos courtesy of Cat RockRoadRecycle.com



By 2026 we forecast that there will be 929 million connected vehicles, representing an average annual growth rate during that period of 17 percent.

Modern construction equipment needs telecoms networks. While there is significant machine-to-server activity there is far less vehicle-to-vehicle communication than many people think. In this article Michele Mackenzie, principal analyst for M2M (machine to machine) and IoT (internet of things) services at Analysys Mason explains to what extent new networks will help the advance of IoT technology.

When new technologies are invented there is a tendency to overestimate the impact they will make in the short term – but then to underestimate their influence once they have become established. Machine connectivity is the latest technology to excite the industry, but what are the main factors that are driving its adoption? Volvo CE asked leading IoT analyst Mackenzie to help us connect the dots.

### What are the main drivers of M2M connectivity?

In the construction equipment sector it is the ability to remotely monitor vehicle diagnostics, helping to reduce failures and downtime, increase productivity and improve customer satisfaction. It is also enabling fleet management services – location, productivity, vehicle performance and operator behavior. Remote fleet management is now quite well established, with a clearly understood return on investment.

### Is construction falling behind other M2M sectors?

Not necessarily. For some time, companies like Volvo CE have been using sensor networks that monitor various aspects of machine performance. This IoT technology is reducing downtime, as predictive maintenance and remote fault correction becomes commonplace. It is also leading to a positive impact on environmental factors such as pollution as well as profitability. Machine connectivity is allowing construction equipment manufacturers to change their business models. In the past they sold or rented a piece of equipment, and that was largely that. Connectivity allows manufacturers to engage with customers on an ongoing basis, providing them with a service as well as a product.

### How many connected vehicles are there worldwide?

We estimate that there are around 224 million vehicles worldwide (including passenger cars and commercial vehicles) with some form of connectivity. This will range

from simple tracking solutions to more sophisticated fleet management applications.

#### How fast is it expected to grow?

By 2026 we forecast that there will be 929 million connected vehicles, representing an average annual growth rate during that period of 17 percent.

#### That sounds like a lot of data being transferred what if the cellular network coverage is weak?

Some countries have better coverage than others in terms of cellular networks, with 2G and 4G available. But even in remote areas, with unreliable cellular coverage, machines can be fitted with dual mode cellular/satellite devices to enable connectivity.

#### What is V2X communication?

In the automotive sector, V2X will mean vehicles being able to communicate with each other on the road or site so they know where each other are, as well as communicate with infrastructure by the roadside – with traffic lights, for example.

#### **CONSTRUCTION 22**



Machine connectivity is the latest technology to excite the industry.

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#### PG 22

### What is the 5G

**CONSTRUCTION from 20** 

### cellular network?

Fifth-generation wireless, or 5G, is the latest cellular technology, engineered to greatly increase the speed and responsiveness of wireless networks. By making better use of the radio spectrum it will enable far more devices to access the mobile internet at the same time as well as deliver much faster data download and upload speeds, wider coverage and more stable connections.

#### Is 5G just more bandwidth?

5G will see the introduction of several new technologies, but standards haven't been agreed yet for all 5G protocols. Higher-frequency bands – 3.5GHz (gigahertz) to 26GHz and beyond – have a lot of capacity but their shorter wavelengths mean their range is lower and they are more easily blocked by physical objects.

#### How fast will it be?

5G could achieve browsing and download speeds about 10 to 20 times faster than 4G networks.

#### When is it coming?

Most countries are unlike-

ly to launch 5G services before 2020, while South Korea is aiming to launch next year. China is also racing to launch services in 2019.

### Do we need 5G for V2X communication?

It's not clear if many of the IoT applications that are coming in the short term need the higher bandwidth offered by 5G. Cellular V2X (C-V2X) is being standardized by 3GPP, the standards body of the global cellular industry for both 4G and in the future 5G. C-V2X should progress seamlessly into 5G, while offering backwards compatibility with 4G. It will also be supported by 5G, but it's not clear what extra capabilities 5G will provide over 4G.

#### So we don't need 5G?

We can't say at the moment that there is no demand for 5G. I think that there is a lot of work to be done by the telecommunications and enterprise/developer community in building, trialling and experimenting with the new technology to see what it can offer.

#### Why don't we need the super high bandwidth?

Vehicles such as construction equipment need wide

area connectivity, but they are dependent on it much less than perhaps has been suggested. A lot of the processing and computing will happen within the vehicle itself. The telecoms networks are instead used to download the information on the machine, software updates and for monitoring, etc., which might require a relatively modest data transfer capability. So, although necessary and important, the telecoms network will in future supplement the onboard processing, but not replace it.

#### What about construction equipment "talking" to each other?

We will begin to see more of that with the introduction of V2X, and more specifically vehicle-to-vehicle communication. There is a fair bit of machine to machine happening with vehicles downloading/uploading data (i.e., relatively closed systems of connected devices) but not much communication between different types of devices, or more open systems, e.g., vehicle-to-vehicle communication.

#### Will the new networks lead to other devices

becoming connected?

Low power, wide area networks will allow for "massive IoT" to flourish, where a vast number of applications that run on batteries can get connected. Things like smart meters in utilities or agriculture that are in remote locations and only need to send or receive signals occasionally (and whose batteries will last several years before needing replacement). In automotive and fleet sectors there are use cases that go beyond the vehicle, for example, wearable devices, that monitor how many hours an operator has been working or whether breaks have been taken and then transmit an alarm if it senses that the operator is fatigued or in danger of falling asleep at the wheel. There is great scope for a vast number of devices to become connected in the future.

#### Are autonomous vehicles and connectivity

two separate issues or part of the same story? Autonomous vehicles are unlikely to over-rely on telecoms networks, despite the often-made association between 5G and autonomous vehicles. Autonomous vehicles have detailed maps and sensors, lidar and optical radar that together creates a detailed picture that they then look for anomalies and take whatever action is necessary. To achieve this, a lot of high performance processing is carried out on the vehicle.

It has been estimated that autonomous vehicles will generate up to 4 terabytes of data a day, but only a tiny fraction of that information (maybe as little as 0.1 percent) will need to be shared with the network. Because of this, self-driving vehicles will depend more on on-board processing than the cloud. Real time connectivity will be beneficial, but not essential. Telecoms networks will be used for non-real time updates to and from the vehicle, but bandwidth requirements for these services may be relatively low.

#### Is the industry keeping ahead of the threat of viruses and cybercrime in M2M connectivity?

What you see in IoT is a great deal of focus on security. They call it "security by design" and are building safeguards into the systems from the start, rather than trying to retrofit them at the end of the development process. Most security experts predict that systems will be hacked at some point and then it is about the safeguards you have in place and how quickly and effectively you respond to the breach.

Michele Mackenzie has 17 years of experience as an analyst. Since 2014 she has been principal analyst for Analysys Mason's IoT and M2M Services research program. She produces, reports and forecasts on M2M and IoT in industry sectors such as transport, healthcare and smart cities, and analyzes the impact of IoT network technologies such as LPWA networks. Prior to joining Analysys Mason, Mackenzie was a freelance analyst with a focus on M2M and IoT technology and trends.

CareTrack is the Volvo Construction Equipment telematics system that gives access to a wide range of machine monitoring information designed to save you time and money.





Michele Mackenzie has 17 years of experience as an analyst.

## Telsmith continues to go the extra mile at AGG1 2019 with "Crushing Questions" and supporting Hire Heros USA

MEQUON, WI – Telsmith Inc., a leading manufacturer of mineral processing equipment, will exhibit at the 2019 AGG1 Expo in Indianapolis, IN, from Feb. 12 - 14, at booth #37078.

Telsmith will display an interactive touchscreen and 3D models of the T-Series™ Cone Crusher, Hydra-Jaw® Crusher and Vibro-King TL® Screen models. The sales team will be on hand to discuss how Telsmith goes the extra mile with their concept to completion services.

To showcase the Telsmith promise that "The Extra Mile Isn't Extra. It's Included," they will launch their "Crushing Questions" video campaign at AGG1 2019 where show attendees can ask their most challenging crushing and screening questions. Attendees who participate will receive an Amazon gift card along with Telsmith branded merchandise. Telsmith's team of Application Specialists will answer these questions and share the videos on the Telsmith website following the show.

In collaboration with "Crushing Questions," Telsmith is partnering with Hire Heroes USA. For every Crushing Question answered at AGG1, Telsmith will donate to Hire Heroes. Hire Heroes is a non-profit organization that empowers U.S. military members, veterans and military spouses to succeed in the civilian workforce by assisting in resume development, translating military experience into civilian terminology, interview techniques and more.

"We're excited to launch this campaign at AGG1 2019," said Jeff Gray, vice president of sales and marketing, Telsmith Inc., "and for the chance to answer attendees crushing questions while helping such an important organization."

Anyone wishing to contribute to this campaign can make a donation along with Telsmith.

#### The story behind Hire Heros USA

In 2004, U.S. Army SGT Justin Callahan was severely injured in a landmine explosion while on patrol in Afghanistan. He returned to the U.S. as a patient at Walter Reed Army Medical Center – a far cry from where he'd been while serving overseas. After seven surgeries, including a below-the-knee amputation, as well as extensive physical therapy, SGT Callahan embarked on a long road to recovery. While still in treatment, SGT Callahan happened to meet then MedAssets CEO John Bardis. The two formed an immediate bond, and when Bardis learned Callahan's biggest concern was his uncertainty about his future, he offered him a job on the spot. It was through that chance encounter that Bardis discovered the true plight of unemployed veterans. Bardis then created what is now Hire Heroes USA to provide personalized job search assistance for transitioning U.S. military members, vet-

erans and military spouses. For more details regarding Hire Heroes' programs and how to donate, visit <u>hirehe-</u> roesusa .



### ADM offers crane-set and self-erect asphalt storage silos

HUNTERTOWN, IN - Asphalt Drum Mixers, Inc. offers crane-set and self-erect asphalt storage silos, which are compatible with both the company's own and similar competitive models of asphalt plants. ADM silos are available in many configurations from single self-erecting silo to multiple crane-set silos and several drive-through configurations. Capacities are available between 30 and 300 tons. Custom designs and capacities are also available to accommodate any producer.

Available drag conveyors from 150 to 500 tph help deliver the freshly mixed asphalt to the storage silos, where its temperature is maintained until discharged. ADM manufactures each silo with a heavy-duty steel design and continuous welding throughout. All crane-set silos come with an enclosed batcher with a dual clamshell gate that greatly reduces the risk of product segregation and coning. All models incorporate safety features such as a skid-resistant maintenance platform, top perimeter guardrail and solid-steel toe-stop kick plate. In addition, a 4-inch fiberglass dual layer blanket insulation at the barrel provides superior heat retention for the stored hot mix asphalt. ADM equips all models with alarms to alert operators when asphalt levels are high.

The silo cone has a 60-degree taper to a 30-inch discharge opening. The cone is double welded to the silo barrel, which extends past the cone. The cone is heated with pressure tested hot oil tubes and has 4 inches of insulation embossed with a stucco finish. Asphalt producers also have the option to choose an electric heating system to maintain the asphalt at the desired temperature.

Producers can equip all silos with low material signal alarms and standalone remote level monitors and displays. All silos may also feature optional remote location lubrication systems and AR or ceramic cone liners and drag conveyor floor liners. Other options include a heated silo barrel, safety gates, heated gates, gate seals, blue smoke recovery systems, air supply systems, drag conveyors, transfer drags for multiple silo configurations, and a loadout system.

ADM Loadout computers

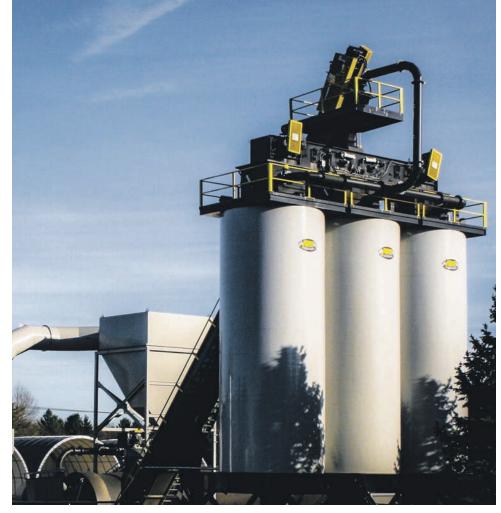
work in conjunction with truck scales, weight batchers or reverse (negative) weigh systems. Operators use the loadout computer to access truck loading data, job files, silo inventory and more. Loadout options include remote data access, traffic signal lights and control, license plate capture, mix temperature capture, remote printers or paperless ticket printing.

The crane-set models are available in 100-, 150-, 200and 300-ton capacities with portability options available for the 100-, 150- and 200ton capacity silos. Producers transport crane-set portable silos using a built-on gooseneck with a fifth-wheel kingpin hitch and dual-axle air ride suspension.

The self-erect silos are available in 30-, 50- and 75-ton capacities. The self-erecting silo is raised using heavy-duty cables attached to the silo and the drag conveyor. The drag conveyor is raised using a hydraulic cylinder system. Self-erecting silos and the drag conveyor are supported on a heavy-duty steel tubing frame that provides for an 11-foot, 2-inch wide x 11-foot, 3-inch high drivethrough clearance. Producers transport self-erect silos

on a gooseneck trailer with a fifth-wheel kingpin hitch. A trailer with a quad-axle and air ride suspension supports large units. Small and midsized trailers feature leaf spring suspension and either a tandem or tri-axle. The silo

and conveyor pivot into the upright position quickly and easily.



Portability options are available for the 100-, 150- and 200-ton capacity silos. Photo courtesy of ADM

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PG 24

February 2019





RockRoadRecycle.com

PG 25







Vac-Con, Inc. excels at

Technicians are working on one of ten trucks currently in various

custom-built vacuum

trucks

by Jon M. Casey

On the cover:

stages of assembly.



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**PG 4** 

# CM Labs sets industry benchmark with new dozer simulator training pack

CM Labs Simulations has announced the release of a state-of-the-art Dozer Simulator Training Pack that allows trainees to experience the unique feel of pushing soil and aggregate material from the seat of a virtual dozer.

Trainees can perform both heavy excavation and fine grading with the simulator's sixway blade, and dozer tracks even slip based on operator behavior. This enables trainees to learn precision techniques — and efficiency — in an environment that poses no risk to them or to the equipment.

The realism is based on the training solution's unique ability to engage a simulated transmission and engine the moment the virtual blade touches virtual soil. "The simulator virtual equipment has been engineered from the ground up," explained Drew Carruthers, CM Labs' Construction Line manager. "The blade, the transmission, the engine, the controls — if it's somewhere between the operator and the dirt, it's been simulated."

