

MINING & CONSTRUCTION



MECHANIZED ROCK EXCAVATION WITH ATLAS COPCO - NO. 4 / 2013



Safety first in exploration

Atlas Copco goes green underground

Page 6



First-of-its-kind paver used in Quebec

Page 10



Rig Control System earns design award

Page 15



Atlas Copco



Exploration by nature is a step ahead of the mining industry. Going through a tough economic time is no exception. The past two years have seen some downturns, but Atlas Copco is looking ahead with renewed commitments to our customers.

Perhaps you are familiar with the saying that “crisis” in Chinese pinyin characters is formed from a combination of the symbols for “danger” and “opportunity.” That has been incorrectly used by leaders who want to put a positive spin on difficult times. While the interpretation might be wrong, no one can argue that crises come with a chance to land on your feet and even to bounce back in the right direction!

This is a time when we renew our drive to work under the mission of safety, innovation and interaction. Read in this issue, for instance, how Atlas Copco didn’t take a pause during a slow time for mining. We invested in development of electric vehicles for underground mines that save energy costs, ventilation costs and improve working environments. You will also read about the Atlas Copco Excure EX II Safety Overshot for exploration drilling. It is designed to keep drillers safe and more productive. When a customer tried out this new technology, our specialist spent time on the site.

Atlas Copco is thinking outside of the box, using synergies between our divisions, improving our support to help our customers find solutions that increase their productivity. Whether we label it a crisis or an opportunity—there is no better time than now to make a difference and help our customers to improve their profitability. This is our commitment that will make us First in Mind—First in Choice.

Mario Bureau

Business Line Manager, Rock Reinforcement, Geotechnical Drilling and Exploration



3

3

ON THE COVER:
Atlas Copco Excure EX II Safety Overshot increases speed and safety

6

Leading the green way—Atlas Copco’s electric vehicles save energy costs and keep underground operations moving as fast as they were with diesel

10

Precision paving—Quebec welcomes North America’s first Dynapac SD2550CS paver with full length screed control up to 14 m wide

13

See you at ConExpo-Con/Agg 2014 in Las Vegas. Booth #51923

14

IN BRIEF:
Products and news from Atlas Copco



6



10



13

MINING & CONSTRUCTION CANADA is published by Atlas Copco. The magazine focuses on the company’s knowhow. www.atlascopco.com

Atlas Copco Mining and Rock Excavation Technique Canada

1025 Tristar Drive
Mississauga, ON
L5T 1W5

Phone: +1 (800) 465-6719

Publisher: Anne Marie Grossi
anne.marie.grossi@ca.atlascopco.com

Editor: Scott Ellenbecker, scott@ellcom.us
Ellenbecker Communications
30120 State Highway 264
Round Lake, MN 56167 USA

SUBSCRIPTIONS:
Subscriptions@ellcom.us

FREE REPRODUCTION OF ARTICLES

All product names such as Boomer, Boltec, ROC, PitViper, DRILLCare, SmartRig and Swellex are registered Atlas Copco trademarks. However, all material in this publication, including the product names, may be reproduced or referred to free of charge. For artwork or additional information please contact Atlas Copco.

SAFETY FIRST

Atlas Copco is committed to comply with or exceed all global and local safety rules and regulations for personal safety. Some photographs in this magazine may, however, show circumstances that are beyond our control. All users of Atlas Copco equipment are urged to think safety first and always use proper ear, eye, head and other protection as required to minimize the risk of personal injury.

