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“The new Metso ES303 screen has done very well and it has increased both production and efficiency.”

CHAD MIRAGLIA
Operations Manager at the Woodlands Plant
Metso is a leading supplier of technologies and services for the mining and aggregates industries. Our knowledge, people and solutions help drive sustainable improvements in performance and profitability in our customers’ business.

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**EDITORIAL**

YOU ARE READING the first-ever issue of Results aggregates magazine. Although the mining and aggregates industries share a lot of similarities, there are also many differentiating factors, from the operating environment to the optimization of processes. To be able to address these issues in more detail and to provide more relevant insight to our readers, we decided it was time to divide our previous Results minerals & aggregates customer magazine into two separate magazines.

THIS RENEWAL reflects a bigger change in the way we do business at Metso. In an effort to serve you better and increase customer centricity and proximity, we have also evolved in the way we operate with a stronger focus on the three core customer industries that we serve: mining, aggregates and recycling.

OUR GOAL is to meet your needs and provide solutions to your challenges faster and in a more agile way. Ultimately, this is about striving for a common goal – together.
New products

Full-scale crushing and screening plant setup in 12 hours

The new Metso NW Series™ crushing and screening plant solution enables rapid plant setup in less than 12 hours without heavy cranes. This innovative concept will make even smaller contracts profitable.

**METSO NW SERIES IS THE FIRST AND ONLY** wheel-mounted crushing plant on the market that fits compactly into standard 40 ft (12 m) containers so that it can be shipped quickly and cost efficiently overseas or by railway transportation.

The combination of a Metso NW106 primary jaw crushing plant and a NW220GPD secondary cone crushing plant with a large dual-slope screen has been optimized for relocation regularly. Hydraulically fine-adjustable support legs, hopper walls and screen lifting facilitate fast installation and dismantling. The new plant conveyor design with fewer support legs makes setup quick and simple. No heavy cranes or concrete foundations are needed. Service platforms on the conveyors make daily operations much easier and safer when staying on site for a longer period of time.

The NW range comprises the following models: NW106, NW116, NW220GPD, NW200HPD, NW7150D and NW1213.

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Introducing the latest Metso innovations sure to make a big difference in your operations.

New maintenance platform increases safety

Metso is introducing a new maintenance platform that increases safety when changing wear parts in jaw crushers. The new, ergonomic and safe maintenance platform is available for all Metso Nordberg® C Series™ jaw crushers.

THE ALUMINUM PLATFORM consists of hand rails that are also used for lifting the platform, sturdy work platforms and related control mechanisms, enabling it to be precisely placed at the desired height of the jaw opening.

The family of maintenance platforms is available for all Metso Nordberg C Series jaw crusher models C80 through C200, to match with either single-piece or two-piece jaw dies. The platforms weigh between 12 and 23 kilograms.

“With a small investment, Metso’s new maintenance platform offers a huge improvement in safety when changing jaws. When the platform is installed correctly into the opening, it holds the jaw in place so that it cannot drop, even if the jaw’s upper mounting hardware is loosened or even removed. The platform is lightweight, and it is easy to handle and adjust to fit the desired level in the crusher cavity,” explains Ilkka Somero, Product Manager of Metso’s jaw crusher line.

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Truly mobile heavy-duty crushing

The new Lokotrack® LT130E™ mobile jaw crushing plant is the right choice for primary crushing in quarry operations. Its heavy-duty design, consisting of robust steel elements, provides high capacity even with the hardest feed materials. The LT130E can operate electrically with an external power source or by using an onboard diesel generator when no external power source is available.

A DEEPER 1,000 mm (40”) feed opening is able to handle coarser feed material and greatly reduces the need for blasting. A small nip angle and excellent kinematics ensure aggressive crushing along the whole length of the crushing cavity and for all rock conditions.

Despite its heavy-duty structure, the Lokotrack LT130E moves smoothly between different sites. A new easy split feature makes regular transport easy by enabling setup within a matter of hours. The easy split advantage utilizes hydraulic cylinders to lift the crusher and feeder above the chassis of the Lokotrack LT130E. The crusher and feeder then can be transferred onto a standard trailer. The chassis of the LT130E can be driven to the trailer by using a remote controller – just as with all smaller Lokotrack mobile plants.

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Nordberg® NP13™ expands Metso’s renewed impact crusher series

Metso is introducing the Nordberg® NP13™ impact crusher, the latest addition to a field-proven range of NP Series impact crushers. Designed for increased safety and performance, the NP13 is the perfect choice for secondary and tertiary applications.

TO IMPROVE CRUSHING EFFICIENCY and produce more end product with less recirculation load, the NP13 features a steeper feed angle. This increases material penetration into the rotor and makes the discharge curve less sensitive to blow bar wear, enabling more consistent end product over time without having to change blow bars.

The NP13 accepts feed material up to 350 mm (14”) and can be equipped with a 315 kW (400 hp) motor on a single drive. Its maximum throughput capacity is up to +20% more than that of its predecessor NP1213, and it can be installed on a lighter steel structure.

The operator performing the maintenance is always working under safe conditions.

The number of different side liners has been cut by nearly half compared with the NP1213. The NP13 only requires seven different liners. This clever wear part arrangement means more flexibility in the use of the side liners and less need for parts in stock.

The NP13 maintenance bridge is an innovative and professional solution that provides safe and easy access to both the highest side liners and the rotor. This means that the operator performing the maintenance is always working under safe conditions.

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New Life Cycle Services packages tailored for the aggregates industry

With the goal of helping aggregates producers reach their lowest sustainable cost structure, Metso is introducing new Life Cycle Services (LCS) programs tailored to the aggregates industry.

**THE NEW OFFERING** is designed to support Metso equipment and wear and spare parts in order to ensure the most profitable operations in aggregates production. The new LCS programs target maintenance, supply chain management and process improvement initiatives. The LCS aggregates offering is comprised of three program levels: Equipment Support Service, Maintenance Service, and Maintenance and Optimization. Each program level offers a set of services aimed at helping clients reach their goals. The programs are flexible, allowing customers to include elements from the other programs offered.

An Equipment Support Service program ensures that aggregates equipment can survive the harshest conditions through scheduled inspections and refinement of maintenance and parts plans.

A Maintenance Service program maximizes cost-effective reliability by developing a complete maintenance strategy for equipment, based on a site’s conditions.

Maintenance and Optimization is the most complete program and includes process optimization services focused on countering the wear and tear sustained over time due to the continuous rigors of daily production.

All LCS aggregates programs are backed by commercial and financial solutions, such as rental and leasing options.

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Bridging the knowledge gap to produce more with less

The volatile business environment is imposing ever tougher challenges on aggregates production. Profitable business requires the right balance of value drivers, like labor, energy and capital intensity.