"Many simulators treat machine behavior as a kind of special effect that's scripted into a training session," Carruthers said. "This results in unrealistic performance and overconfident trainees. But when operators train on a Vortex simulator, they're not experiencing special effects. They're experiencing the laws of physics."

The exercises that are built into the dozer training pack are designed to address common beginner challenges such as setting the blade angle correctly and learning how to maintain material in front of the blade. In addition, the Training Pack includes advanced exercises, such as excavating a drainage inlet and transversal ditch as well as trailer loading/unloading.

Training exercises come complete with on-screen tips, best-practice hints and performance indicators that enable trainees to learn at their own pace, or as part of an instructor-led training curriculum. All exercises have multiple possible solutions, leaving it to the operator to exercise skills, creativity and good judgement — just as in the real world.

The Dozer Simulator Training Pack is part of CM Labs' extensive product line of earthmoving and lifting crane training packs, all of which can be run from a single Vortex simulator. Solutions range from training packs for crawler crane, flat-top tower crane, luffing tower crane and mobile crane to excavator, backhoe, wheel loader, motor grader and more.

When the dozer training pack is paired with CM Labs' Instructor Operating Station, trainers can set conditions that include inclement weather and night-time operations. A customizable scoring system delivers an objective score to instructors whenever a trainee completes an exercise.

The Dozer Simulator Training Pack leverages the same innovative soil simulation technology featured in CM Labs' recent release of its Excavator Simulator Training Pack, the world's first commercial application of this advanced new method of soil visualization.



Dozer Training Pack Exercises are designed to gradually build precision and confidence.



Like all CM Labs solutions, the machine inside the Dozer Training Pack has been engineered from the ground up.

Graphics courtesy of CM Labs



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Virtually every vacuum truck is custom made to a customer's specifications.

n mid-November 2018, I had the privilege of touring the Vac-Con, Inc. manufacturing facility in Green Cove Springs, FL, as a guest of Todd Coleman, Purchasing Supervisor. There, we were able to see how Vac-Con custom-builds more than 300 vacuum trucks per year. What proved to be most fascinating during our visit was the tremendous parts inventory Vac-Con maintains in order to build and service the multitude of equipment shipped to customers around the world.

#### **Company Background**

The tour began in the office of company founder and president Darrell LeSage. "We started with five employees and a dream in 1986," he said. "Since then, we have shipped more than 8,000 units — all of which are still in operation



Darrell LeSage, Vac-Con president, began operations in 1986 with five employees and the dream of producing high quality vacuum trucks at reasonable prices.

today! Currently, we employ approximately 340 people at our 17-acre facility. We also have two subsidiaries as well. More importantly, the company continues to grow to meet customer demand. We have come a long way."

LeSage said that Vac-Con has an impressive export market through an international subsidiary, E.L. Industries. "We have strong market shares in Mexico, Canada, China and parts of South America. We do well in China because our equipment is so specialized. Their manufacturing models are scaled for large, mass production because of their population. By their standards, manufacturing a product on the small scale of demand for our vacuum trucks does not merit consideration. So they are happy to buy our equipment because of the quality and reliability that we can offer; because of our custom-built process."

"One of our largest and most memorable exports was in 2013 when we shipped an order for 18 machines to Peru," he added. "That transaction went through our local port, JaxPort. Financially, that was quite a windfall for both Vac-Con and the local community."

LeSage explained that Vac-Con is one of the employee-owned, Holden Industries companies. Holden Industries was established in 2003 and today includes Vac-Con, Inc., Nosco, Inc., Wildeck Inc., and Setco Inc.

#### **Plant Tour**

Heading outside, Coleman and I examined several completed vacuum trucks that were staged and ready for shipment to customers across the globe. Moving on, we entered the manufacturing plant through the tidy, steel storage area outside the main facility. Coleman said the company makes many of the parts that go into producing each truck. Foremost among those is the vacuum fan that powers the suction system.

"The fans are made in-house because they need to be perfectly balanced since they run at 6,000 RPM," said Coleman. "This component is extremely important, so we want to maintain the highest level of quality control on this part. We cannot risk a failure of the fan. The fans are the heart of the vacuum truck. They need to be perfectly balanced."

Vac-Con's fabrication shop makes a number of other inhouse manufactured components that make up the more

## Vac-Con, Inc. excels at custom-built vacuum trucks

Article and photos by Jon M. Casey



Several brands of engines are kept in inventory to fill customer requests for vacuum truck power auxiliary engines.

than 30,000 parts that they have in stock. These parts include the structural, specialized components that go into manufacturing a completed truck. On this visit, we did not tour the fabrication shop located across the street that separates this 17-acre complex.

Coleman said in 2015, in order to meet the increasing demand for their custom-built vacuum trucks, the company went through a facility expansion at the 160,000 sq. ft. plant that included a new 29,200 sq. ft. warehouse addition that is 45 feet high. This additional height was part of the new design as a way to accommodate the six new Kardex Remstar Shuttle XP vertical lift modules (VLM) that were installed. He noted the older warehousing was only 25 feet high, which would have limited the number and height of the new VLMs. Ultimately, they were able to double-stack the modules, doubling storage capacity on the allotted floor space.

"The VLMs have made parts inventory control much simpler," said Coleman. "Orders for trucks come in and the work orders are created by the computer based Power Pick Global (PPG) inventory management software. This system manages the parts picking process, including the larger parts like pony engines and rack storage components that are moved by forklift. By moving the parts more efficiently, we are able to assemble more trucks per month. We currently have units in various stages of assembly in 10 manufacturing bays."

"Each VLM module has 89 trays, with each tray capable of holding 2000 pounds of parts. When our parts come in or are needed for workers to build a truck, VLM operators like Meranda McCarty are able to enter the information into the PPG inventory management system and the VLM 'delivers' the part to the operator, at waist height. Not only that, when we restock the parts into inventory, the VLM finds the ideal open area for the tray to be stored, taking into consideration the height of the parts on each tray."

Coleman said they hope to add more VLMs to their inventory control system as the company continues to grow, emphasizing the parts department ships an average of 12,000 parts per year. That is added to the multitude of components that make up the vacuum trucks they produce. By continuing to improve the parts management system, Vac-Con is able to increase the number of trucks they can build each month. Ultimately, their production target is 50 trucks per month.

#### **Product Line**

Vac-Con's product line is extensive due to the flexibility of their design features and options. The Titan<sup>TM</sup> Dual Engine Combination sewer cleaning machine is the top of the line unit — available in three sizes. Many of the standard features offered on Titan machines are listed as options on other manufacturer's units.

Vac-Con's standard dual engine combination machine is available in five sizes from five to 16-yard capacities. In this configuration, the chassis engine drives either the three-stage fan or positive displacement blower vacuum system. "Using a standard hydrostatic drive, this design can engage the industry's most powerful vacuum."

The single-engine models are also available in five sizes. Absent the pony engine on the dual powered models, the vehicle's chassis engine powers a hydrostatic drive to power the vacuum and water systems.

Two lines of vacuum excavators offer customers a number of ways to do vacuum excavation on such jobs as trenching, exposing underground utilities and highway and street repairs. The X-Cavator<sup>™</sup> is what might be called the "standard" model while the XX-Cavator<sup>™</sup> is a larger version that includes special insulation and recirculation features that allow for operation in extreme climates and temperatures. Its engineering features low decibel noise levels and improved fuel efficiency.

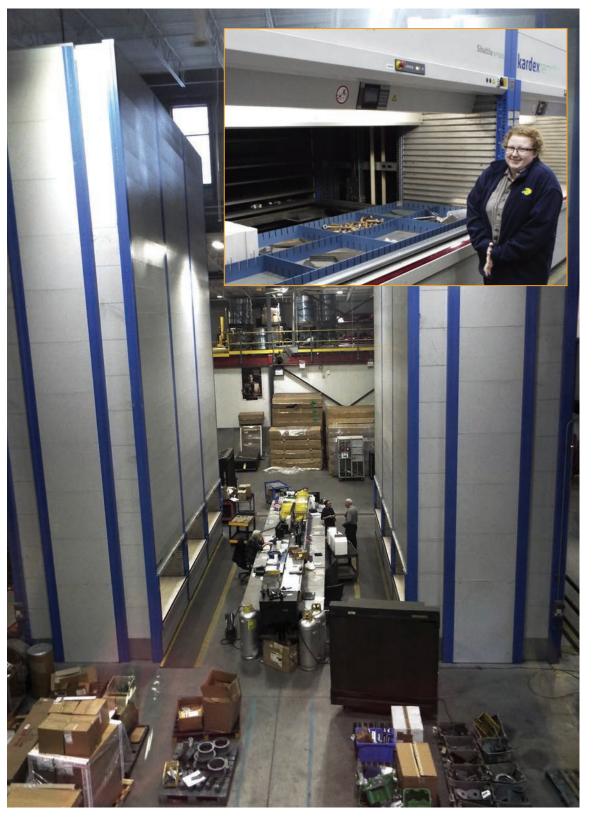
Vac-Con industrial vacuum loaders are another of the company's product line. These units can recover wet or dry material and are available with several options including automatic material return system and hi-dump.

Finally, Vac-Con offers their line of Hot Shot high-pressure water jet machines. According to Vac-Con specs, these pressure washers are designed to provide "superior high-pressure flushing action that gives the added power needed to clear stones, bottles, cans, grease, sludge and other stagnant debris from sanitary sewer and/or storm drain lines."

Additionally, as previously mentioned, trailer-mounted units are also available through the company's Vector Industries subsidiary. These products are briefly covered in the attached sidebar.

For more information on Vac-Con, visit <u>vac-con.com</u> or call 1-904-493-4969.

Right: Vacuum fan blade units are manufactured in-house to help ensure the precision and quality that Vac-Con is seeking to maintain equipment performance and reliability. These systems can operate at up to 6,000 RPM, so equipment failure is NOT an option.





Above: Vac-Con's six Kardex Remstar VLM units make efficient use of warehouse floor space while storing thousands of parts for manufacturing and after-market sales. There are 89 trays in each of the six Kardex Remstar VLM units and each tray can hold up to 2000 pounds of parts.

Inset: Meranda McCarty, VLM operator, explains how Vac-Con's Kardex Remstar Vertical Lift Module, automated storage and retrieval system, works.

### Rock Road Recycle.com PG 6 ALL Crane buys eight-crane package from Kobelco

The ALL Family of Companies, one of the largest privately held crane rental companies in North America, has purchased eight new Kobelco CK-class G Series hydraulic lattice-boom crawler cranes for its rental fleet. ALL Crane is an authorized Kobelco dealer, and the purchase, which will increase the number of Kobelco cranes available to its rental customers, demonstrates the company's confidence in the cranes' value and performance.

Included in the deal are four new CK800G-2 units (80 USt, 200 ft. max boom) and two each of the new CK1100G-2 (110 USt, 200 ft. max boom) and CK1600G-2 (160 USt, 250 ft. max boom). Delivery is scheduled for spring 2019.

All units in the G Series are designed from the ground up for reliable operation, convenient maintenance and easy transport. They have EPA-compliant, clean-running engines, plus energy-saving assist systems known as "G Modes" which can achieve up to a 30 percent savings in fuel consumption. Other features of the G Series include a larger cab design, LMI touchscreen, counterweight detection device, improved counterweight self-installation mechanism and improved, shorter control levers.

"Customers love these cranes because they are efficient and easy to use, and operators love them because of the roomy cabs, intuitive technology and enhanced safety features," said Michael L. Liptak, president of ALL Crane. "We became a Kobelco authorized dealer last year because we believe in what their cranes bring to a jobsite. Now we're expanding our ownership of these machines so our rental customers can experience the Kobelco difference for themselves."

The cranes represented in the package are ideal sizes and capacities for bread-and-butter jobs like road construction, bridge work and urban construction, where maximum power in a smaller package is always welcome.

ALL Crane's sales territory for Kobelco cranes covers Ohio, West Virginia and western Pennsylvania, including Pittsburgh. Upon delivery, this new package of cranes will be distributed among ALL Crane rental fleets throughout this region.



All units in the G Series are designed from the ground up for reliable operation, convenient maintenance and easy transport.

Photo courtesy of ALL Crane

### Vector Technologies trailer and skid mounted units expand Vac-Con customer options

#### by Jon M. Casey

ector Technologies, a Milwaukee, WI-based company, is a subsidiary of Vac-Con Consolidated Industries that manufactures industrial vacuum cleaners, trailer-mounted air and hydro vacuum excavators, hydro blast liquid recovery equipment and combination vacuum and jetting trailer-mounted units. Vac-Con acquired Vector in 2012 as a way to complement Vac-Con's line of truck-mounted vacuum trucks. Vector's product line virtually parallels Vac-Con's, only on a smaller, trailer-mounted or skid-mounted scale. Vector Technologies has been in business since 1976.

The trailer-mounted jetters and vacuum units are an ideal addition to the truck-mounted vacuum systems that Vac-Con manufactures. The addition of the Vector Technologies line of trailer-mounted systems came because Vac-Con dealers were looking to satisfy customers who were looking to purchase a vacuum or jetting system but were not in the market for a system as large as the Vac-Con product line. The Vector line filled that gap.

#### **VecLoader™ line**

According to Vector Industries materials, "Vec-Loader<sup>TM</sup> industrial vacuums are extremely powerful and compact systems. This line includes the VecLoader<sup>TM</sup>, the Mini-VecLoader <sup>TM</sup> and the Spartan<sup>TM</sup>. These industrial vacuums incorporate innovative technology to solve a wide variety of industrial vacuum and conveyance needs. Modular in design, VecLoader<sup>TM</sup> industrial vacuums can be easily matched to a wide assortment of customer-specified cyclone separators, filter receivers, collection systems, classifiers, self-dumping hoppers and intermediate collection devices."

Industrial vacuums are available in liquid propane, gasoline, electric or diesel power, and in skid, crane, truck and trailer mounted configurations. Vector builds machines for varied applications that cover heavy industry, mining and well drilling, commercial and residential construction and land development, municipal infrastructure construction and maintenance.

#### Hydro-excavator vacuums: Mudslinger™ and Mudslinger HD™

The Mudslinger<sup>™</sup> line is for operators who are looking for a machine to do smaller excavating jobs like potholing and smaller utility repairs. With a number of vacuum and water system options, the Mudslinger<sup>™</sup> line is the ideal, smaller-sized hydro-excavator.

#### Jetter vac combinations: Neptune<sup>™</sup> and Super Neptune<sup>™</sup>

The Neptune<sup>™</sup> and Super Neptune<sup>™</sup> jetter vac combination systems are compact skid-mounted or trailer-mounted units that combine powerful vacuum and high-pressure water capabilities in either trailer or skid-mounted designs. These units can be used in a number of ways including clean out of laterals, filter beds and other wastewater applications. They can be used for emergency response for flood cleanup, spills, shoring and other projects. They are ideal for locating utilities, fence and posthole digging and other wet or dry cleanup or recovery jobs.