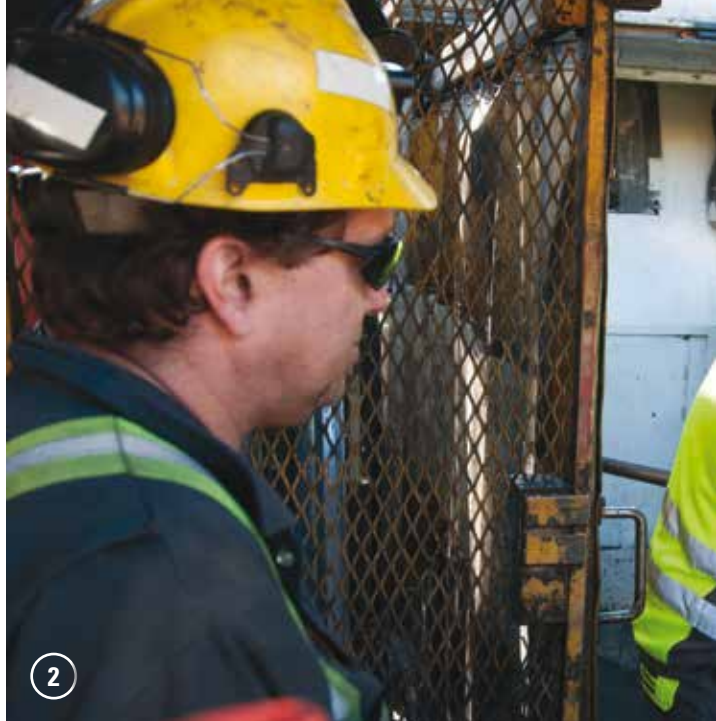


TO ERR IS HUMAN

So Orbit Garant is automating safety with the Atlas Copco Excore EX II Safety Overshot, discovering safer can be faster »



1



2

» **A** quick glance through the Canadian Mineral Exploration Health & Safety Annual Report shows that both the frequency and severity of workday incidents at exploration drilling sites are much lower than in the past. Exploration companies are continually improving their safety education programs, adopting safer workplace procedures and using machinery engineered with safety foremost in its design.

One way to further increase safety is to make it automatic, removing human error as a factor. That's why Orbit Garant Drilling introduced the Atlas Copco Excure system to its Chelmsford, Ontario, operations in 2013, starting with two head assemblies and the Atlas Copco EX II Safety Overshot.

Headquartered in Val-d'Or, Quebec, Orbit Garant is one of the largest Canadian-based drilling companies, providing both underground and surface drilling services in Canada and internationally.

Orbit Garant Drilling already had a reputable safety record, but tried out the EX II Safety Overshot at the Chelmsford project, where the Orbit Garant crew was drilling surface exploration and definition holes. Atlas Copco suggested the EX II and helped train the crew in a test phase with Orbit Garant.

The EX II impressed the company so much that a week after first using one, three more were ordered. That's because the EX II Safety Overshot can be used with any make of head assembly spearhead point Orbit Garant already has in the field.

Luc Parent is a technical application specialist for exploration products, Atlas Copco

Canada. Parent described typical scenarios illustrating how valuable an automated safety overshot and the Excure NO core barrel head assembly are.

One example is the inevitability of a break in an otherwise consistent retrieval routine, he said. "Manual safeties rely on the helper to set them by turning a collar that prevents actuation of the lifting dog releases. And when they miss it, to keep moving they tell themselves, 'Oh, I'll be sure to take care of that the next time.' But it only takes just one time for something bad to happen."

Another scenario involves the driller. Perhaps the driller doesn't realize how close the tube is to the top. He accidentally lets the inner tube overrun the rod and surprises the helper. The helper might catch the tube, preventing it from colliding into the feed frame, but does not get a chance to set the overshot safety. The unprotected lifting dogs can be released if they bump against structures like the feed frame or guard rails.

Mechanized consistency

Other manufacturers have put manually engaged safety devices on their overshots to prevent inadvertent release by the lifting dogs before the tube is on the rack. The Atlas Copco Excure Safety Overshot, however, is automatic. It self-activates each time the lifting dogs engage the spearhead point of a head assembly.