TEXT: Anne Rantanen  PHOTOS: Metso
“Bridging the knowledge gap is a highly relevant question today. It applies to greenfield and brownfield operations alike. Life Cycle Services is our proposal on how to bridge this gap.”

O COPE WITH THE DEPRESSED COMMODITY MARKETS, more and more aggregate producers are turning to partners to find smarter, more efficient ways to design, operate and service their processes.

SCARCITY OF SKILLED PEOPLE AND EXPERT KNOWLEDGE | In the aggregates sector, a skilled workforce is not so readily available in all parts of the world. What are the means to bridge the knowledge gap? It’s a lot about human resource management and balancing between in-house and partner resources so that the combined competence set brings the best business result.

“What kind of people would you have selected to run a new operation 20 years ago? How would the skill sets differ if you’d commission a new crushing plant now? Today, you’d probably hire people with different competencies to compensate for the different scenario, but also because of the increasing level of automation,” explains Caroline Lecomte, Global Business Development Manager at Metso.

So how can aggregates producers solve this challenge? Let’s take a deeper look at the various methods of coping with the skills challenge.

STEP 1 | LEVERAGING LIFE-CYCLE AGREEMENTS TO BRIDGE THE GAP | Every operation has its own way of dealing with similar challenges. When it comes to solving resource and know-how related challenges, tailored Life Cycle Services (LCS) agreements are an excellent tool.

“Bridging the knowledge gap is a highly relevant question today. It applies to greenfield and brownfield operations alike. Life Cycle Services is our proposal on how to bridge this gap. Operating and maintaining all assets using a systematic and rigorous methodology is key for keeping the process running as efficiently as possible and minimizing the total cost of ownership. A trusted partner can contribute significantly through their knowledge and expert resources. Being able to produce more with less is a lot about human resource management.”
LCS agreements, ranging from scheduled inspections to equipment rentals and optimizing the production process, help uncover the opportunities to improve total cost of ownership, efficiency and safety as well as to manage resources better. A continuous dialogue with a trusted global partner helps you stay ahead of the competition.

“Life Cycle Services help challenge the operations and maintenance teams to raise the bar to ensure there are always superior targets to achieve. At the same time you have to continuously revise your Key Performance Indicators (KPIs) because your market requires you to evolve and solving the puzzle on your own is no easy task. Time and expertise from vendors can bring a fresh look and can help you reach new heights within a shorter timeframe,” says Lecomte.

There are many reasons why a plant operator might decide to buy the best knowledge and skills from outside. In northern Brazil, Vale’s Salobo Mine has a Metso LCS agreement for mobile crushers to produce aggregates for the mine infrastructure, as the outsourcing of the operation increases business flexibility and allows them to focus on their core products: mining and processing copper ore.

“At Vale Salobo, Metso rents the equipment and the expert team required for crushed stone production, maintaining and measuring performance against agreed KPIs. In this business model, Metso is the supplier for crushed stone, providing Vale Salobo with a complete solution that includes people and knowledge,” notes Metso’s Marcelo Motti, Senior Vice President of Sales in Brazil.

In India, on the other hand, aggregates producers sign LCS contracts to have the experts maintain the equipment and maximize production.

“The operations of mid-sized aggregate producers are typically quite lean and focused on maximizing production, which can sometimes lead to neglected maintenance. In addition, skilled service experts are difficult to find, so it’s easier to outsource,” says Kamal Pahuja, Vice President of India market area.

FOR MANY YEARS, Metso has successfully supported the mining sector with a comprehensive life-cycle services concept. So far, the offering has not been available to the aggregates industry on the same scale. That is now changing. At the Bauma construction machinery exhibition in Munich, Germany, in April, Metso is introducing the new Life Cycle Services packages tailored to the aggregates industry. The packages will also include innovative leasing options.

“We have built the new Aggregates LCS offering so that our customers can easily select the solution they need to best meet their business goals. This includes providing new ways of financing or buying, maintaining and operating equipment,” comments Giuseppe Campanelli.

“Though we have had LCS aggregates contracts in certain regional markets, the new packages have been structured so that they are easier to understand and customize as needed, making them more accessible to the rest of our global client base. For example, having a monthly rental fee rather than large, one-time expenditures is often more manageable for our customers. With this new offering, our customers are able to streamline their operations and further reduce the total cost of ownership,” he adds.
STEP 2  SMART PLANT DESIGN  | Knowledge is a key factor in all aspects of aggregates production, starting with the designing, building and sizing of equipment.

Going forward, we will see automated plants with remotely operated expert troubleshooting together with autonomous systems similar to the mobile fleet in a mine or quarry. The drivers of this development are not only the labor shortage and efficiency demands, but increasingly also the health and safety focus.

“Even though automation solutions can handle control and predictive maintenance, an expert partner has the experience and knowledge to analyze the data and make the corrective actions to avoid unnecessary downtime.”

“In aggregates production, quarry owners and contractors want to have equipment that helps them to produce what their market needs in the right gradation and quality, with minimum production of ‘additional products’ that they don’t need,” explains Kamal Pahuja.

“Good equipment design and systematic maintenance helps to optimize the saleable output and the required crew. For example, selecting the right type of cone crusher can increase aggregates production by as much as 30%. In the longer term, this will allow the customer to operate less time to produce an equal tonnage – and create savings also in manpower,” says Pahuja.

STEP 3  ADVANCED AUTOMATION  | It is clear that the role as well as the amount of automation and remote operation will continue to grow. This is evident also in aggregates production. Optimized automation allows increased production and less process downtime. It also decreases the need for operative manpower and, at the same time, increases safety.

“In aggregates production, the level of automation is quite low today, but customers are becoming increasingly more interested in automated plants. Cost per ton, i.e. cost efficiency, is where many struggle, and automation helps. Automating a new plant is easy. Automating an old plant is a challenge; it’s possible, but it implies changing the way you operate,” Caroline Lecomte explains.

Even though automation solutions can handle control and predictive maintenance, an expert partner has the experience and knowledge to analyze the data and make the corrective actions to avoid unnecessary downtime.

THE KNOWLEDGE ERA IS HERE  | The requirement to produce more with less – and to do it in a smart and sustainable way – requires tighter collaboration and new ways to manage resources. Life-cycle services, automation and plant design all have a role to play in offsetting the skilled labor shortage and responding to the increasing efficiency requirements. It’s all about bridging and managing the knowledge gap with the best possible solutions.

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The world is our Showroom

At Metso we believe that the look on a satisfied customer’s face when we have overcome their challenges is worth more than a thousand words. The world of solutions that we deliver is truly our Showroom.