For more information visit <u>www.vector-vacuums.</u> <u>com</u> or call 800-832-4010.



VecJet® trailer-mounted jetting units are available in a number of configurations. The VecJet® units are made for Vac-Con by their subsidiary, Vector Technologies, LTD, Milwaukee, WI.

Photo courtesy of Vac-Con

Industrv

news

PG 7

RockRoadRecycle.com



### Higher lift Merlo Roto now available to the U.S.

The Merlo Roto R50.35 S-Plus, with its 115' lift, is now available in the U.S. Offered exclusively to the U.S. market through Applied Machinery Sales and its dealers, the Roto50.35 S Plus supplies a newly engineered tilt cab with integrated controls, 96' reach, maximum capacity of 10,900 lbs., 360° rotating turret and a new, innovative safety system.

#### What's New

The modular cab increases the operator view with a curved glass windshield. The cab tilts up 20°, expanding the operator's view when the boom is fully extended. For improved operator comfort, the interior is 10 percent larger.

With increased comfort comes higher efficiency. An operator controls the machine functions with the interactive

electronic capacitive joystick mounted onto the multifunctional armrest. Turret rotation is now controlled by a miniature mouse located on the joystick. The armrest has two sensors automatically detecting the presence of the operator's hand, preventing erroneous or accidental joystick movements. For seamless operation, functional controls, such as stabilizer placement and machine suspension, are integrated into the armrest as well.

The chassis design offers increased structural strength and weight with optimal distribution for better balance allowing for continuous high levels of performance within its compact size. The R50.35 S-Plus exterior received upgrades also. Strategically placed handles make for easier accessibility, plus a second ladder on the engine side is positioned to improve cab accessibility even when the tur-



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The Merlo Roto R50.35 S-Plus, with its 115' lift, is now available in the U.S. Photo courtesy of Merlo

ret is rotated to 180°.

Merlo engineers consolidated the MCSS and MerLIN safety systems into the single Advanced Safety System (ASCS). The ACSC system collects and analyzes different machine parameters load position, boom extension angles, turret rotation, stabilizer position and load weight in real time to create the load diagram. This data translates into a visual representation on the new LCD. Plus, the ASCS automatically recognizes, and incorporates, attachment information into the data.

#### Just the Facts

The R50.35 S-Plus offers a 170 hp engine. Acceleration, from 0 - 25 MPH, happens without torque interruption or pausing for gear change. The electronically controlled EcoPowerDrive (EDP) hydrostatic transmission reduces fuel consumption without losing performance. A CVTronic transmission is optional. The R50.35 S-Plus will be showcased at World of Concrete 2019 at AMS-Merlo's new location, Booth C6661.

To learn more contact <u>AMS</u> or your local dealer. You can also email <u>info@</u> <u>appliedmach.com</u>.



# **Industry news**

### National Crane unveils new rapid attach platform for NBT series

National Crane has announced a new rapid attach platform for its NBT boom truck series previously unveiled at Crane Days 2018. The completely redesigned platform will replace previous iterations and comes in two styles: yoke style (Y-RAP2) and rotating style (R-RAP2). The yoke style is available now and the rotating style will be available later this year.

"The creation of the new rapid attach platform was brought about by Voice of the Customer feedback, part of the Manitowoc Way," said Bob Ritter, engineering manager for boom trucks. "Customers asked for a more versatile platform that was quicker and easier to attach. We went back to the drawing board and the idea for a completely new platform design quickly started to take shape."

The two-person steel, non-insulated yoke-style platform is extremely efficient to attach thanks to its one pin system and innovative self-centering boom nose adapter. The new platform was also designed for more demanding jobsites and can attach at +/- 15 degrees. It retains a weight limit of 1,200 lbs. for the basket and 500 lbs. for the jib.

"The ability to quickly attach this platform on uneven ground is unprecedented in the industry," added Ritter. "It will give operators much greater versatility and productiv-



The completely redesigned platform will replace previous iterations and comes in two styles: yoke style (Y-RAP2) and rotating style (R-RAP2).





ity on the jobsite."

The new platform is perfect for aerial work with many of the NBT series machines due to the design, including two industry-leading, utility-focused features: a pressure intensifier option and a remote-control docking station direct from the factory.

The new platform is available for multiple models from National Crane's NBT series, increasing asset utilization for National Crane owners, including the NBT40-1 and NBT50L series, as well as the NBT50, the NBT55, the NTC55 and the NBT60.



It retains a weight limit of 1,200 lbs. for the basket and 500 lbs. for the jib.

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PG 9



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With the boring machine removed from the tunnel, work can begin on pouring in place the roadways and erecting sidewalls.

s I begin writing this article (on Jan. 11), at 10 p.m. local time, Seattle's Alaskan Way Viaduct between South Spokane Street and the south end of the Battery Street Tunnel will close forever. Once that takes place, the scheduled three-week process of intensive construction work by WSDOT to realign State Route 99 from the viaduct to the tunnel entrances in both directions begins. Since both the tunnel and viaduct will be closed to traffic during this construction, daily commuters will face considerable delay and confusion on the short term. In the end, however, most agree that the new tunnel beneath downtown Seattle will be a blessing to the area when it is finally completed. Even though the tunnel is scheduled to open the first week of February, it will take another two weeks to complete the new northbound off-ramp into downtown Seattle. In all, the disruption will go on for approximately six weeks.

Nevertheless, most commuters welcome the tunnel opening for several reasons. First, it will make way for the removal of the double-deck Alaskan Way Viaduct, a structure that currently carries approximately 90,000 vehicles per day. This structure has been in



A few of the 1,400 ring tunnel segments are being transported to the working face of the tunnel bore.

use since its construction in the 1950s.

Second, the added safety of traveling underground for two miles in what is known to be an earthquake zone, versus above ground on a viaduct that could easily collapse, gives commuters the added assurance that they will be able to drive safely under most conditions. Planners took notice three decades ago when the 1989 Loma Prieta Earthquake in Oakland, CA, took the lives of 42 people who were killed while traveling on an elevated roadway, much like the Alaskan Way Viaduct.

Finally, with the removal of the closed viaduct system, the improvements planned for the 20-acre waterfront area will provide visitors easy access from the downtown area and the historic Pike Place Market to a waterfront park that will provide a public space for thousands of visitors each year.

#### Planning begins

According to Brian Russell, HNTB Corp. project manager, the idea of an alternative

way to travel in downtown Seattle began to take shape following a local earthquake in 2001. While sections of the SR 99 viaduct received slight to moderate structural damage, a nearby railway tunnel, built in the very early 20th century, received none. This highlighted the added safety that can be found within tunnel structures during earthquake events. Russell summarized the progress of the tunnel project during a webinar presentation given during the Roads & Bridges Virtual Expo on Oct. 10, 2018.

Following the repair and reactivation of the viaduct roadway, the Alaskan Way Viaduct Replacement Program was established. Planners began looking at how they might tunnel beneath Seattle's downtown area as a way to replace the aging viaduct roadway system. Ultimately, a single-bore, 57-foot diameter, two-mile long tunnel containing a double-deck roadway and ample evacuation safety measures became the plan.

#### Getting the job done

Once the contract was awarded, Seattle Tunnel Partners began construction in 2010 using design plans created by the architect firm HNTB Corp. Seattle Tunnel Partners is a joint venture of New York-based Dragados USA, a wholly owned subsidiary of Dragados, S.A., the construction division of ACS Group of Spain, and Tutor Perini Corporation, based in Sylmar, CA. During this massive project, design-build contractor Tutor

PG 11 RockRoadRecycle.com



Crews disassemble the tunnel-boring machine with care.

Perini Corp. worked with Fisk Electric Company, Desert Mechanical Inc., Frontier-Kemper Constructors Inc. and Superior Gunite, among others, to accomplish this historic task.

Three years later, tunneling began in July 2013 on the \$1.4 billion project after the Hitachi-Zosen Corporation's \$80 million tunnel boring machine (TBM), named "Bertha," arrived at the jobsite. The machine was given the name Bertha in honor of Seattle's first mayor, Bertha Knight Landes. It was built in Osaka, Japan. There, it was disassembled into 40 pieces for shipping and sent to the Port of Seattle.

Upon arrival in Seattle, Bertha was reassembled in the launch pit on the south end of the future tunnel — 326 feet long and 57.5 feet in diameter, weighing in at 6,700 tons. During its time of operation, the borer moved in 6.5-foot increments toward the north end of the project.

Along the way, tunneling met with a number of delays caused by maintenance scheduling and a major breakdown after hitting an unexpected, buried steel pipe. According to a Wikipedia.org overview, "Work was halted on Dec. 6, 2013 after the machine overheated and shut down approximately 1,083 feet (330 m) into the planned 9,270-foot-long (2,830 m) route. Investigations later revealed the seal system that protects the machine's main bearing had been damaged. Three days prior to stopping, the machine mined through an 8-inch steel well casing used to help measure groundwater in 2002 around the Alaskan Way, drilled as part of the planning phases of the project. Whether this pipe had anything to do with the machine's failure is at the center of legal dispute between WSDOT and the contractor, Seattle Tunnel Partners. This delay lasted for more than two years as the workers had to dig a 120-foot (37 m) vertical shaft down to Bertha's cutting head to repair it" (en.wikipedia.org/wiki/Bertha\_ (tunnel\_boring\_machine).

By January 2016, the tunnel had only reached 1,560 feet of its 9,270-foot journey. After the resumption of boring in January 2016, the crew made steady progress. During its journey, the boring machine tunneled as deep

as 200 feet beneath ground level. During the time the machine did its boring work directly beneath the existing viaduct, traffic was rerouted for the two weeks it took to bore the 292 feet. In all, once the initial repairs had been made, it took another 14 months until Bertha made its appearance at the north end of the project on April 4, 2017. It took four more months to dismantle and remove the TBM from the site.

Roadway preparation and construction was ongoing. While the tunnel itself was made up of pre-cast concrete sections, the roadways were cast in place. Operations buildings were constructed at either end of the tunnel, designed to provide ventilation, administration and other needed functions. Inside the tunnel, the two-mile-long roadway is two lanes in either direction with an 8-foot safety shoulder in each direction. The tunnel contains state-of-the-art safety systems that include fire protection, a deluge system and single point extraction capabilities. Continuous visual and sensory monitoring is in place for motorist safety.

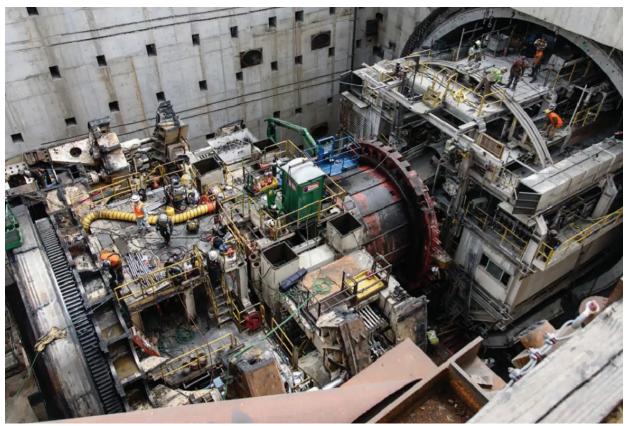
#### What's next?

Beginning Saturday, Jan. 12, Scarsella Bros. Contracting are working to complete the ramp and road connections between the new tunnel and SR 99. Most of the work will take place in the existing construction areas for the SR 99 tunnel. There will also be some bridge sign work on SR 99 and surface street paving. A ribbon cutting ceremony and community celebration is scheduled for Feb. 2 - 3. The tunnel will be open to traffic in one direction until work can be finished on the northbound off-ramp into downtown Seattle. The completed tunnel and roadway project is expected to be completed by mid-February.

Following the reopening of SR 99, work to demolish the Alaskan Highway Viaduct will begin. Once the viaduct is removed, the "Waterfront Seattle" Project will continue in earnest, having begun in 2017. According to the project's website, waterfrontseattle.org, "The program spans the waterfront from Pioneer Square to Belltown and includes a rebuilt Elliott Bay Seawall, a new surface street providing access to and from downtown and new parks, paths and access to Elliott Bay. Waterfront Seattle is led by the City of Seattle's Office of the Waterfront, working closely with civic leaders, stakeholders and the broader Seattle public to create a 'Waterfront for all.'" When completed, the project will include a pedestrian walkway, a waterfront park and other visitor amenities. In total, the project is expected to be ongoing until 2024.

For more information you can visit <u>wsdot.wa.gov</u> and <u>waterfrontseattle.org</u>.





A view from above as the tunnel-boring machine is being removed from the jobsite.



### **Trucks, Trailers & Attachments**

# Doosan Portable Power hits milestone with 500 remanufactured air compressors

STATESVILLE, NC — Doosan Portable Power recently restored the 500th air compressor as part of its Certified Remanufacturing Program. An aging HP750WCU-T1 air compressor was restored to like-new condition and will include a new warranty.

Since the program's introduction in 2012, nearly 100 air compressors have been remanufactured each year in the company's Statesville, NC, facility.

Initially available for air compressors originally manufactured by Doosan or Ingersoll Rand rated 750 cfm or above, the program was expanded in 2018 to include lower cfm air compressor models — HP375, XP375 and P425 — as well as Doosan G450 and G570 mobile generator models.

"The continued demand and expansion of the Certified Remanufacturing Program after 500 restorations shows that the demand for this type of program continues to fill a need for our dealers and customers," said Hugh McCluskey, service director, Doosan Portable Power.

The Doosan Certified Remanufacturing Program works two ways: customers can purchase an air compressor or

generator from the Doosan inventory of remanufactured machines, or customers can retain ownership of their original machine throughout the remanufacturing process.

Each remanufactured machine is disassembled down to the frame before the rebuilding process begins. Each unit receives a remanufactured engine of the same tier classification as originally equipped, as well as a factory-reconditioned air-end for air compressors and alternator for generators. Some remanufacturing machines can be retrofitted with factory-installed options during the remanufacturing process.

The base frame and separator tank receive a total makeover, including paint stripping and recoating — all with strict adherence to the same stringent process used for new Doosan machines. External and internal components are replaced, including all sheet metal, wheels, tires, lights, coolers, sensors, hoses and piping. A new wiring harness is also installed.

Each machine is reassembled along the same line as new machines and following the same strict protocol. All Doosan remanufactured air compressors and generators are factory tested to ensure proper operation before shipment.