Meet our customers

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In 2014 the Finnish transport company Seinäjoen KTK made a major decision to expand its business to crushing and screening. The company has had positive experiences with the two-stage diesel-electric Metso crushing and screening chain that was taken into use in March 2015. To date, KTK has been cost-effectively crushing and screening more than 450,000 metric tons of aggregate with the new Lokotrack plants.
Supervisor Janne Kangas, in charge of crushing operations, is especially pleased with the good fuel economy of the new Lokotrack plants.
TK SERVES the region of South Ostrobothnia through a member network, which has at its disposal around 70 vehicle combinations suitable for construction needs. The company has a staff of about 10 and works closely with the affiliate company Kauhajoen KTK.

“Earlier we purchased all the aggregate we needed from external sources. Branching out to aggregate production is a way to guarantee more work for our partners. At the same time, it further supports our business and allows us to increase our market share,” says Seinäjoen KTK’s Janne Kangas, listing the reasons for the decision. Kangas is in charge of crushing operations.

METSO – FAMILIAR AND COST-EFFECTIVE | Kangas worked with Metso’s track-mounted Lokotrack plants in his previous job at Lemminkäinen, a major Finnish infrastructure construction and building company.

“Naturally, we closely screened different suppliers before making the decision, but Metso’s offering, including the equipment and maintenance, came out on top. We were familiar with the equipment concept, the price was right and the overall package was the most cost-effective for us,” Kangas explains. KTK targets an annual production of 600,000 tons with the

IMAGE: A custom designed dual-slope screen secures good throughput of the LT330D.
Seinäjoen KTK has reached a maximum hourly volume of 300 tons using Metso’s new diesel-electric driven two-stage plant. Lokotrack® LT120E™ jaw crushing plant and LT330D™ crushing and screening plant, which Metso’s Tampere unit delivered. Both plants are diesel-electric driven, which means that a diesel engine drives the generator, and in turn, the crushers are electrically driven instead of having the conventional hydraulic drive. When there is an external power source available, power for the Lokotrack plants can be supplied from the electricity network.

The two-stage Lokotrack train is used in the Seinäjoki region at some six crushing sites annually, which translates into a typical crushing contract of 10,000 to 100,000 tons. Of the total crushed volume, 60–70% is used by KTK itself, while the rest goes to aggregates clients.

EXCELLENT FUEL ECONOMY | Fuel costs are a major expense in crushing contracting. Therefore, low consumption is essential. “In this respect, our experiences with Metso’s new equipment are excellent. So far we have managed to remain below the consumption estimates that we used when making the investment decision. The quality of the end products has also been high,” Kangas says.

Seinäjoen KTK has reached an average consumption of 22 liters per hour with the LT120E jaw crushing plant and 38 liters with the LT330D. Consumption varies, depending on the stone material to be crushed.

The new IC process control system connects both plants, enabling the upstream crusher to slow down when the downstream crusher fills up. For the crusher operators, the IC system has been familiar and easy to use.

Branching out to aggregate production is a way to guarantee more work for our partners. At the same time, it further supports our business, and allows us to increase our market share.

JANNE KANGAS, SEINÄJOEN KTK

HOURLY CAPACITY OF MORE THAN 300 TONS | KTK’s new crushing chain is a familiar sight at Lemminkäinen’s Routakallio quarry in Seinäjoki, where it is used in the production of 8–16 mm (1/3–2/3 inch) concrete grades, in addition to regular grades. The two-stage plant has reached a capacity of some 200 tons per hour. When producing 0–63 mm grades, the capacity increases to more than 300 tons.

According to Kangas, the wear parts of the new Lokotrack plants have a longer life than earlier models. The C120™ jaw still has the original wear parts after 100,000 tons of crushed material. The wear parts of the downstream GP330™ cone crusher were replaced for the first time after 120,000 metric tons.

“The new two-stage train is also cost-efficient to transport, as the number of loads is reduced. The Lokotrack plants can be transported with two trucks; only the side conveyors of the LT330D need to be removed,” Kangas points out.

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WATCH THE CASE VIDEO:
https://goo.gl/Y4Fk4b
or scan the code
Keeping crushing equipment updated is one way to save on operating costs in crushing contracting. This is easy to authenticate with the German Bierbrauer & Sohn GmbH’s all-new Lokotrack® LT1213™ impactor plant. The new unit consumes less fuel than its smaller predecessor and simultaneously lifts the operational capacity to a higher level.

Capacity up, fuel costs down
Our cooperation has been easy. Metso machines are solid, spares and wears readily available, and the right people easy to reach by phone.

KARL-WERNER BIERBRAUER, MANAGING DIRECTOR, BIERBRAUER & SOHN GMBH

“Our cooperation has been easy. Metso machines are solid, spares and wears readily available, and the right people easy to reach by phone. We do the basic servicing ourselves, but all special tasks are handled by Fischer & Jung,” Bierbrauer says.

Today, Bierbrauer & Sohn owns seven different Lokotrack, two LT96™ crushers, an LT106™, LT1110™, LT200HP™, ST3.5™ mobile screen and, the newest addition, the LT1213 impactor plant.

FUEL SAVINGS AND GOOD CUBICITY WITH LOKOTRACKS

“Besides the well-designed hydraulics and crusher drive, the stand-by function lowers the fuel consumption. Our wish for added capacity seems to be fulfilled, too. The first asphalt recycling contract shows that the productivity of the LT1213 really is at a new, higher level,” Bierbrauer notes.

High quality and good cubicity are becoming increasingly crucial issues when producing aggregates grades for cement production.

“For this, the Lokotrack LT106 jaw and LT200HP cone plant combination is a perfect fit, securing truly superior end products,” Karl-Werner Bierbrauer underlines.
Capacity, precise separation and performance

Starting a new quarry with a concrete and asphalt production plant is a big challenge for which you need to involve a reliable partner. Since making the decision to enter the quarrying business in 2013, the Romanian company Florea Grup has found this kind of partner within Metso. PREMIER™ screens play a vital role in the company’s quarry production.

Florea Grup

Florea Grup’s main headquarter is based in the city of Alba Iulia, in Alba County, Romania. The company has operations in aggregates production, petrol stations, hotels, road construction and rehabilitation, concrete and asphalt production, and concrete and steel structures prefabricated components.
The world is our Showroom
We were surprised by the size of the vibrating equipment, especially the PREMIER CVB™ and ES™ type screens. The large screen feed box size guarantees good capacity and also makes maintenance very easy and safe thanks to the big gap between the decks. With Metso’s screens, we reduce downtime and increase plant availability,” comments David Florea.

“The big capacity of the PREMIER screens impressed us. Switching between rubber/polyurethane modular panels and side tensioning screening media along with the installed automatic lubrication option are other big advantages as is the E-brake system for the electric motors,” he adds.

“We were also happily surprised with the high quality of the delivered plant components. No modifications like cutting or welding needed to be made on site. Now we fully understand why engineering and design of such a plant is crucial in these kind of projects,” Marcel Florea says.

FROM PETROL STATIONS TO QUARRYING | In 1996, brothers David and Marcel Florea established the private company Florea Grup. Starting their business activities in the fuel market, the two entrepreneurs developed an impressive network of petrol stations throughout the county of Alba.

The business vision of the brothers quickly shifted towards the production of construction materials. In 2005, they acquired a modern high-capacity sorting station, and in 2006, they established five Liebherr concrete plants (in Alba Iulia (2), Cluj Napoca, Sibiu and Deva), each with a capacity of 100 m³/h. In 2011 they implemented a brand new, state-of-the-art Ammann asphalt plant with a 160 tph capacity.

In 2013 they decided to invest in a new business area: exploiting a quarry and producing concrete and asphalt fractions. “We made this decision considering that this was the logical next step in our company development. More than that, we wanted to deliver the highest quality products and services to our Florea Grup customers. Finding a trustworthy partner that could deliver high-quality final fractions was a key issue when we started our business plan in this quarrying industry,” comments Marcel Florea.

Needing a wide selection of end products (0/4 secondary crushed sand, 0/2, 2/4, 0/4, 4/8, 8/16, 8/11, 11/16, 16/25, 32/50 mm), produced with a throughput of 180 – 200 tons per hour, they contacted Metso. With the long list of required fractions and flexible operation, they knew that they needed to search for a specialized consultancy.

IMAGE: All Metso’s screens, including the PREMIER CVB series screens, are equipped with rubber/polyurethane screening media.
A COMBINATION OF MOBILE AND STATIONARY PLANTS

At first, Florea wanted to go for mobile equipment, but after numerous discussions with Metso professionals, they decided that a primary mobile crushing unit combined with stationary secondary and tertiary crushing and screening was the best option for them from an operational and economical point of view.

The final delivery included a Lokotrack® LT116™ mobile jaw crushing plant, two Nordberg® HP200™ cone crushers, one Barmac® B6150SE vertical shaft impact crusher, one PREMIER CVB204™ and one PREMIER CVB203™ inclined screen, a PREMIER ES203™ horizontal screen, and a full plant automation.

The mobile LT116 operates in a remote quarry site, approximately 50 km from the stationary plant, near the city of Zlatna. The stationary crushing and screening plant is located near the Alba Iulia ring, about 5 km from the city.

A big challenge in the whole project was the fine screening of the 0/2, 2/4 and 0/4 mm tertiary crushed products. During the early discussions, the customer was impressed by the new ES type screens and was eager to see them in action. A couple of days of checking the final fine fractions, laboratory testing and analysis convinced the company of the positive output capacity, precise separation and general performance of the PREMIER ES screen.

SUCCESSFUL PLANT START-UP

The customer systematically followed the assembly and initial start-up procedures. After eight months of engineering, assembling and checking, the plant was started up on April 6, 2015, and has been operating without problems since then.

As a consequence of the successful results, Metso teams are now working on a new Florea wet screening application for their gravel plant. In the meantime, Florea has recommended us as a trustworthy and knowledgeable partner to other companies, resulting in a major company from Alba Iulia County to also receive a reliable and high-capacity Metso gravel plant.

“In this first half year since the startup of the plant, Florea Grup has been producing approximately 90,000 tons of final fractions. This is still just the beginning and, as the quarry site still needs to develop, we’re quite sure that we’ll be able to set our targets to 250,000 tons for 2016. One of the main reasons for our confidence is that we’ve had no issues so far with the Metso plant,” conclude David and Marcel Florea.
Boosting production and efficiency

A new Metso vibrating screen is getting high marks for productivity, efficiency and maintainability at Lehigh Hanson’s Woodlands Sand & Gravel Plant in Conroe, Texas.
BEFORE INSTALLING THE ES303 SCREEN from Metso, the company had experienced declining reliability and costly, time-consuming downtime to replace screening media on its old vibrating equipment. The new Metso ES303 screen, in operation since early 2015, is operating smoothly, and helping to boost production and efficiency at the plant.

A NEW SOLUTION FOR SCREENING | The Woodlands Plant is situated on the West Fork of the San Jacinto River where, according to Plant Manager Jay Jackson, an electric dredge is used to mine natural sand and gravel. Material is pumped from the dredge to the plant through a pipeline, where it enters a velocity box, or tank, which separates the gravel from the sand. The sand is then pumped in below the screen, while the clay and gravel are processed through the screen.

“The gravel goes across the Metso screen,” says Jackson, “and that’s what we’re using the Metso screen for – the natural washed gravel.” The ES303 uses urethane screening media on all three decks. The top deck screens the clay; the middle deck is used for mid-size gravel, and the bottom deck is for the extra fine gravel that drops through the bottom of the screen. The ES303 also features three water spray bars to spray the gravel and remove the clay.

The choice of the Metso ES303 vibrating screen came as Lehigh Hanson identified a need to modernize their production capabilities at the Woodlands Plant, requiring an efficient screen that was capable of both producing gravel to their specifications, and reducing maintenance and downtime. The new vibrating screen would replace their existing 6x20 incline screen, which had reached the end of its useful life, and the process of replacing the screening media was labor-intensive and time consuming.

As part of a thorough review of vibrating screen brands on the market, Lehigh Hanson contacted Crisp Industries, Inc., Metso’s crushing and screening distributor in the state of Texas. Crisp Industries promoted the new ES303 screen to Lehigh Hanson. This new design for horizontal screens does not rely on shafts timed with gears to create an elliptical motion, and therefore has fewer parts to contend with. In addition, when a bearing change is required, the quick change out for Metso’s MV (Modular Vibrator) mechanism requires less downtime than a traditional horizontal screen. Lehigh Hanson felt these were important benefits for their operation. Greg Venghaus, Territory Salesman at Crisp, assessed the existing situation at the Woodlands Plant and suggested replacing the old incline screen with the ES303 “They liked the new technology,” says Venghaus, “and were willing to be the first to adopt it.”

ENHANCED SCREENING EFFICIENCY | The Metso ES303 is a high-energy horizontal screen designed to deliver up to 25% more screening capacity compared to conventional screens of the same size. The two unbalanced shaft lines in the Metso ES screen rotate in opposite directions, generating a high-energy elliptical motion. This aggressive screening action enables the Metso ES to separate materials with consistency and accuracy, even in damp and sticky conditions.

According to Jay Jackson, the new ES303 screen at the Woodlands Plant fit into the same footprint as the old screen, requiring only minor modifications. “We just pulled the old one out, and put this one in,” he says. Crisp Industries provided project management and installation services for the ES303 screen, under the direction of Doug Swoveland, Operations Manager at the company’s branch in Seguin, Texas.