"We do the remanufacturing in our factory with our technicians and parts so we can ensure the highest quality possible. Our experienced, highly-skilled technicians are the most valuable asset in the remanufacturing program," said McCluskey.

Each remanufactured machine is registered in the Doosan Portable Power system with a same-as-new machine warranty. This warranty is fully transferrable in the event the unit is resold prior to the expiration of the warranty. Each machine is delivered with a complete set of manuals as well as a certificate indicating it has been through the Certified Remanufacturing Program.

"Remanufacturing is a cost-effective and reliable alternative to purchasing new equipment for price-conscious contractors and those who prefer the ease of lower-tier machine operation and maintenance," said McCluskey.

Visit the Doosan Portable Power YouTube channel to see the Doosan remanufacturing process in action.

For more information about Doosan Portable Power, visit doosanportablepower.com



Before, during and after photos of a remanufactured Doosan HP750. Photos courtesy of Doosan Portable Power

### PHIL sideboards help maximize volume and minimize spillage

PEORIA, IL — Off-highway trucks are designed to haul ton after ton of material throughout quarries and mines and also traverse unpaved haul roads in the pursuit of building economies and infrastructure around the world. From time to time, the truck bodies on these trucks cannot contain the material they need to for maximum efficiency.

Whether the off-highway truck has a tailgate or not, the addition of PHIL Sideboards is useful in increasing the volumetric capacity of the truck body, and it assists in minimizing material spillage over the body sides.

PHIL Sideboards are available in one-inch increments from nine inches to more than 40 inches for most makes and models of articulated haulers and rigid frame trucks.

For example, in order to compete in a highly competitive rental market, a Caterpillar dealer recently came to Philippi-Hagenbuch to increase the volumetric capacity of their Cat 745 articulated dump truck by adding nine-inch sideboards. Installation was done at the PHIL factory, but can also be done at the dealership or at the client site. When paired with a tailgate, this set of sideboards increased the volumetric capacity of the truck by approximately nine cubic yards — creating almost 28 percent more room to haul whatever material necessary.



When paired with a tailgate, this set of sideboards increased the volumetric capacity of the truck by approximately nine cubic yards.

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## **Trucks, Trailers & Attachments**

### Mobile dust suppression design features Tier IV Final gen set

A global innovator in dust and odor control technology has updated its family of self-powered dust suppression equipment with Tier IV Final-compliant generators, ensuring compliance in all 50 states. BossTek made the announcement with the debut of the new DustBoss® DB-60 FusionTM, a field-proven suppression system driven by a high-reliability 25-hp electric motor and paired with a gen set powered by a heavy-duty four-cycle indirect injection diesel engine. Designed, engineered and assembled in the USA, the generator features a dual-containment fuel cell, heavy gauge lockable enclosure and oversized brushless alternator for easy starting.

Permanently mounted on a rugged road-worthy trailer, the company's Fusion lineup is proving to be a popular and effective means of delivering versatile, mobile dust suppression technology to sites that lack a readily available power source. The company expects to unveil two other Fusion models in early 2019, giving customers the ability to select the size and coverage range needed to best suit their operations.

The new generator series is designed with sound attenuation for excellent noise reduction and a multi-voltage switch with utility power outlet in all voltage modes. The digital engine/generator controller is equipped with single button stop/start and an 80-gallon fuel capacity, giving the units a run time of more than 24 hours at a prime rating of 45 kVa. Like its previous Fusion systems, BossTek warrantees the DB-60 Fusion for three years/3,000 hours, with five-year/5,000-hour coverage on the electric motor and a two-year/2,000-hour warranty on the generator.

#### What Tier IV Means

Tier IV refers to the latest emission milestone established by the U.S. Environmental Protection Agency (EPA) and the California Air Resources Board (CARB). The regulations apply to new engines found in off-road equipment, including construction, mining and agricultural equipment, as well as marine vessels, locomotives and stationary engines used in industrial and power generation applications.

Tier IV-compliant engines are designed to significantly reduce emissions of particulate matter (PM) and oxides of nitrogen (NOx) to near zero levels. Relative to previous emissions standards, Tier IV-compliant engines reduce emissions by over 95 percent for most agricultural and construction equipment and just over 86 percent for much larger applications such as locomotives and marine vessels. The Tier IV emission standards are roughly similar to emission reduction requirements for engines that power heavy-duty trucks.

#### How It Works

The DB-60 Fusion drives pressurized water through a circular stainless steel manifold with 30 atomizing spray nozzles, then launches millions of tiny droplets with a powerful fan that produces 30,000 CFM (849.50 CMM) of air flow. Atomized mist droplets of 50 to 200 microns in size are thrown out in a 200 foot (60 meter) cone at an adjustable 0 - 50° elevation angle, capturing airborne dust particles and dragging them to the ground. Unlike industrial sprinklers used for the same purpose, which can require hundreds of gallons of water per minute, the DB-60 only uses about 23 GPM (87 LPM) to help avoid pooling or runoff.



The touch screen control panel is protected in a NEMA 3R cabinet.

A touchscreen panel for controlling the dust suppression unit is encased in a NEMA 3R cabinet, allowing operators to control oscillation, booster pump, fan and water. The cabinet is constructed for outdoor use, designed to provide protection against solid foreign objects (such as dirt), air (dust, emissions), water (rain, sleet, snow) and ice formation. The system provides valuable mobility and versatility in one of the most popular and effective dust suppression designs on the market, able to deliver up to 62,800 square feet (5,834 square meters) of coverage.

"Maintaining air quality is essential for communities near a demolition project, mining operation or other bulk material handling activities, but even in places with little infrastructure, dust can choke worksites and foul equipment," said Project Engineer Jason Lesch. "We engineered the Fusion to be highly mobile, with its own power source, so it can be easily towed anywhere on a job site."

Equipped with an in-line 75 mesh, 200 micron filter, the unit can be specified with special filtration to accommodate non-potable water sources. In addition, the new design can be optimized with a Variable Frequency Drive (VFD) to precisely adjust fan speed. An optional dosing pump is available for precise metering of additives to enhance particle control even further.



The DB-60 Fusion dust suppressor features a Tier IV Final-compliant generator. Photos courtesy of BossTek



The system's gen set is powered by a heavy-duty 4-cycle diesel engine.

### Talbert Manufacturing offers versatile 60CC/55SA-LD trailer

RENSSELAER, IN — Talbert Manufacturing offers the 60CC/55SA-LD trailer for optimum versatility. The trailer pairs with Talbert's optional East Coast-style E1Nitro<sup>TM</sup> axle extension, allowing for 60-ton capacity with a close-coupled configuration or a 55-ton hauling capacity with a spread axle configuration. This innovative Talbert design gives customers flexibility to switch between configurations to meet differing hauling regulations. While maintaining a 60-ton rating at half the deck length, the 60CC/55SA-LD offers a 6-inch ground clearance with an 18-inch loaded deck height — 2 inches lower than competitive models.

"We're the only manufacturer offering a trailer in this hauling class with an 18-inch loaded deck height," said Troy Geisler, Talbert vice president of sales and marketing. "Those 2 inches make a huge difference in today's hauling world." The Talbert 60CC/55SA-LD is a hydraulic detachable gooseneck trailer featuring a non-ground bearing hydraulic gooseneck design, 108-inch swing radius, 26-foot deck length and 8-foot, 6-inch deck width.

The E1Nitro<sup>™</sup> axle extension, which enables the 60-ton capacity, uses a combination of hydraulic fluid and nitrogen to equalize axle pressures, providing proportionate weight distribution of each axle grouping. This optimizes the range of suspension movement, which minimizes stress and provides a smooth ride. In addition, the E1Nitro<sup>™</sup> features a bearing pivot and pivot lockout for backing the trailer. Users also can hydraulically lock in axle loads regardless of terrain. The E1Nitro<sup>™</sup> comes standard with two-speed dual landing gear for optimal stability when disconnected from the trailer.

"As loads get heavier and heavier and our customers expand their operating territories to cover more states, there's greater demand for trailers that meet requirements in a variety of locations," Geisler said. "We saw more customers having the need for 3+1 in applications where the four wasn't allowed. We've eliminated that hassle and the extra expense of another trailer while giving our customers additional versatility."

**PG 15** 

The versatility of this trailer and the functionality to switch between a close-coupled and spread-axle configuration gives operators the ability to meet the many varying state requirements. This added flexibility reduces costs by eliminating the need for additional permitting.

Like all its trailers, Talbert manufactures the 60CC/ 55SA-LD with heavy-duty T-1, 100,000-psi minimum yield steel for extreme durability and longevity. Talbert trailers are standard with Valspar R-Cure® 800 paint (to prevent corrosion), offering a long lasting finish and better return on investment.



The Talbert 60CC/55SA-LD is a hydraulic detachable gooseneck trailer featuring a nonground bearing hydraulic gooseneck design.

Photos courtesy of Talbert



This innovative Talbert design gives customers flexibility to switch between configurations to meet differing hauling regulations.

### Thunder Creek expands multi-tank diesel hauling platform to medium-duty truck bodies with Multi-Tank Upfit

PELLA, IA – Thunder Creek Equipment has expanded its multi-tank platform of diesel fuel hauling solutions to include a new medium-duty truck body — the Multi-Tank Upfit — that can haul bulk diesel on the road without requiring a CDL or HAZMAT endorsement (Title 49 (CFR49) – local regulations may apply). Each truck is outfitted with eight independent 115-gallon tanks (920-gallon total capacity) that are only connected when a common manifold is opened at the pumping station.

"This is the natural evolution of the multi-tank concept, allowing contractors, heavy equipment owners and fueling services to haul diesel in the platform that makes sense for their business," says Luke Van Wyk, vice president of sales, Thunder Creek Equipment. "This will allow fuel to be delivered in the field by trusted employees without requiring a CDL or HAZMAT endorsement."

The new Multi-Tank Upfit is currently compatible with the Ford F550 chassis (Class 5 – either with or without PTO). Thunder Creek plans on engineering the body for additional Class 5 and Class 6 trucks. The rear utility box of the new design contains the diesel pump and the manifold system. Options include a variety of meters for measuring, security and tracking, numerous reel options and lengths, a powerful 4-micron filter to ensure greater fuel quality and color schemes that match what is available with the Thunder Creek line of fuel and service trailers.



The Multi-Tank Upfit allows for hauling bulk diesel on the road without requiring a CDL or HAZMAT endorsement. Photo courtesy of Thunder Creek



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## Trucks, Trailers & Attachments

### *Kinedyne broadens Grip Link family with 7- and 8-mm heavy-duty stud tire chains for off-road applications*

BRANCHBURG, NJ — Kinedyne LLC, manufacturer and distributor of cargo control technologies, including cargo securement, capacity and access solutions for the transportation industry, introduced the two newest members of its Grip Link Brand tire chain family. The new 7- and 8-mm heavy-duty stud tire chains are designed exclusively for off-road use.

Grip Link Brand tire chains already come in 7-mm steel wire V-bar and 7-mm steel wire square link designs for highway use. The new 7- and 8-mm heavy-duty stud versions give users more flexibility and two lightweight alternatives. While 9-mm steel wire heavy-duty stud Grip Link tire chains have been discontinued, they are still available while supplies last.

Kinedyne's new Grip Link Brand HD tire chains fit to-

day's larger profile off-road tires, feature four inside and four outside tensioning cams and come in an easy-to-store and carry pail with lid. The tough, durable pails each feature detailed installation instructions in both English and French.

"Grip Link tire chains are the perfect solution for worry-free traction over uneven terrain and through difficult environments including oil fields, lumber yards, rock, mud and any snow or ice condition imaginable," said Robert Spooner, director of sales - Canada, Kinedyne Canada Limited. "These durable and lightweight chains are designed to deliver superior performance for vehicles traversing even the most challenging terrains."

Engineered to provide both strength and durability, Grip Link studs, cross-links and sidewall chains are constructed of hardened, high-strength carbon steel. The new 7- and 8-mm heavy-duty stud chains come with 14 cross-links providing superior tractive characteristics.

The new 7- and 8-mm heavy-duty stud tire chains come with four tensioning cams for quick and secure tightening on single models and feature eight cams on dual-triples, with four cams on the outside and four on the inside. Multiple cams provide even tensioning, thus ensuring a secure and tight fit. Kinedyne's T-Wrench cam tensioning tool is also included in each package.

"Today's off-road vehicles often use a larger profile tire that many chains just can't accommodate," Spooner said. "The new Grip Link tire chains work with larger diameter tires."

The tough, durable pails each feature detailed installation instructions in both English and French.

### OFF-ROAD 7mm HEAVY DUTY STUD TIRE CHAINS

### OFF-ROAD 8mm HEAVY DUTY STUD TIRE CHAINS



The new 7- and 8-mm heavy-duty stud tire chains come with four tensioning cams for quick and secure tightening.

Photos courtesy of Kinedyne, LLC



The new 7- and 8-mm heavy-duty stud versions give users more flexibility and two lightweight alternatives.

## The new Cat<sup>®</sup> 814k wheel dozer delivers operating comfort, efficiency and serviceability advancements

Today's Cat® 814K wheel dozer from Caterpillar features a new, sound-suppressed cab, efficient power unit and transmission drive as well as centralized service station configuration to drive machine uptime and operator productivity to new levels. With its rugged structure designed to achieve multiple life cycles under the toughest operating conditions, the 814K delivers high production operation in applications like utility work at mines, heavy civil construction backfilling and grading work, also ground preparation and subbase work on airport and commercial projects.

#### Newly upgraded operator's office

The wheel dozer's upgraded cab design makes the operator's workspace more comfortable and provides for more efficient machine operation. Isolation cab mounting plus seat air-suspension safeguard against machine vibration feedback to the operator. The quiet cabin reduces operating noise levels to just 71 dB, compared to 78 dB of its predecessor, with a sound-suppression package option to lower sound levels to 70 dB.

Cab entry/exit is greatly facilitated through integration of the new fold-up STIC<sup>TM</sup> (steering and transmission integrated control system) armrest. STIC delivers maximum machine responsiveness and control plus smoother, faster cycles while minimizing operator movement to reduce fatigue. Simple side-to-side movements turn the machine to the left or right and gear selection control is operated through a finger-controlled rocker switch. Removal of the steering wheel console vastly increases operator space and improves forward visibility of the work area.

Today's 814K wheel dozer offers a newly upgraded touchscreen information display for intuitive machine

control. The new panel displays critical machine operating data such as system temperatures, fuel use and machine hours. The dozer's new vital information management system (VIMS<sup>™</sup>) allows technicians to connect directly to the machine to access a wide range of sensor information and expanded machine data. This allows managers to create productivity reports, identify operator training opportunities, see data logging of machine parameters and diagnostic codes and monitor machine health. Cat Product Link<sup>™</sup> offers remote access of machine operating data through the easy-to-use VisionLink® interface to facilitate fleet management.

#### Performance and efficiency advancements

The new 814K is powered by the Cat C7.1 ACERT<sup>™</sup> engine meeting U.S. EPA Tier 4 Final and EU Stage IV emission standards, or Brazil MAR-1 emission standards equivalent to Tier 3 and Stage IIIA, to meet global emissions standards. Featuring Engine Idle Shutdown and Auto Idle Kickdown to avoid unnecessary idling, the new field-proven engine boasts lower fuel consumption than previous models. Load sense control hydraulics provide on-demand hydraulic flow required by the implement and steering system to further improve fuel efficiency and deliver increased rimpull.

Offering four forward and reverse speeds to match application demands, the wheel dozer boasts the best-inclass Cat planetary powershift transmission, designed specifically for the most demanding mining applications. Through the Cat-exclusive advanced productivity electronic control strategy (APECS), the new 814K delivers consistent and smooth shifting, even when under load. APECS results in no loss of momentum on slopes during gear shifts, so the dozer climbs grades more efficiently and with less fuel burn.

Two Cat blade design options offer rugged durability and excellent dozing and rolling characteristics. The 2.84- $m^3$  (3.72-yd<sup>3</sup>) straight blade delivers high production dozing on stockpile material and general earthmoving projects. Alternatively, the 10.5  $m^3$  (13.8 yd<sup>3</sup>) coal blade provides precise and productive dozing while helping to retain load control with increased capacity for lighter materials.

#### Reducing service time

The new 814K wheel dozer includes a host of features that reduce service time to maximize machine uptime. The machine's new centralized ground-level service area provides quick access to the master disconnect switch with integrated lock-out/tag-out, DEF purge lamp for Tier 4 Final/Stage IV engines, circuit breakers, emergency fuel shutoff switch and jump start receptacle. Grouping of grease points for steering, hitch and rear axle trunnions along with easily visible fluid sight gauges reduce time spent on daily maintenance requirements.

By providing the operator with real-time operating data, VIMS system notifications alert operators and technicians of machine issues so they can be quickly addressed before experiencing a significant downtime event. The machine's new high efficiency hydraulic filtration results in cleaner hydraulic oil to increase component life and extends the oil inspection requirement by 50 percent, from 2,000 to 4,000 hours. Railings, ladders and non-slip surfaces for platform level access points help to enhance technician safety when working on the engine and cooling system.



Today's Cat® 814K wheel dozer from Caterpillar features a new, sound-suppressed cab, efficient power unit and transmission drive as well as centralized service station configuration to drive machine uptime and operator productivity to new levels.





The 2.84-m<sup>3</sup> (3.72yd<sup>3</sup>) straight blade delivers high production dozing on stockpile material and general earthmoving projects.



Manny Mendez joins Applied Machinery Sales as territory manager ROCK HILL, SC – Applied Machinery Sales (AMS), importer and distributor of worldclass Merlo telehandlers and VF-Venieri earthmoving equipment for the U.S. market, has added Manny Mendez to its territory manager sales team.

Mendez grew up in the construction industry starting with his father's Miami, FL, construction company. Through a circular career path through the automotive industry, Mendez came back to the construction industry by representing a number of "dirt working machines" across Florida. During this time, he learned about the Merlo "roto."

"I thought it was the coolest machine I had ever been introduced to," he said. "From there, it really was only a matter of time before I became a part of this great product line."

Mendez's territory includes Florida and South Georgia. "Construction starts, the steady agriculture growth and the dealers that supply these sectors continue to have strong growth," said Garth McGillewie, president of AMS. "Manny's deep roots in the construction business and Florida community are assets we will capitalize on as Applied Machinery Sales grows its distributor and customer base for the Merlo and VF-Venieri equipment lines."

Mendez can be contacted through the AMS offices in Rock Hill, SC, at 803-327-4949 or Info@appliedmach.com. Visit the website at www.appliedmach.com .



Mendez's territory includes Florida and South Georgia. Photo courtesy of AMS

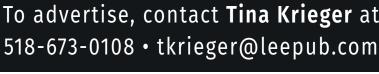


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### John Deere unveils all-new 655K and 755K crawler loaders equipped with Final Tier 4 engine technology

MOLINE, IL — Continuing to build on the strengths of the K-Series lineup, John Deere recently announced the introduction of the 655K and 755K Final Tier 4 crawler loaders. These machines serve as the latest additions to the crawler loader line and provide operators with increased productivity and uptime, along with lower daily operating costs. Designed and manufactured in Dubuque, Iowa, the 655K and 755K feature familiar designs, systems and components consistent with other product lines throughout the John Deere crawler family.

"Keeping customers top-of-mind, our goal is to provide fleet managers and operators with equipment capable of maximizing efficiency on all fronts," said Nathan Horstman, product marketing manager, crawler loaders, John Deere Construction & Forestry. "The 655K and 755K exemplify our commitment to producing equipment featuring industry-leading technology engineered to minimize downtime and grant users an innovative, reliable crawler loader solution."

Featuring a certified Final Tier 4 John Deere PVS 6.8-liter engine, the 655K and 755K use proven technology and a building-block approach based on a solid foundation of reliable John Deere engines. Additionally, both machines exhibit a rise in overall horsepower. The 655K's net power has increased from 145 hp (108 kW) to 155 hp (115 kW), while the 755K's net power has increased to 194 hp (145 kW) from its previous 190 hp (141 kW).

The 655K and 755K boast hydrostatic transmissions, a feature John Deere pioneered in crawlers in North America in 1976. These transmissions provide customers with infinite speed control, power management, live power turns, counter rotation while staying in gear and dynamic braking. In addition, Total Machine Control allows customized machine response that can be tailored to meet the needs of individual operators. Hydrostatic transmission control options give operators the ability to choose between multiple transmission control settings — speed-in-grip and a V-pattern control with foot pedal steering. Inside the cab, on-board hydrostatic and hydraulic pressure sensors make it quick and

easy to read pressures in both the hydrostatic and hydraulic systems without the need for external gauges. By simply using the monitor, a technician can quickly gain access to important system pressure data. Both the 655K and 755K are equipped with Eco Mode, yielding up to 20 percent less fuel consumption with no loss in productivity. When enabled, Eco Mode optimizes fuel economy while maintaining ground speed by automatically adjusting engine speed and transmission settings based on the load. When a heavy load is encountered, engine speed increases rapidly to ensure power is available to push through the load. Eco Mode works in both forward and reverse directions to improve overall fuel economy and productivity.

Another key fuel-saving feature, auto idle, automatically lowers engine speed when the machine is not moving and no functions are being activated. An adjustable timer can be set in the monitor — and coupled with auto shutdown — to lower fuel costs for customers and save warranty hours.

A new standard reverse camera provides operators with more visibility on the job site. The large color camera display provides the operator with visibility to the ripper and rear of the machine while still focusing on the task at hand. Additional crawler features include increased reliability through optimized hose and harness routings, the Quad-Cool<sup>TM</sup> cooling system, keyless start and coded-security modes.

Fleet managers looking to get the most out of their 655K and 755K crawler loaders can rely on their John Deere dealers to provide Ultimate Uptime, featuring John Deere Work-Sight<sup>™</sup>. With Ultimate Uptime, owners receive pre-delivery and follow-up inspections that include five years of JDLink<sup>™</sup> telematics, machine health prognostics, remote diagnostics, programming capabilities and the ability to add dealer-provided uptime solutions to a customized package.

For additional information, visit JohnDeere.com or contact your local dealer.



The 655K and 755K (shown) boast hydrostatic transmissions, a feature John Deere pioneered in crawlers in North America in 1976.



Both the 655K (shown) and 755K are equipped with Eco Mode, yielding up to 20 percent less fuel consumption with no loss in productivity.

Photos courtesy of John Deere

### Schneidawind named ARTBA vice president of public affairs

The American Road & Transportation Builders Association (ARTBA) has tapped John Schneidawind as its new vice president of public affairs, effective Jan. 3. A former business writer at USA Today, Schneidawind has decades of diverse communications experience in the private sector and with national associations.

Schneidawind will lead ARTBA's media relations initiatives. He will play a key role in the execution of the "Transportation Makes America Work" advocacy program, which is aimed at educating policymakers about the many positive impacts of strong transportation investment on the U.S. economy, job creation and quality of life.

Most recently, he spent eight years at the American Institute of Architects (AIA) as director of public affairs and media relations, augmenting AIA's public policy voice on Capitol Hill and in State Houses across the country. He led external advocacy communications efforts and in 2017 waged a successful campaign to help win lower rates for architects in tax reform legislation. He also spearheaded an AIA effort to promote the values of the architecture profession and advanced its positions on immigration reform, climate change and professional licensure.



Schneidawind has an extensive background in brand and reputation management, positioning companies for corporate restructurings and in managing through crises. He led media relations for KPMG Consulting/BearingPoint through its initial public offering, acquisition strategy and a corporate governance crisis. He has also held corporate communications roles at telecommunications firms Bell-South Corp. and Neustar Inc.

A native of New Jersey, Schneidawind has a B.A. in communications from Seton Hall University. He resides in Arlington, VA.

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### Omasta Landscaping chooses an SDLG fleet for snow removal and shares its tips for choosing equipment

Omasta Landscaping, founded in 1979, is based in Hadley, MA, and creates beautiful landscapes for homeowners, businesses and municipalities — including lawn installation, fertilization, irrigation and hardscapes, park renovations/construction and so much more. The company also specializes in snow removal during the winter months and relies on a fleet of wheel loaders from SDLG.

Chris Omasta, vice president of Omasta Landscaping, said the company's SDLG loaders were purchased for a multitude of reasons, including their versatility to handle a variety of jobs, value proposition and ease of maintenance. Omasta also commented on the maneuverability of SDLG loaders, particularly as the company performs snow removal in areas with tight working quarters such as parking lots and city streets, for example.

"The value proposition of SDLG is outstanding," Omasta said. "Because of the attractive price points, we were able to purchase two SDLG loaders. Essentially, we can now do twice as much work, boosting our efficiency and return on investment. They are great loaders that maneuver well for snow removal applications and have outstanding visibility. The factory-installed back up cameras that come standard are also a huge plus."

Omasta Landscaping's relationship with SDLG dealer Tyler Equipment, based in East Longmeadow, MA, was crucial to the company's choice of wheel loader for its snow removal business. Together the two companies assessed Omasta's unique need for value loaders that were easy to maintain and operate, and considering they would mostly be used seasonally, could still provide a good return on investment.

"We have a long relationship with Tyler Equipment and it has helped us update our fleet over the last three years," Omasta said. "With Tyler's guidance, we purchased two SDLG wheel loaders, the L918F and the L938F, which we plan to use for snow removal, as well as general landscaping applications. Our salesman walked into our office with an SDLG catalog, final sales price on an invoice and local references and we decided to purchase our L918F right then and there."

The L918F is a compact, 1.3 yd<sup>3</sup> capacity loader that often competes with skid steers, offering a compact footprint with high maneuverability that doesn't damage job site grounds. The L938F is a mid-size front end loader with a 2.5 yd<sup>3</sup> bucket capacity that is ideal for landscaping, residential building site prep, utility work and seasonal applications like snow removal.

"So far, we're very pleased with our SDLG wheel loaders and would recommend them to any company that needs a value wheel loader that is backed by a great dealer network," Omasta said. "Tyler equipment gave us a great recommendation and the loaders are already working well in the field." Five tips for choosing snow equipment

Chris Omasta, vice president of Omasta Landscaping, shares his best tips for choosing snow removal equipment that is highly effective without breaking the budget:

• Because snow removal is seasonal work, it's best to go with a value brand. As the machine won't be working 24/7/365, value brands like SDLG offer solid equipment that produces a high ROI.

• Consider job sites when selecting a wheel loader for snow removal. A compact footprint and high maneuverability is essential when accessing and maintaining job site grounds, particularly in urban environments.

• Always use a protective coating like fluid film or Carwell products to prevent machine corrosion. Even the road wash from snow clearing has a devastating effect on steel if it's not treated properly.

• Ensure that you purchase your equipment from an expert dealer that provides great service and support for your machines. Keeping machines up and running is crucial to generating profits during seasonal work.

• Carefully consider how many hours you expect to put on a machine per year. Take the number of hours and divide it by the sales price of a new machine. This method often helps owner operators evaluate what machine and manufacturer they are going to select when making a machine purchase.



Omasta Landscaping purchased two SDLG wheel loaders, the L918F and the L938F, which they plan to use for snow removal as well as general landscaping applications.

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### OSHA promotes fall protection resources

PG 28

*Source: EHS Today* EHS Today Staff | Jan. 14, 2019

With falls leading OSHA's top 10 list of violations year after year, the agency is bolstering its efforts to increase awareness about its fall prevention resources.

The agency has developed a collection of compliance assistance resources to address falls in the workplace — the leading cause of worker fatality in the construction industry. These resources, which continue the goals of the Department's Office of Compliance Initiatives (OCI), encourage and facilitate compliance evaluations.

Falls can be prevented if employers plan ahead to ensure the job is done safely, provide the right equipment and train workers to use the equipment safely. OSHA is working with industry stakeholders to provide informative compliance assistance resources.

The sixth annual National Safety Stand-Down to Prevent Falls in Construction will be held May 6 - 10. The weeklong outreach event encourages employers and workers to pause during the workday to discuss fall hazards and how to prevent them.

In addition, OSHA's series of fall safety videos show how to prevent construction-related fall hazards from floor openings, skylights, fixed scaffolds, bridge decking, reroofing and leading edge work.

Another resource is the agency's fall prevention training guide, which provides a lesson plan for employers including several toolbox talks. Fact sheets on ladders and scaffolding provide guidance on the safe use of these types of equipment while performing construction activities.

A brief video, "5 Ways to Prevent Workplace Falls," encourages employers to develop a fall prevention plan and to provide workers with fall protection and training.



Lastly, OSHA's on-site consultation program provides valuable services for job creators that are separate from enforcement. OSHA recently published an analysis demonstrating how the agency's on-site consultation program contributes \$1.3 billion to the national economy each year. Job creators who implement workplace improvements can reduce lost time due to injuries and illnesses, improve employee morale, etc.

### SDLG launches new Tier 4 Final L959F, the company's largest wheel loader in North America

SDLG has launched its largest wheel loader in North America to date: the L959F. The new machine is a Tier 4 Final upgrade to its predecessor, the LG959, and features a 4.0 yd<sup>3</sup> capacity bolt-on edge bucket as well as a Deutz-SDLG SD80F engine.