Although improving reliability and reducing downtime were the primary goals with the new screen, increasing production and efficiency were strong factors as well. “I think it’s done very well,” says Jackson, “and it has increased both production and efficiency.” Chad Miraglia, Operations Manager at the Woodlands Plant, says that “With rock and clay, we are probably doing an average of 100 tph over it,” adding that “I’ve seen it do 160-170 tph of rock production at its highest.”

EXCEEDING EXPECTATIONS | Metso ES screens are also designed for optimal durability and maintainability. Screen media changes are quick and easy. “It’s absolutely wonderful, the way we change out screening media,” says Chad Miraglia. “The old screen had the big metal screens that were very difficult to install, very time consuming. Now if we want to make a screen change, it’s very fast, very efficient. It does a very good job.”

The new ES303 screen is proving to be a big hit with the entire team at the Woodlands Plant. “I can tell from my employees’ standpoint that they absolutely love it,” says Miraglia. “They rave about it. In every respect, time saving, cost effectiveness, it’s above our expectations so far.”

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THE WOODLANDS PLANT is located in Conroe, Texas, approximately 40 miles north of Houston. It is owned and operated by Lehigh Hanson, Inc., one of North America’s leading aggregates producers. Lehigh Hanson operates more than 200 aggregates plants in the USA, and its parent company, HeidelbergCement, is the largest aggregates producer worldwide.
Getting started with in-house aggregates production

TEXT AND PHOTOS: Julius Mäkelä

SEE THE LOKOTRACK ST4.8 WASHING SCREEN IN ACTION: https://goo.gl/ppm8Ik or scan the code
Ecoservice Srl, a Romanian construction contractor, recently invested in a new Metso Lokotrack® ST4.8™ mobile screen with a washing system to increase flexibility, reduce transportation costs and grow their business.

"EARLIER, WE PURCHASED AND TRANSPORTED THE AGGREGATES for our concrete mixing plant from a site 50 kilometers away. With the ST4.8, we are able to produce aggregates right next to our concrete plant, saving us a lot in transportation costs and aggregate purchases," says Constantin Apreotesei, owner of Ecoservice Srl, summarizing some of the benefits resulting from the Lokotrack ST4.8.

Ecoservice Srl is a mid-sized construction company located in northeastern Romania, some 350 km from the capital of Bucharest. The company is a significant employer and one of the few Romanian enterprises in the industry to have entered recycling. Metso’s Lokotrack ST4.8 is their first mobile screen. With it, they’ve already produced washed aggregates for their concrete plant and have recycled concrete and bricks.

The company operates a fleet of trucks, excavators, wheel loaders and other construction equipment. They also own a workshop for steel fabrications and other assemblies.

WANTED: A MULTITASKING SCREEN | In order to save in transportation costs, Ecoservice wanted to expand its fleet to include a screen. This way they could produce the aggregates they needed on site instead of buying and hauling them. The company knew they needed a mobile screen suitable for both wet and dry screening and for aggregates and recycling applications. Additionally, the equipment had to be easy and safe to operate and environmentally friendly.

"The world is our Showroom"
They decided to approach Metso. At that time, Metso’s offering didn’t include a suitable track-mounted product off the shelf. However, because Metso has delivered numerous washing screens on wheels and for stationary plants, the necessary know-how was there.

“During a visit to Metso’s factory in Tampere, Finland, I was able to see and understand the complete product range and Metso’s history in the aggregates industry,” says Constantin Apreotesei.

“Metso and Ecoservice decided to start with the proven ST4.8 mobile screen and to modify the screen box to accommodate the washing system.”

This experience sowed the seed for collaboration. Together, Metso and Ecoservice decided to start with the proven ST4.8 mobile screen and to modify the screen box to accommodate the washing system. The fines conveyor was equipped with a slurry collection tray to also enable dry screening.

COLLABORATION RESULTS IN A PERFECT SOLUTION | Metso delivered the complete ST4.8 mobile screen, and Ecoservice made a sand screw and a discharge conveyor in their fabrication shop close to the concrete plant. Ecoservice also manufactured a water circulation system, including sedimentation pools. Even though the water circulation and treatment systems are stationary, the ST4.8 can easily be moved and transported to recycling sites whenever needed.

“The ST4.8 setup was fast and intuitive and it’s easy to work with. This is a great benefit, especially since the operators cannot be professionals for each and every type of equipment,” says Apreotesei.

Ecoservice uses a wheel loader with a 2.7-m³ bucket to feed the ST4.8, resulting in a capacity of 150-200 tph when producing 0-4 mm, 4-8 mm, 8-16 mm and 16-200 mm washed aggregates from river gravel. The fuel consumption amounts to 14 liters per hour, including the sand screw that gets its power from the ST4.8.

“The capacity really met our expectations and we’re satisfied with the results,” confirms Apreotesei.

BUSINESS GROWTH AND MORE JOBS | Justifying the investment in the solution was easy. Simple math shows that it’s profitable.

“The ST4.8 saves 50% in our aggregate purchases for the concrete plant,” says Apreotesei. In addition, the ST4.8 reduces the need to transport the aggregates. That means less energy per ton is needed, and that’s good for the environment, too.

Recycling applications are not yet as common in Romania as they are in places like Central Europe, but they are becoming more popular as infrastructure develops and gets denser. Ecoservice has already fed the ST4.8 with bricks and recycled concrete.

“The screen performed well in those applications, and I hope this will bring growth to our business and create more jobs in northeast Romania,” adds Apreotesei.

With good experiences from their first project together, Ecoservice and Metso will continue to improve the process. The next likely step is to introduce crushers for the 16-200 mm material.
Metso helps Vale’s Salobo Mine improve production

Major details, such as the poor condition of a mine access road, can compromise production and result in significant unplanned costs. Metso’s mobile crushing solution is helping Vale curb excessive truck maintenance costs in northern Brazil.
Located in the state of Para in northern Brazil is Vale’s Salobo copper mine, which went into production in mid-2012. This was the second greenfield copper project developed by the global miner in Brazil; it has an estimated production of 518,000 metric tons of copper concentrate annually, with the deposit itself estimated at over 1.18 billion tons. One key focus in the development of the Salobo mine was that of sustainable development. Nearly 98% of the water used at the mine site is slated for reuse, and a considerable investment was made in local infrastructure, health and education prior to the start of production. These investments were made with a view to the long-term sustainable use of the mine, where production was scheduled to double in the coming years.

Challenge: Poor Mine Access Roads Increased Tire Failure and Created Bottlenecks

The Salobo mine operations span the production at the open-pit mine face as well as the actual processing of the mined copper. The process setup involves raw ore...
Tire life for Vale’s big trucks has increased by over 50%, leading to significant savings on spare tires and considerably less hours lost to maintenance.

**Passing through Crushers, a Roller Press, Grinding Mills, Cyclones and Finally through Flotation and Filtration Areas**, where a final concentrate containing between 36% to 40% of copper is produced. The copper concentrate is then transported by truck via a road from the mine site to Vale’s existing railroad terminal in Parauapebas, at which point it is transported by rail to the Ponta da Madeira Maritime Terminal in Maranhão.

The challenge facing Salobo revolved around the transportation of material through the mine access road. The poor condition of the road was causing tires on the large transport trucks to degrade quickly, leading to frequent and expensive tire changes. Regularly maintaining the tires on its fleet of transport trucks had begun to add up quickly in terms of unplanned costs and also slowed production down significantly.

**Partnering with Metso:**
**A Rental Agreement for Mobile Crushers** | Metso was called in to look at possible solutions. With its knowledge of both mining and aggregates, Metso proposed the rental of mobile crushing plants (Metso’s wheel-mounted crusher models NW96 and NW200HPS, and a track-mounted Lokotrack® LT116™ jaw crushing plant) and feeders to produce the right grade of gravel to improve the condition of the 30 km internal road for heavy duty trucks. The key to the proposal was that not only would Metso provide the equipment to crush the gravel, but under a Life Cycle Services (LCS) agreement Metso also would maintain the supplied equipment and measure its success against key performance indicators (KPIs). This ensured that the proposed crusher solution was performing at optimal levels and delivering on its promised savings. The final signed agreement covered a two-year period and went through a number of modifications in the early months, as gravel production increased from levels of 80,000 tons per month to well over 280,000 tons per month at Vale’s request. Metso placed a total of 50 experts on site to operate and maintain the mobile crushers, which helped to keep the rented equipment producing a continuous stream of fresh high-grade gravel to maintain the quality of the constructed access roads and unloading areas.

**Side Benefits: Less Waste and More Throughput** | In addition, Salobo mine found a side benefit to having the high crushing capacity available on-site. The mine was able to use a portion of the crusher’s available capacity to test some excess waste materials that had accumulated at the site and separate out fines below 50mm. Once the smaller fines were removed, the remaining 50mm and larger material was found to be of high enough grade to be rerouted through their process setup, giving a boost to production levels and reducing the levels of waste requiring disposal.

**Increased Productivity for Trucks Using the Access Road** | With the contract in place since November 2013, the access road conditions leading out of the mine site have considerably improved. Tire life for Vale’s big trucks has increased by over 50%, leading to significant savings on spare tires and considerably less hours lost to maintenance. With fewer trucks stuck in service for required tire changes, production at the site has continued to grow. A key benefit of the Metso LCS contract was that the rental agreement allowed Vale Salobo to avoid making large capital expenditures to acquire its own crushing equipment. The rented Metso mobile crushers were flexible enough to meet the high and varying demand for gravel that was required. The rented equipment was backed by an LCS maintenance agreement, carried out by trained Metso service staff, allowing the crushers to perform at their highest levels with little downtime. With Metso taking care of the operation and service of the mobile gravel crushers over the life of the contract, the mine was able to focus on its core business of producing copper.

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A profitable solution:

Manufactured sand with minimum flakiness

Investing in a Metso Barmac VSI crusher and Nordberg cones has enabled the South Korean aggregates producer Tae-hyung to start making a real profit with manufactured sand. The company is currently selling its sand at 40% higher than market price.
OUTH KOREA IS A GROWING NATION, and the key for any nation’s growth lies in its infrastructure development. But in Korea, the lack of high-quality raw materials is limiting the development potential of its infrastructure, such as the railroad network, commercial and non-commercial buildings, and industrial hubs, and thus the growth of the entire nation.

Tae-hyung is one of the companies producing and supplying not only aggregates and crushed sand for the Korean market, but also ballast for high-speed railways. Tae-hyung adopted a new method to produce aggregate by crushing because the extraction of gravel from rivers was banned, and transporting raw material from the sea escalated the cost by many-fold. The raw material the company uses to produce aggregate is one of the hardest stones in Korea. The abrasiveness of the raw material is around 1,340g/ton, so it is a challenge to manufacture aggregates from this material.

**IMPROVED END-PRODUCT QUALITY WITH METSO CRUSHERS** | “The local equipment failed to give us the desired result with the raw materials we were using, so we decided to go with Metso’s Barmac® B9100SE™ VSI crusher. The market buzz about the solution was very compelling,” says Tae-hyung’s CEO Ho-joong Yoon.

The installation of the first Barmac VSI immediately cut the flakiness of the material by half to a mere 20%. Soon after, this positive experience encouraged Tae-hyung to place an order for Metso’s Nordberg® HP300™ and HP400™ cone crushers. The Metso cone crushers enabled Tae-hyung to further reduce the flakiness down to 10% and to increase the overall production, which gave the company the opportunity to earn more.

The reduction in the flakiness to <10% changed the course for Tae-hyung and put an end to the poor response for their product. No customer has since turned down their products, thereby paving a path of success for Tae-hyung in the aggregates business. The most surprising outcome, however, was the increase in production, which more than doubled after installation of Metso’s equipment. Earlier, the company was producing about 700 cubic meters of sand and about 1,500 cubic meters of gravel per day. But the installation of the Barmac VSI and the HP cones enabled the company to double the output. It now produces between 1,600-1,700 cubic meters of sand per day, and it easily surpasses 2,000 cubic meters of aggregates per day.

“The rocks we crush have very high compression strength – ranging from 121 to 141 MPa – so machine wear increases the downtime. However, the robust quality and strength of the Metso equipment is much better than that of the local machines,

**IMAGE:** Ho-joong Yoon, the CEO of Tae-hyung, has witnessed a 15% increase in profitability after investing in Metso equipment.
so we are reducing operating costs by 10% to 15%,” says Ho-joong Yoon.

“The most surprising outcome, however, was the increase in production, which more than doubled after installation of Metso’s equipment.”

The increase in production combined with the 0% rejection rate from customers has helped Tae-hyung to earn more and to increase its overall profitability by 15%. The company is now able to sell sand at $14 per cubic meter ton, compared to the industry average rate of $10 per cubic meter ton, i.e. 40% more than market price. Even though the local machines were available at a lower price than the Metso equipment, Metso’s solution proved to be more profitable.

IN FOCUS

Tae-hyung Enterprise Co.

TAE-HYUNG ENTERPRISE CO., established in 1976, entered the quarrying business after securing a big order from Hyundai Engineering and Construction in 1984. The company expanded its operations and the quarry business was made an independent unit in 1995. It is currently headed by Ho-joong Yoon, who is also the CEO of Tae-hyung Enterprise.