"SDLG makes 'value' machines for customers that need quality equipment for their applications but not necessarily the cutting-edge technological features that premium brands feature," said Nick Tullo, sales manager for SDLG North America. "But that doesn't mean they don't want options that are more environmentally friendly, so the L959F completes our transition to a complete range of Tier 4 final engines."

Along with a Tier 4 Final rating, several additional enhancements have been made to the L959F. These improvements include: • A new, branded SD80F engine, manufactured by Deutz, for improved service-ability and technical interface • Passive regeneration of the engine to improve operator performance

• LED work lights and rear view camera are now standard equipment

Cab is twice as quiet as the prior model
Improved serviceability of the engine compartment via a new compartment door

• Chrome coupler pins for better engagement and disengagement of the quick coupler

• Joystick control with forward, neutral and reverse directions on the joystick; first gear kickdown on trigger finger

• Improved heating and air conditioning controls

• Guarding on underside of front and rear frames

"This wheel loader shines with its stability and durability, and its strong breakout force makes it ideal for jobs like sand and gravel loading, residential or commercial building, or more unique jobs like car handling," Tullo explained. "With a variety of attachments available, the L959F is suitable for a wide range of applications."

The L959F is now available and is backed by a 12-month, 2,000-hour warranty. SDLG's entire dealer network in the region will offer the wheel loader.



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### Doosan Portable Power introduces G400WCU-T4F mobile generator

STATESVILLE, NC — Doosan Portable Power has added the G400WCU-T4F mobile generator to its product line. The range-topping G400 model is the most powerful generator in the Doosan line, with a prime power rating of 402 kVA (322 kW), packaged in a compact footprint to meet a broad range of applications.

Powered by a Tier 4-Final Cummins QSG12, 513-hp diesel engine, the power-dense G400 delivers reliable performance with class-leading motor-starting capability. The lightweight package and compact footprint allows for easier transport and requires less premium space on the jobsite.

Equipped with a 505-gallon fuel tank, the G400 delivers an industry leading 20 hours of runtime at 100 percent load. The largest onboard fuel tank on the market is paired with two diesel exhaust fluid (DEF) tanks to ensure DEF supply matches the available fuel supply.

The G400 is designed with the CoolBox PlusTM enclosure that features a variable speed cooling fan to ensure precision package cooling. This allows enhanced performance in extreme ambient temperatures, improved fuel economy and lower noise levels.

The easy-to-use operator panel includes the powerful TG410 controller and is complemented by a full array of analog gauges, simplifying machine control and monitoring. The optional Deif AGC4 pow-



Powered by a Tier 4-Final Cummins QSG12, 513-hp diesel engine, the power-dense G400 delivers reliable performance with class-leading motor-starting capability.

Photo courtesy of Doosan Portable Power

er management system greatly enhances the capability of the G400 and broadens its capability to support large, critical power projects.

The model is equipped with a link board panel for multi-voltage configuration. Operators can select among 480V-3Ø, 240V-3Ø, 208V-3Ø and 120/240V-1Ø. Generator versatility is further enhanced with a dual-frequency switch, which allows operators to power 50 hertz applications with the flick of a switch.

Each G400 generator is designed with an environmental containment system that prevents potential fuel or oil spills outside of the package. The system allows operators to focus on the job at hand while safeguarding the environment.



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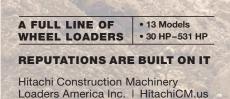


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### Energy from waste highlights the benefits of recycling

RockRoadRecycle staff writer

On the Cover: A close up of IBE's unique boiler system.

### **PG** 3

8

When to use an A-style vs. a K-style diverter



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Rio gets a pilot plant to explore energy from waste







New John Deere L-Series utility wheel loaders primed to take jobs February 2019





Simply exchanging the free swinging tools for fixed tools converts the Axtor into a powerful chipping machine for logs.

he reuse of materials and energy from waste is becoming a central facet of modern waste management. The foundation for this is laid by mechanical preparation in the form of waste splitting. In it, recyclables are recovered from the waste stream, with high yield combustibles being separated out for further processing as refuse derived fuels (RDF). The remaining residue fraction can then be stabilized and landfilled. In order to provide a recycled waste material that can be used as an energy source a series of steps must be followed, with service providers and manufacturers now delivering solutions purpose-developed for these tasks.

#### Efficient solutions for complex tasks

The process technology developed for turning waste into a material that produces energy revolves around shredding, screening and separating. Low speed shredders with an adjustable degree of shredding generate a homogeneous material stream at the desired particle size. Following shredding, a range of technologies can then be deployed, depending on the specific material and conditions. These include all-purpose drum screens, ballistic separators with rotating screen elements to separate flat from three dimensional fractions or disc screens that work efficiently even with material that tends to wrap and tangle.

Drum screens, star screens and flower disc separators detach contraries and non-compostable fractions. Windrow composting the material sees it mixed with structure material and screen oversize during the layered build-up with a wheel loader and homogenized in subsequent mixing with a turner. The input material and the associated limiting factors also decide the rotting process and whether it is conducted closed (in an indoor part of the system) or open as windrow composting. The first phase of the process often takes place in a closed system with ventilation and outlet air treatment.

Using the right shredding and separation technology, fuel mature enough for the marketplace can be generated from green waste (from gardening and landscaping), root stocks, logs and untreated waste wood. This way, companies previously operating in the disposal business can transform themselves into energy suppliers. A fuel with a coarse structure can be generated from woody green waste, clean waste wood and forest wood residue by shredding with a general purpose wood shredder. With green waste having a high leaf or grass content, adding a further rotting process with triangular windrows has proven to be a sensible option. After around two weeks with frequent turning, green parts are largely decomposed and the material moisture is reduced. Getting the right equipment and advice is key to getting the best from waste material and enabling it to be used as a source of energy. Fortunately, there are now companies in North America who are focused on supplying the right equipment and solutions, enabling waste processors to turn their businesses into highly focused suppliers of recycled materials for energy.



IBE's plants are easily delivered where they are needed.

#### Impact Bioenergy (IBE)

Impact Bioenergy<sup>™</sup> was formed in 2013 with a mission to construct and deliver the best bio-conversion technologies and services available. These have been developed to empower communities by making renewable energy and soil products locally through organic materials recycling. The company now manufacturers equipment in the Pacific Northwest and considers simplicity, local equipment sourcing and local empowerment to be the foundation of its success. What has particularly driven the company is the realization that the old mindset of exporting waste to regional processors and large facilities wins by economy of scale — but is not the ideal model anymore. IBE is focused on proving that a new model of local energy, recycling and food production can be connected in a real and powerful way. Its simple approach is to convert waste to resource with onsite bioenergy solutions. Minimizing the export of waste makes sense, especially when this enables the generation of clean renewable energy and the recovery of water, nutrients, organic matter, carbon and beneficial microbes.

#### Providing the tools needed

IBE believes that the primary barrier preventing more waste from becoming energy has been the lack of scalable technology and the belief that economy of scale at distant facilities trumps onsite material recycling. The company now provides a wide range of technologies for food and beverage waste, landscape waste, wood waste, packaged unsalable food and fats. All are designed to serve food and

## Energy from waste highlights benefits of recycling

#### by RockRoadRecycle staff writer Photos courtesy specified OEM

beverage sectors, commercial, industrial, institutional and residential communities of between 100 and 50,000 people. They are designed to make the very best use of materials and to return as much carbon to the soil as possible. This propels the cycle of organic and renewable resource generation locally.

As part of its extensive offering, Impact Bioenergy now manufactures commercial scale, portable anaerobic digesters that convert food waste into renewable energy and probiotic plant food with zero waste. Within the massive existing problem of commercial food waste in urban and suburban settings, the company is optimized for corporate, educational and government campuses and islands. Instead of paying \$20,000 per year to have food waste trucked away to the landfill, IBE customers now pay the same per year for use of one of the company's on-site units. In addition — providing real benefit — the unit will create about \$7,000 worth of electricity and \$10,000 worth in organic fertilizer.

Impact Bioenergy's solutions therefore reduce energy and disposal costs by generating energy from adjacent organic waste streams. Its prefabricated bioenergy units are uniquely engineered and sized to allow organizations and communities to practice onsite bioenergy food waste diversion, thus substantially reducing multiple costs and generating a faster ROI than wind or solar. The company's portable bioenergy systems are able to convert 1,000 to 35,500 pounds per week of organic waste into renewable energy and biofertilizer with zero waste. These micro digester systems can be used in urban, campus or farm environments and have odor control and semi-automatic or automatic operation.

#### **RCBC Global Inc.**

Another North American company at the forefront of energy from waste is RCBC (Rotary Cascading Bed Combustor Global), which produces steam and energy from municipal, industrial and sewer sludge waste. It also proudly states to have the know-how and expertise to have the ability to burn coal safely with no harmful emissions. Furthermore, the by-product of RCBC's system can be used for fertilizer and land reclamation, and having been established for 26 years, it is one of the pioneers of the waste to energy movement.

The company states that one challenge in implementing a waste to energy program has been the high capital cost of proposed systems. The value of the energy produced simply has not enabled a payback on the capital required. Thus, governments have been required to subsidize the systems. Unlike other proposed methods, the RCBC system's sig104

nificantly lower capital cost enables a sufficient coverage ratio for the payment of loans related to the initial construction of the facilities. Although the program economics of building and operating an RCBC facility are substantial, communities avoid the costs and risks of landfills, electric power can be produced to complement the electrical grid or supply high use private companies, and sustainable jobs are created to increase the economy and stability of the local community. At the same time, the facility owner can generate profits sufficient to pay back loans and provide a strong return to investors or government sponsors.

#### A new solution

At the heart of RCBC's solution is new boiler technology. The Rotary Cascading Bed Combustion (RCBC) system cleanly and efficiently converts high sulphur coals, waste coals, refuse derived fuels (RFD), shredded tires and industrial and municipal wastes to energy. This has been extensively tested at North American Rayon Corporation in Elizabethton, TN, with the technology being the mechanical equivalent of large fluidized bed combustors being developed for utilities. In operation, fuel is fed into a cylindrical combustion chamber and is mixed with limestone, which limits the formation of acidic sulphur dioxide (SO2) emissions. Due to combustion temperatures that range between 1,600 - 1,650 degrees Fahrenheit, far lower than conventional steam generating systems, nitrogen oxide (NOx) emissions are also reduced.

The RCBC system utilizes a combination of proven concepts. Similar rotary units have been in use by the industry for several decades, particularly in the phosphate and fertilizer industries. Large units such as rotary kilns, rotary dryers and ball and rod mills have been utilized and developed to satisfactory levels of mechanical reliability through many years of operation. The RCBC solution consists of a hollow cylinder, which may be single or multi compartmental (depending upon the application) rotating at 8 to 20 rpm. This is considerably faster than the conventional rotating kilns, to which it bears a superficial resemblance. The latter generally operate at less than 1 rpm.

The system provides excellent contact between solids and gases by cascading the solids through gases and thereby effecting high rates of heat transfer. Solids can be readily recycled or transferred from one compartment to another and gases can be introduced or withdrawn as desired. This provides great flexibility and allows designs to be optimized for a particular processing operation. Cascading solids through the surrounding media ensures complex mixing and intimate contact. This provides the mechanism to transfer heat between the substances; for example — when desired —solid/gas reactions, such as combustion and SO2 absorption, are enhanced by the cascading.

The RCBC's internal design is flexible providing a variety of features specific to each application. Material movement, retention, cascading, backflow, gas/solids contact, temperature control, compartments, reaction kinetics and a variety of combustion conditions can be controlled to desired levels by varying the design features. The RCBC technology can provide high thermal efficiency by recovering much of the heat generated within the system. In most cas-

es, the hot products of combustion (both gas and solids) are used to preheat the feed gases and/or solids. Due to its high contact efficiency and ease of adjustment, the RCBC can be readily controlled. Combustion conditions such as temperature and flue gas composition can be closely controlled. Feed variations can readily be compensated for and turndown can be accomplished without loss of control.

When burning sulphur-containing feedstock such as high sulphur content coal, the addition of limestone to the combusting solid lowers the sulphur dioxide content of the exhaust gases, eliminating the necessity for external scrub-

bing equipment. A similar approach can be employed to neutralize acidic vapors or remove reactants from the flue gases. This results in an environmentally acceptable, economically attractive installation.

#### Doppstadt transforming green waste

Doppstadt has a hard won reputation in the market for producing shredders, trommels and other material processing equipment. This equipment is also able to transform green waste and untreated wood into energy sources following recycling. Highlighting this, the Japanese prefecture of Gunma is now using Doppstadt equipment to provide an efficient technical solution for the process of thermic recycling. This is in the form of an integrated, individual plant concept which includes pre- and fine shredding systems as well as components for the deposition of metals and screening.

In the Japanese context, input material is processed and transformed in four stages. Following the pre- and fine

shredding steps, metallic contaminants are removed and the material is separated into fine, finished and oversized fractions. The oversized grain will be automatically circulated back into the fine shredding process until it meets the requirements of the finished product. If there is no need to run through the entire process chain; the Doppstadt plant can be flexibly used for partial processes as well.

A shredder receives the input material for the coarse shredding procedure in which the roller teeth break the material through a shredding comb. The mixed fraction is then moved on for fine shredding, with an overhead magnetic system separating ferriferous contaminants from the wood. The procedure is repeated right before the material enters the screening process.

A trommel screen finally takes care of the proper granularity of the material, screening out the fine fraction (grain sizes of less than 10mm). The targeted product size will be between 10 and 50mm, depending on specific requirements, with oversized particles being automatically transported back to the fine shredding process to be processed one more time. This recirculation process only ends when



solid lowers the A fuel with a coarse structure can be generated from woody green waste, clean waste sulphur dioxide content of the wood and forest wood residue by shredding.

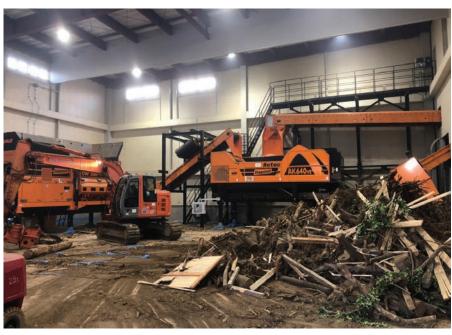
the entire material fits the size requirements of the finished product. The screening procedure allows for coarser shredding with a substantially reduced fine grain portion, thereby affecting the Gaussian distribution in favor of less tool wear, energy consumption and fine grain.

#### Komptech

Similar to Doppstadt, Austrian company Komptech is better known as the manufacturer of shredding and material processing equipment. However, it also possesses expertise in turning waste biomass into energy, with solid biomass being intended to make a major contribution to the transition from fossil fuels to renewable energies. However, to reach the ambitious goals for heating and energy generation from woody biomass, it will need to be made available in large amounts. Using the right shredding and separation technology, fuel mature enough for the marketplace can be generated from green waste, root stock, logs and untreated waste wood. This way, companies previously operating in the disposal business can transform themselves into energy suppliers.