The company operates in four locations across South Korea and has its own asphalt plant, a ready-mixed concrete plant, quarrying business, industrial recycling business and architectural stone works. Its major products comprise asphalt concrete and ready-mixed concrete. The company has an annual turnover of around USD 0.1 billion and employs 200 people at its four plants.

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Liked what you read? See it on video:

FINLAND: Follow the link on page 17 to see Lokotrack LT120E and LT330D mobile crushers in action at Seinäjoen KTK

ROMANIA: Follow the link on page 26 to get to know the new Lokotrack ST4.8 mobile washing screen

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Building the world’s largest HPGR

Metso’s HRC™3000 is a new generation high-pressure grinding roll that eliminates issues found in traditional HPGRs, allowing the mining industry to reach a new level of energy efficiency.
UE TO DIMINISHING ORE GRADES AND RISING ENERGY COSTS, the mining industry has been driven to find more energy efficient solutions. Freeport-McMoRan Inc. (FMI) is no exception. In developing their new Metcalf concentrator at the Morenci mine in Arizona, USA, FMI collaborated with Metso to create a revolutionary comminution circuit that challenges traditional expectations.

AIMING FOR MAXIMUM ENERGY EFFICIENCY | Crushing circuits are known to be more efficient than traditional SAG milling circuits. However, in large operations, crushing circuits tend to have a greater number of lines and are more challenging to operate. On the other hand, SAG milling, while less efficient, tends to be simpler to operate and requires less ancillary equipment.

The goal at the Metcalf concentrator was to develop a highly efficient high-pressure grinding roll (HPGR) crushing circuit capable of processing the total plant capacity. In addition, this HPGR would not simply be a larger scale version of what was currently available to the market, but would seek to eliminate some inherent concerns typically associated with traditional HPGRs, including skewing and edge effect.

The design concept came to fruition in the Metso HRC™3000, the largest HPGR in the world with a total installed weight of 900 tons. The HRC™3000 includes 3.0 m diameter by 2.0 m wide rolls and a total installed power of 11,400 kW. Depending on the application, the total capacity of this machine can exceed over 5,400 tph of ore.

ARCH-FRAME ELIMINATES SKEWING | Prior to the design of the HRC™3000, the Metso design team was tasked with developing an HPGR to meet the specific needs of hard rock mining applications. After a review of the existing technology, it became clear that certain inherent design problems, such as roll skewing, edge effect and uneven roll wear, needed to be eliminated to ensure the concept was successful.

The initial concept of the HRC™ HPGR began with what would become the patented Arch-frame, which mechanically absorbs unbalanced loads in order to eliminate downtime caused by skewing. Skewing is a condition where the axes of the rolls do not stay parallel due to uneven feed distribution. With the HRC™ HPGR, the two sides of the Arch-frame are mounted into the base frame with pins. Hydraulic cylinders at the top of the frame apply the crushing force. The cylinders only need to apply roughly half of the required force at the rolls due to the mechanical advantage of the pivoting Arch-frame. This idea was based on how a nutcracker uses a mechanical lever to multiply the crushing force.

In addition to the Arch-frame eliminating downtime caused by skewing, this feature also allows for the use of a flanged roll design. With this design, one roll includes a set of flanges, which are bolted onto the side of the roll. The flanges are designed to combat edge effect, a problem with traditional HPGRs in which comminution is reduced at the edge of the roll. Because the flanges are bolted onto the roll, the flanges move in the direction and speed of the ore and therefore pull material into the crushing zone. This is in contrast to a traditional cheek plate...
arrangement in which stationary cheek plates are mounted near the edge of the rolls.

**FLANGES ENABLE EVEN PRESSURE DISTRIBUTION** | Metso performed a series of tests on a lab-scale HPGR that was fitted with pressure sensors embedded in the roll. When operating with traditional cheek plates, the pressure at the edges was much lower than the pressure at the center. This corresponds to the region of the roll that would generally produce a coarser product. Conversely, when flanges were installed, a much more consistent pressure profile across the full width of the roll was observed, indicating the full width of the roll is utilized for crushing.

It is important to note that when crushing ore there is an optimum pressure for a given feed. Below this optimum pressure, less breakage will occur, while above the optimum pressure the energy efficiency will decrease. Therefore, it is important to

“The HRC™ 3000 is the largest HPGR ever put into operation to date.”
have consistent pressure across the full width of the roll, so that an optimal pressure can be applied to the full bed of material. In the case of the traditional cheek plate design, the total pressure to the system is commonly raised to increase the amount of breakage at the edges of the roll. However, this results in higher pressure being applied to the center of the roll, leading to wasted energy and added wear in the center area of the roll. In addition, the higher localized pressure associated with the cheek plate design needs to be considered when selecting the stud hardness and composition in order to prevent stud breakage. The results of this lab test gave the engineering team the confidence to proceed with the flanged HPGR design on the pilot-scale unit.

PILOT PLANT CONFIRMS LAB FINDINGS | Prior to installation of the HRC™3000, a pilot-scale plant was installed at the Morenci Concentrator to use as a proving ground for the HRC™ HPGR.

The pilot plant included an HRC™ HPGR with 750 mm x 400 mm rolls, a primary wet screen, and a secondary wet screen. The HRC™ HPGR was fed by the primary and secondary screen oversize. The primary and secondary screen undersize was then transferred to the downstream process. The capacity of the plant varied depending on the circuit configuration, but in most conditions it could process approximately 50 - 70 tph. The F80 to the HRC™ HPGR varied significantly and ranged from 11 mm to +16 mm.
A series of twelve process surveys were performed at the pilot plant to better understand how the flanged roll design affects the performance of the HRC™ HPGR circuit. These surveys, identified as the edge effect testing series, showed that in all conditions and pressures, the flanges clearly provided more breakage across the width of the roll and increased the throughput of the HRC™ HPGR relative to a traditional cheek plate HPGR design. On average, the flanges were shown to reduce circuit-specific energy by an average of 13.5% and to lower circulating load by approximately 24%, while increasing the specific throughput of the machine by 19%.

In addition to testing the design, the pilot plant testing aimed to provide a better understanding of the performance of the circuit, and to give the plant personnel experience operating and maintaining an HPGR circuit.

**FROM PROBLEM-SOLVING TO SUCCESSFUL INSTALLATION**

The HRC™3000’s capacity is approximately double the capacity of the largest preceding HPGR in operation. It was unknown what issues would arise when scaling up to a machine that is over 50 times larger than the design prototype. In order to ensure the proper design of the Arch-frame, a series of structural analyses were performed prior to the final design of the HRC™3000.