A fuel with a coarse structure can be generated from woody green waste, clean waste wood and forest wood residue by shredding with Komptech's general purpose Axtor wood shredder. Simply exchanging the free swinging tools for fixed tools converts the Axtor into a powerful chipping machine for logs. With green waste having a high leaf or grass content, adding a further rotting process with triangular windrows has proven to be a sensible option. After approximately two weeks with frequent turning, green parts are largely decomposed and the material moisture is reduced. A fine fraction, a medium fraction and a coarse fraction are produced in one screen operation. The medium fraction generally represents the usable fuel sample. The fines are processed to compost and the coarse particles are brought back to shredding.

If required, plastic is separated by the company's Hurrikan windsifter, with metals being removed by FE separation and stones are eliminated by a Stonefex stone separator. Komptech states that its new Hurrifex accomplishes both these tasks in one step.



An example of how equipment can be combined during wood waste processing.

### Metso receives orders for seven M&J waste shredders in China

Metso has received orders to supply a total of seven M&J 4000S waste shedders to three waste incineration customers in China. The 4000 shredder series meets the special needs of extremely varied incoming material. The orders are booked to Metso's third-quarter 2018 orders received and will be delivered in the first quarter of 2019.

The new shredders will operate in the Zhejihang, Jiangsu and Xinjiang provinces.

"We are very proud that high-profile waste incineration companies in China are relying on our proven shredding technology, which is based on powerful and tailored knife designs and open cutting tables. These distinct technical advantages benefit customers who need a robust, high-capacity shredder for continuous use at a high run rate, even with hard and abrasive materials," says Ou Zeng, Metso's sales manager for waste recycling products in China. During the

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13th Five-Year Plan period (2016-2020), China has decided to strengthen its efforts to improve the quality of the environment and enhance environmental governance. Goals for waste treatment are 95 percent for urban areas and 90 percent for rural areas. Efforts will also focus on enhancing infrastructure, with sewage treatment available in all counties and major towns by 2020.

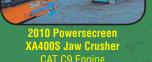
An extensive range of services supports Metso shredders in China

Currently, more than 70 Metso waste shredders are in operation in China. Globally, more than 800 Metso shredders are contributing to waste recycling processes.

The comprehensive waste recycling product range, cover-

having the right parts at the right time. Metso also offers field service agreements that can be tailored to the customer's needs. With Metso's preventive maintenance services, the target is to improve the performance of the installed equipment.





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Metso has received orders to supply a total of seven M&J 4000S waste shedders to three waste incineration custom-

Photos courtesy of Metso

The 4000 shredder series meets the special needs of extremely varied incoming material.

### New John Deere L-Series utility wheel loaders primed to take job sites by storm

After much anticipation and countless hours of product development, John Deere is unveiling three powerful and productive L-Series utility wheel loaders. The 524L, the 544L and the 624L offer customers an intuitive solution, ideal for projects that require agility and versatility on the job site. Designed with the operator in mind, the L-Series machines incorporate several new features, including improved cabs for more comfort and visibility, electrohydraulic (EH) loader controls for easier operation and redesigned near-parallel linkage and enhanced performance buckets. "Our next generation of wheel loaders improves upon the legacy of the John Deere wheel loader line," said Chris Cline, product marketing manager for utility wheel loaders, John Deere Construction & Forestry. "The L-Series boasts several improvements over previous models designed to positively impact productivity, comfort and visibility, resulting in increased profitability."

The most notable of changes to the L-Series from their



Additional bucket options include enhanced production buckets with integrated spill guards, profiled side cutters and greater rollback, improving bucket fill and material retention.

Photos courtesy of John Deere



K-Series predecessors is the improved cab, which is roomier and more comfortable, offering more functional storage and floor space. The optional premium heavy-duty air suspension seat is heated, ventilated and designed to offer additional legroom. The HVAC performance is also enhanced, now including rear defrost, increasing air flow while reducing noise. Three standard 12-volt auxiliary power ports in the cab enable the operator to charge multiple devices. Optional remote-heated, adjustable mirrors increase job site visibility.

Behind the wheel, EH loader controls with integrated third and fourth function auxiliary hydraulics provide faster cycle times, resulting in more material moved in shorter periods of time. Two multifunction buttons integrated into the hydraulic controls allow the operator to assign a function to each button, improving operability and productivity. This loader also has an ergonomically designed, seat-mounted right-hand joystick with a standard forward-neutral-reverse switch and fully integrated auxiliary hydraulic controls. A throttle lock option removes the need for the operator to push the throttle pedal to maintain engine speed.

Improvements to the machine boom structure directly result in increased productivity. The design increases visibility to the coupler, bucket or forks, reducing overall cycle times, material spillage and equipment damage. Additional bucket options include enhanced production buckets with integrated spill guards, profiled side cutters and greater rollback, improving bucket fill and material retention. A new shaft-style fork design offers more visibility and tine length options, including 48-inch, 60-inch and 72-inch. Smoother boom and bucket hydraulic kickouts reduce operator fatigue, while new standard parallel lift linkage improves load leveling, limits bucket spillage and increases fork operation speed.

Return-to-dig settings can now be set from the cab for both directions of the bucket, allowing operators to return-to-dig from any position without having to adjust the bucket to dump position. Boom and Bucket EH metering rate aggressiveness allows the operator to choose a setting — low, medium or high — for quicker hydraulics or reduced response in precision operations for improved comfort. Attachment configuration settings can be saved, allowing the operator to assign and save settings to an attachment, making it easier to switch between attachments without impacting productivity.

The 524L, the 544L and the 624L are available with optional High Lift (HL) and High Lift Plus (HL Plus) selections; there is also a tool carrier option on the 524L and 624L models. The HL Plus option features hinge pin heights that are 12 to 13 inches higher than current HL pin heights, allowing the operator to dump into higher trucks or wagons. The tool carrier option provides the best centerline visibility to the coupler or forks. It is ideal for customers handling materials like pallets, pipes or logs, where centerline visibility is important.

From a service perspective, the hydraulic hose and electrical wire harness routing and retention are improved, and the machines feature 40 fewer leak points, lowering potential repair costs.

The 524L, 544L and 624L feature fuel-efficient Final Tier 4 John Deere diesel engines (6.8 liter) and boast 152 (113kW), 166 (123kW) and 192 (143kW) net peak horse-power, respectively.

Fleet managers looking to get the most out of their L-Series wheel loaders can rely on their John Deere dealers to provide Ultimate Uptime, featuring John Deere WorkSight<sup>™</sup>. With Ultimate Uptime, owners receive predelivery and follow-up inspections that include five years of JDLink<sup>™</sup> telematics, machine health prognostics, remote diagnostics, programming capabilities and the ability to add dealer-provided uptime solutions to a customized package.

For additional information and model-specific specifications about the new L-Series wheel loaders, visit <u>deere</u>. <u>com</u> or contact your local dealer. **A WIRTGEN GROUP COMPANY** 



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### When to use an A-style vs. a K-style diverter

For both the A-Style and the K-Style diverter design option, the primary responsibility is to divert material from a single source toward either of two locations. However, the application benefits for each design vary from one another.



An A-style diverter. Photos courtesy of Vortex

### What do these diverters have in common?

In gravity flow applications, certain materials achieve optimal flow rates if they are processed through a diverter with steeper, more dramatic outlet leg angles. Steeper angles are used to flow heavier, denser materials – such as aggregates. Steep angles reduce the likelihood of in-line material build-up or material plugs, which can otherwise create the need for maintenance.

If a diverter has more subtle angles, material velocity will slow, causing materials to drag along the bottom of the valve as they flow. With steeper outlet angles, material is able to suspend and flow more freely through the channel. As a result, the valve makes little contact with materials and thus, is subjected to less wear and abrasion, which furthers the valve's useful life.

A common misconception of diverter valves is that the blade can be shifted "on the fly" to divert material toward different locations as material flows through it. While the equipment does have the mechanical capabilities to do so, actuating a diverter in a continuous stream of material is harmful to the diverter's functionality. As the diverter actuates,



A K-style diverter.

materials can pack in areas where the blade comes in contact with the diverter body. Over time, material build-up may occur at these points, preventing the blade from properly sealing and allowing material leakage through the diverter.

**PG 8** 

Should a diverter need to be shifted to redirect material toward the other destination, a slide gate can be installed above the diverter to shut off material flow prior to re-positioning the blade.

#### A few definitions:

• A-style Diverter: a diverter with two, symmetrical legs of equal angle. When installed into a system, the diverter will appear identical in shape to the capital letter A.

• K-style Diverter: a diverter similar in shape to the bottom portion of a capital letter K. When installed into a system, the diverter features one vertical leg and an angled leg.

• Straight Leg: the straight, vertical leg on a K-Sstyle diverter design.

• Off Leg: this concept is often misperceived. Some believe the off leg is simply the diverter leg that is turned "off" from the material flow stream. By this definition, the off leg would be subject to change almost continuously.

• The true definition of the off leg is: the angled leg on the K-style diverter design, which normally experiences less material flow activity.

#### Intended uses

For many applications, it is appropriate to source an A-style diverter if the manufacturing process requires diversion of similar material quantities toward each destination. Oppositely, a K-style diverter is appropriate if a process requires most of the material to be routed toward one destination. In typical applications, that material is routed directly through the diverter's straight leg and will flow upwards of 70 - 90 percent of the materials handled, with the off leg handling the difference.

#### Concerns for abrasion

With A-style diverters, abrasion and wear can be a concern because as materials flow through the inlet, they can make direct impact where the legs meet.

With the K-style option, material impact where the

legs meet is minimized by creating a straight-through channel. Although the K-style reduces abrasion where the legs meet, it leaves the straight leg susceptible to wear due to its more regular use.

Many diverter valve designs feature a flat blade that is thinner than the blade shaft. When handling abrasive materials, this design can create two potential problems. First, over time, the material can prematurely wear the blade shaft itself. Second, when the blade is in position to divert materials, "ski jumping" of material may occur. Ski jumping is the tendency for material to roll down the blade, hit the crown of the blade shaft, and "ramp" into the sides of the diverter. This will eventually wear a hole through the body of the diverter.

Both the A-style and the K-style designs may be modified to address abrasion from the material handled.

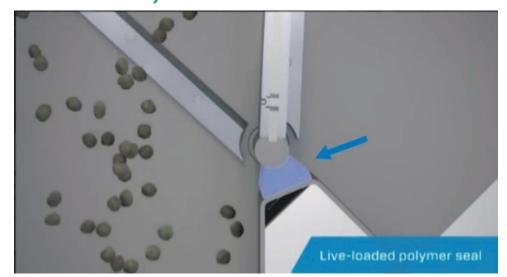
#### Blade shaft pProtection

In Vortex flap-style diverters, the problems associated with blade shaft wear and ski jumping are addressed by using an A-tyle blade configuration to protect the blade shaft. This design tapers at the blade's leading edge, but is enlarged at the blade shaft so that the crown is minimally exposed. This design better protects the blade shaft and diminishes the effects of ski jumping.

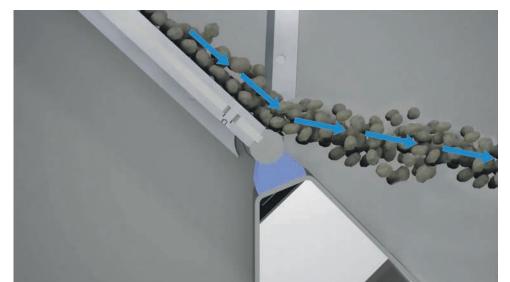
Vortex diverters also feature a live-loaded polymer seal beneath the blade shaft, which serves as a barrier to prevent material packing or migration of material to the opposite leg.

Abrasion-resistant liners Depending on material characteristics, Vortex diverters can be equipped with a replaceable 400 BHN abrasion-resistant carbon steel blade, and with replaceable 400 BHN abrasion-resistant carbon steel liners along the diverter's inner walls to protect against abrasion. In extreme cases, liners may even be constructed from chromium carbide.

In some material handling applications, replaceable UHMW liners can instead be installed at the blade and along the diverter's inner walls to protect against abrasion. UHMW is a hard



Vortex diverters also feature a live-loaded polymer seal beneath the blade shaft.



With the K-style option, material impact where the legs meet is minimized by creating a straight-through channel.



polymer that, in specific applications, has been found to be more effective than carbon steel because it allows materials to "bounce" off of the liners. UHMW is also inherently slick, which allows some materials to achieve more optimal flow rates.

In either case, from a cost-benefit standpoint, abrasion-resistant liners are of utmost importance to prolonging a diverter valve's

useful life because they are the difference between materials abrading upon replaceable parts, or materials abrading through the diverter body and creating need for full valve replacement.

Which design is best? Because dry bulk material characteristics can be quite different from one another, application-specific considerations must be made when selecting equipment to handle them. Neither the A-style nor K-style diverter design can be declared universally "better" than the other.

It is important to consult with industry experts to analyze your unique dry bulk material handling application and select the most appropriate diverter valve design based on features, benefits, functionality, and overall suitability for use in your system.

#### Disaster planning should include employment laws

*Source: EHS Today* David Sparkman | Jan 14, 2019

There are many manuals and publications about what companies should do to plan for natural and manmade disasters — from preparing for infrastructure disruptions to communicating with employees and the public. Another requirement is that management must maintain awareness of their responsibility for adhering to employment laws and regulations even in the face of crisis.

"How an employer navigates a significant crisis can have a lasting impact on business operations, its reputation with customers and more importantly its employees," observes Hal Shillingstad, an attorney with the law firm of Ogletree Deakins. "A myriad of legal issues will arise during the immediate aftermath of a disaster or crisis but also in the days, weeks and months that follow."

Among the legal issues employers have to grapple with are:

• Nonexempt employees must still be paid for work performed in accordance with law. Your nonexempt employees will likely earn overtime compensation as increased demands are placed on them to cover for other employees during a crisis. If employees work from home or do other work away from the business premises, they must be compensated as well.

• If an employee cannot make it to work due to disaster-related transportation issues, that may be considered an absence for personal reasons under the Fair Labor Standards Act (FLSA) — so long as the employee does not work from home.

• Exempt employees must

still be paid for an entire week even when they work only a portion of a workweek and even if the location is closed for part of the week because of a natural disaster. If the facility is closed for one week or more and no work is performed, the employer has no obligation to pay an employee who does not perform any work.

• It may seem an unreasonable burden when you are in the midst of dealing with a crisis, but the FLSA does not provide any relief from its record-keeping requirements due to emergencies, and employers must continue to maintain records of time worked. Employers should instruct workers who normally track time worked electronically to manually record the times, Shillingstad notes.

• The Worker Adjustment and Retraining Notification (WARN) Act includes an ex-



The Worker Adjustment and Retraining Notification (WARN) Act includes an exception for natural disasters when a plant location closes due to a natural disaster.



During natural disasters, employers need to ensure the safety of their employees who are working in and around a damaged workplace.

ception for natural disasters when a plant location closes due to a natural disaster. Nevertheless, if possible, an employer will want to follow the law's notification requirements if possible.

• Employers may need to grant qualifying employees leave under the Family and Medical Leave Act (FMLA) if they have developed a serious health condition as the result of a natural disaster. "Remember, employees also may qualify for leave if they need to care for a spouse, parent or child suffering a serious health condition or medical emergency caused by the disaster," Shillingstad adds.

• Employers who are continuing health and other insurance coverage for their employees should contact their benefits vendors to determine how and to what extent coverage is to be main-

#### tained.

These vendors often have specific hotlines for their customers to contact during a disaster because they know life, health and disability coverages will be impacted. Employers must meet the continuing health coverage requirements under the Consolidated Omnibus Budget Reconciliation Act (COBRA) for employees who are no longer working or

have been discharged. • When it comes to workplace safety, keep in mind that under the law employers are generally responsible for protecting their employees from all unreasonable dangers, regardless of the circumstances. During natural disasters, employers need to ensure the safety of their employees who are working in and around a damaged workplace.

In particular, employers should protect workers from unreasonable exposure to

hazards that may be present as a result of a natural disaster, such as slip and fall hazards, electrical exposures and even exhaustion from working extended shifts. Personal protective equipment (PPE) should continue to be made available and employees directed to put such equipment to use.

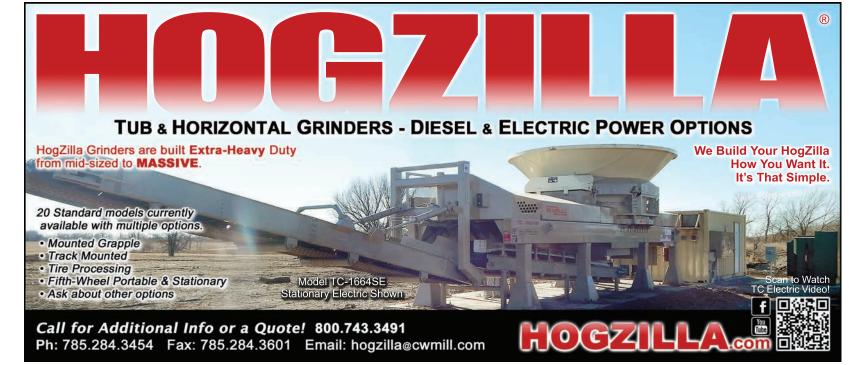
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• Some of your employees may be emergency responders, such as members of the National Guard or volunteer responders who can be called up for duty by the state governor or President of the United States in the midst of a natural or manmade crisis. Job protections are in place for these employees and some state laws may be as well, Shillingstad warns and some state laws may address unique situations.

He stresses that while adhering to the law and following the steps outlined in any disaster plan, management must keep in mind the high human costs borne by many of their employees.

"Employers should not lose sight that those who work in their businesses may need support in many ways during a crisis," Shillingstad advises. "For this reason, employers may need to adapt to the needs of their employees to the extent possible. Employers may find that being supportive, reasonable and understanding with its workforce during these critical times is the best course of action."

Or as the stock detective Henry Beige — played by Slim Pickens in the movie "Rancho Deluxe" — famously declared, "If you're dealin' with people, you gotta be human."



#### *Rio gets a pilot plant to explore energy from waste*

A national technology to process and explore energy from organic waste started being tested in the city of Rio de Janeiro. Installed in a processing plant of the City Company of Urban Cleaning (Comlurb), in the Caju neighborhood, the pilot plant has just completed a month in operation and is able to extract 100 to 150 cubic meters of biogas per processed ton, with 50 percent – 60 percent of methane concentration.

PG 10

The technology — which produces fertilizer and natural gas from waste — was developed by the Federal University of Minas Gerais (UFMG), in partnership with companies Methanum Tecnologia Ambiental and Comlurb. The operation of the pilot plant, which was funded by BNDES, will allow testing the efficiency parameters of the methanization technology by anaerobic composting and widening the scale. With a processing capability of 30 tons per day, the plant has an estimated monthly biogas production capable of feeding a fleet of 1,000 cars or generating enough energy for just over a thousand houses.

The unit consists of modules the approximate size of a container, which receive the waste and are sealed for a period of two to three weeks, while the bacteria introduced into the compartment degrade the organic matter and produce methane. The gas is stored while the remaining material is removed and used as fertilizer.

Microorganisms are sprayed into the modules through pipes with heavy use of electronics. Sensors and meters enable controlling and optimizing biogas production. The plant also has a generator to produce electric energy from gas combustion.

The Comlurb plant in Caju neighborhood was chosen because it receives solid waste from different neighborhoods, with different consumption and waste production standards, offering enough diversity to simulate the conditions of different Brazilian towns. In addition, Comlurb already has a conventional composting plant with in situ aerobic digestion, which allows comparing the results of the two technologies.



The pilot plant has just completed a month in operation and is able to extract 100 to 150 cubic meters of biogas per processed ton.

Photo courtesy of Rio Press Office







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# Acquisition gives Morbark a strong global mulcher attachment line and future growth

Morbark, LLC, announced that it completed the acquisition of DENIS CIMAF, Inc., based in Roxton Falls, Québec. This transaction represents the company's second acquisi-

tion since private equity firm Stellex Capital Management LP acquired Morbark in 2016. The acquisition of Rayco Manufacturing in October 2017, brought a lineup of innovative

equipment into the Morbark family across multiple product categories. In particular, Rayco stump cutters, aerial trimmers, forestry mulchers and crawler trucks. The purchase

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of DENIS CIMAF is another step in the Company's strategic focus on broadening the range of tree care and industrial equipment, aftermarket parts, and service offered to their customers.

Founded by Laurent Denis and his wife, Monique Vaillancourt, in 1998, DENIS CIMAF specializes in the development of high-performance brushcutter-mulcher attachments for excavators, skid steers, forestry tractors, graders and other types of heavy equipment. The company manufactures three main lines of products: the DAH series, industrial mulcher attachments for excavators; the DAF series, attachments for skid steers and other dedicated carriers; and the EWF series, dedicated hydraulic power packs. The Company celebrated its 20th anniversary in business this past summer.

"The DENIS CIMAF team and I are extremely excited to be joining the Morbark family," said Benjamin Denis, the newly appointed General Manager of DENIS CIMAF. "DENIS CIMAF is a fantastic business with committed and passionate associates, a great track record and enormous global potential. Being part of the Morbark family will enable us to continue to grow the

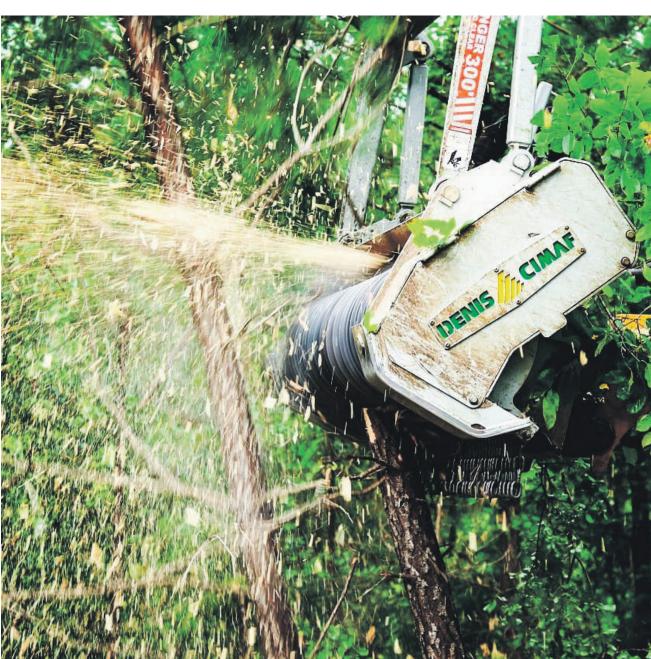
business farther and faster." Dave Herr, Chief Executive Officer of Morbark, commented, "DENIS CIMAF's line of attachments are complementary to our current tree care and industrial product lines. In fact, DENIS CIMAF mulcher heads have been an available option on our Rayco carriers for many years. The company's patented mulcher head design has enabled them to become a the mulcher head attachment of choice among intensive vegetation control, land clearing, roadside transmission lines, pipeline maintenance, and forest fire prevention contractors."

**Transaction Highlights:** The transaction is a positive, strategic fit for both companies. DENIS CIMAF brings a lineup of patented, innovative equipment into the Morbark family across multiple product categories and will enhance the Morbark carrier product line.

Benjamin-Pierre and Simon Denis, sons of DENIS CIMAF founders, Laurent Denis and Monique Vaillancourt, will continue to lead the DENIS CIMAF team to develop new products and help improve the company's existing product lines. Morbark will operate DE-NIS CIMAF as a new division maintaining its brand identity. DENIS CIMAF's experienced management team will continue to manage its operations. Teams from each company will work together to determine how to be more efficient and leverage each other's strengths.

Herr continued, "The companies have a common entrepreneurial heritage and culture, and this is a great fit with immense potential for growth. We are anxious to get started."





DENIS CIMAF brings a lineup of patented, innovative equipment into the Morbark family.

Photo courtesy of Morbark





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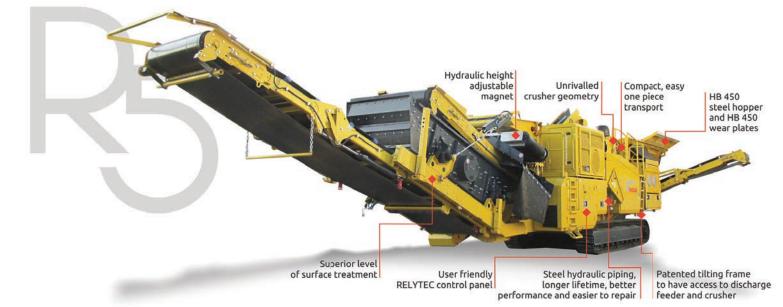
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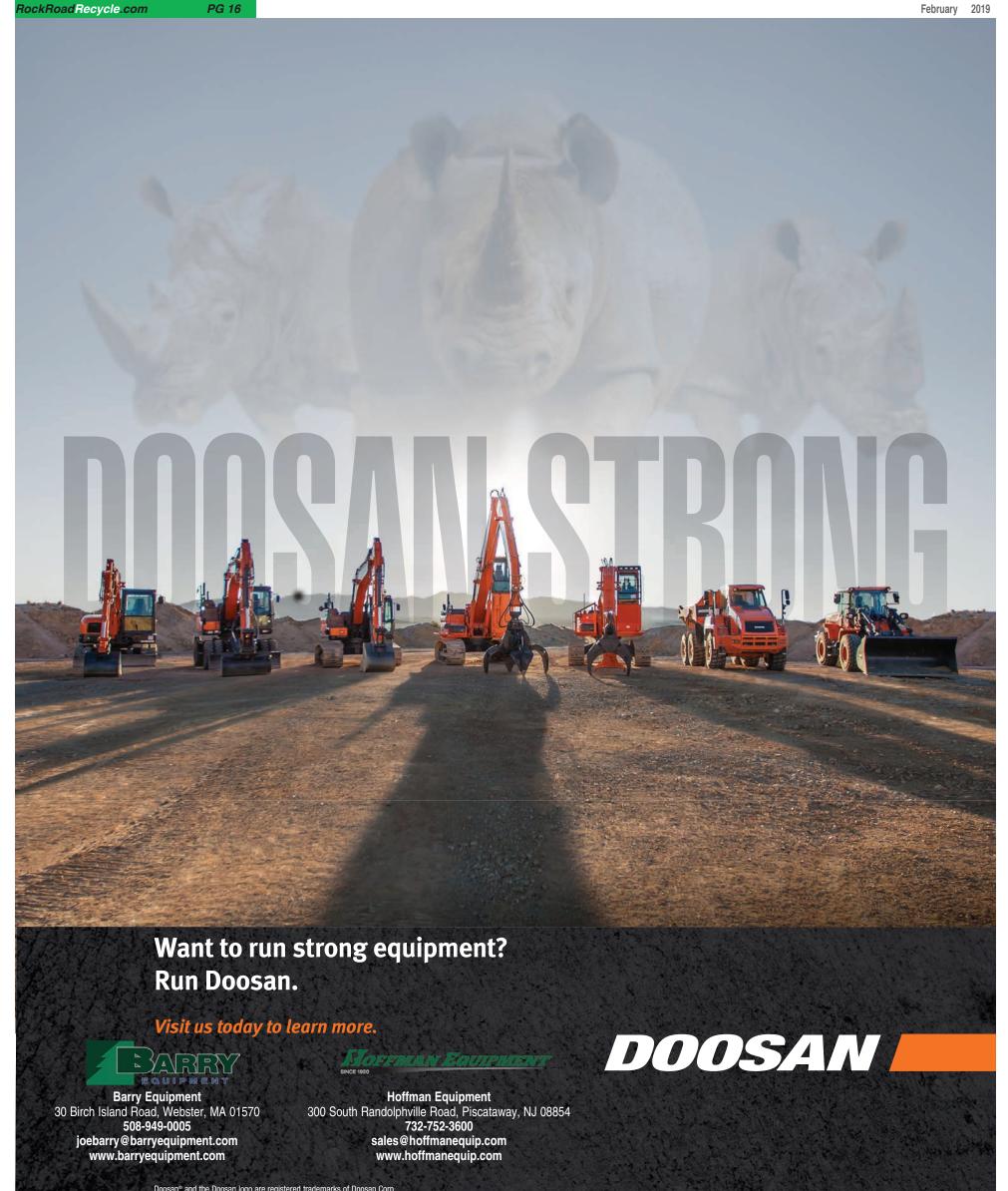
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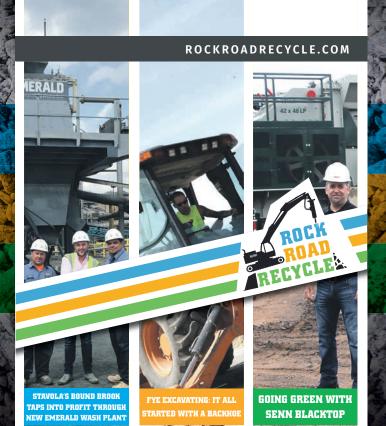
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