While the new machine concept eliminated some traditional HPGR design concerns, it did introduce new design considerations. For example, the interface between the pivoting Arch-frame/roll assembly and the stationary dust enclosure and feed chute needed to be carefully designed. An integrated tramp bypass system was developed in order to eliminate the requirement for additional infrastructure typical of HPGR installations.

Installation of the HRC™3000 at the Metcalf concentrator started in September of 2013. For the installation of the HRC™3000, Metso provided the installation crew and field service supervision. This allowed for very close communication between the engineering team and the installation team.

The size of the large components needed to be considered for the installation phase of the project. Transporting the shaft from the laydown yard to the Metcalf building required coordination with site personnel to arrange for the use of the truck needed to move the 97-ton component, as well as the use of the overhead crane needed to lift it.

A machine as large as the HRC™3000 requires a significant infrastructure to support it. In multiple cases, the actual dimensions between the structural steel and the machine were different than originally designed. In some cases, the remedy was not a simple solution. For example, when installing the hydraulic cylinders, the amount of room between the steelwork was not enough to install the cylinders as originally planned. A different lifting fixture had to be designed to move the cylinders into place. Moreover, maintenance had to be carefully considered in order to safely access and handle the large components. A 20-ton gantry crane was installed inside the steelwork tower to handle the hopper and feed guide plates. In addition, 0.5-ton robotic arms are used to handle the maintenance for the edge blocks and flange segments.

**PROMISING RESULTS**

The HRC™3000 is the largest HPGR ever put into operation to date. At the time of writing, it has operated for over 12,000 hours. During that time, a total of 51,200,000 tons have been crushed by the HRC™3000 and the HPGR circuit has processed over 33,900,000 tons of ore.

The operational benefits of the flanged roll design, first tested on the pilot plant, were shown to exceed predictions on the HRC™3000. Table 1 shows a comparison of the predictions based on the pilot plant surveys versus the actual operating results at the HRC™3000. The higher-than-predicted machine throughput and increased particle breakage resulted in higher circuit capacity and decreased circuit-specific energy. In addition, the flanges have provided an even pressure distribution across the width of the rolls, which has allowed for installation of harder studs and ultimately has increased the life of the rolls.

<table>
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<th>Operating gap (mm)</th>
<th>Predicted*</th>
<th>Actual**</th>
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<th>Specific throughput (t/s/m³-hr)</th>
<th>Predicted*</th>
<th>Actual**</th>
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<th>Predicted*</th>
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<td>40 – 60</td>
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<tr>
<th>Specific energy (kw-h/mt)</th>
<th>Predicted*</th>
<th>Actual**</th>
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<td></td>
<td>1.5</td>
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* Based on flanged pilot plant tests
** Values based on typical operating pressure of 3.0 N/mm²

Additionally the HRC™3000 provides circuit flexibility compared to a traditional milling circuit. Both the speed and pressure can be changed online to meet the changing needs of the downstream circuit. The pressure can be increased, for example, if the plant is processing a harder ore. The HRC™3000 is capable of running at 30% nominal speed, which effectively reduces its capacity by the same amount. Under normal plant operations, the single HRC™ HPGR feeds two 7.3m (24 ft) ball mills. During times when one of the ball mills is offline, the plant can still operate at reduced capacity by turning down the HRC™ HPGR and feeding only one of the ball mills.
ETSO has supplied 10 Lokotrack® mobile crushing and screening units and four CW series wheeled conveyors to Wai Kee Holdings Ltd’s Lam Tai quarry in Hong Kong. The Lokotrack plants will help Wai Kee to produce uniform-quality aggregates cost-efficiently.

To reach the required capacity at the quarry, the Metso fleet consists of two trains, each including five Lokotrack units: one Lokotrack LT120™ jaw plant, two Lokotrack LT300HP™ cone plants and two Lokotrack ST4.8™ mobile screens; as well as two conveyors. Both trains produce the same end products.

“As a customer, we are interested in the end products: their shape, quantity and cost of production are key parameters for us. To achieve the best results, Metso offered us a complete solution - not just machines. Thanks to the process know-how of Metso’s experts, the right solution to draw uniform-quality aggregates was found,” says Derek Zen, Vice Chairman of Wai Kee Holdings.

The majority of aggregates will be used in Wai Kee’s own concrete batching and asphalt plants for ready-mix.

“With good quality and constant cubicity, less cement additive is needed, resulting in real savings. The mobile solution from Metso was a clear choice for us. As an investment, this fleet costs less than a stationary plant, is quicker to install and easier to relocate. In this project, saving time really means a cost savings for us. We wanted a technology partner that could add value to our operations by delivering high-quality results and help us meet demanding timelines. Metso was able to address our concerns and provided a customized solution for us,” Derek Zen adds.
ETSO AND BETONEX signed a contract for the design, delivery and installation of a complete crushing and screening plant to Betonex's new quarry. The job site is located in El Hamra-Mansourah, in the Bordj Bou Arreridj region in Algeria.

With the Metso technology, the plant will introduce state-of-the-art equipment never before installed in Algeria. Betonex aims to change the face of crushing and screening in Algeria with investments in cutting-edge dust suppression equipment to produce the same level of quality seen in Europe, to comply with the new Algerian legislation standard, and to protect the environment and the health of its employees.

The three-stage plant will have a capacity of 500 tons 0/15mm per hour. Metso’s delivery consists of feeders, conveyors, crushers and screens, a dust suppression system as well as a complete automation system. For the primary stage, Metso will install a Nordberg® C160™ jaw crusher and a PREMIER ES™ horizontal screen, the first ones in Algeria.

ETSO HAS DELIVERED an NW220GPD™ portable crushing and screening plant to Saburkhan Technologies at Akta, Saran city, Kazakhstan. This order is among the first containerized wheel-mounted crushing plants to be transported overseas.

The innovative mobile features of the Metso NW220GPD allow the equipment to be dismantled and packed into standard sea containers for easier, faster and more cost-efficient transportation.

“We were looking for an affordable and user friendly solution that would also allow for efficiencies in our operations. The Metso NW220GPD portable crushing and screening plant was the right solution for us,” says Berkut Mainin, Technical Director, Saburkhan Technologies.
Maximizing equipment availability with Metso’s Life Cycle Services packages. When every minute counts.

That’s how we make the big difference, the Metso Way.

Downtime is costly, but there is a solution. Metso has the knowledge to optimize the life of your wear parts. With our Shutdown and Wear Parts Optimization package, you’ll change wear parts less often, minimize planned downtime and optimize your production. With our proven planning methodologies, custom-designed tools, and specially trained shutdown crews, you’ll be back up and running. Fast. It’s our guarantee to you.

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#TheMetsoWay