The Excure Safety Overshot doesn't require infallibility from the crew. Instead, it's automatic. The safety device engages on its own, every cycle. The head assembly of the

core barrel cannot be detached from the overshot until the helper has taken the weight off the tube to deliberately release the overshot. It can't release accidentally. And since the lifting dogs are independent of each other, they must be depressed simultaneously to release the spearhead point, ensuring the helper has things firmly under control.

After three months of use the overshot systems were still going strong at the Chelmsford project, in spite of running nonstop two shifts a day, every day.

Foreman Richard Dufresne said, "I give it a 10 on safety. We have had no issues with it. And we have not had to replace anything."

Adapter sleeve

The geology for some of the longer definition holes in the 400-meter and deeper range determined that holes begin with H-sized tooling. The angle of the layers here would tend to deflect NO-sized tools, causing deviation.

Drilling more slowly with a stiffer drill string guaranteed the straightest, most precise holes. The use of Excure tooling in these telescoped holes meant that Orbit Garant could take advantage of the Excure overshot adapter sleeve. The sleeve is worn over the NO-sized overshot while coring with H-sized tools. The sleeve centers the overshot on the spearhead point. Site foreman Dan Masse said this eliminates those times when the extra play causes misalignment and makes the crew fish for the spearhead.

Here Orbit Garant is drilling 200- to 500-meter holes. On this particular day one crew is coring a minus-60-degree general ex-



ploration bore to 270 meters with NO only.

Driller James Castonguay said he appreciated the EX II's automatic safety. "It locks on its own, and it never lets go," he said, emphasizing that there had not been any problems with the overshot since switching to it three months earlier. Castonguay also appreciated the increased speed of the cycle.

Masse said the overshot reduces cycling time anywhere from 30 seconds to a minute. First, the driller doesn't have to pause the retrieval process while the helper sets the safety. Second, once the weight is off the inner tube, the helper doesn't have a safety to unlock. He simply depresses the lifting dog releases and it unlatches. And finally, Masse said, the Excore overshot stays clean. "Drilling with recycled water as we are at this site, a safety sleeve begins to grit up. That can be frustrating for the helper because he has to wrestle with it, and then he has to take time to clean it."

Castonguay described the first layers near the surface as "junk the first 30 meters or so." From previous cores in the area he knew that once he was through this overlying hodgepodge, he would have better progress. So he was grateful for anything that helped him and his helper "get through the surface junk quicker."

About 10 months after introducing them to the site, Masse said four of the rigs were now running with the Atlas Copco Excore EX II Safety Overshots without a single injury. ☉

3

1. Atlas Copco introduced Excore wireline tools to the Chelmsford project beginning with an Excore EX II Safety Overshot and two heads, one an NO compact like this one. Designed for use across the full array of mineral exploration conditions, the compact descends through dense drilling fluids quicker and contributes toward faster cycles in pump-in operations as well.

2. Luc Parent, specialist in exploration tools for Atlas Copco Canada, checks ease of manual release of the Excore EX II overshot. Orbit Garant diamond driller James Castonguay (left) said he particularly ap-

4

preciated the overshot's automatic safety: "It locks on its own, and it never lets go," he said, emphasizing that there had not been a single premature release. It also increases the speed of the cycle, since it removes a manual step.

3. Orbit Garant foreman Richard Dufresne.

4. The Excore EX II Safety Overshot will not prematurely release the inner tube. Only Orbit Garant Drilling helper Jonathan Desrochers can release it, when he has it under his control at the rack. He pauses here to log the core sample.

SAFETY SOLUTION

The Atlas Copco solution to increasing diamond driller safety includes design features of its Excore Safety Overshot. The Safety Overshot removes the need for human interaction to set the safety. Instead, the safety mechanism engages automatically.

This means that the crew cannot forget to engage the safety mechanism. It also means they do not need to stop the process to retrieve the core.

The EX II Safety Overshot is available from Atlas Copco for use in both surface or underground

drilling and is compatible with other core barrel systems.

It features easy manual release of the independent lifting dogs, stamped certification of parts, increased jar staff strength, an improved cable swivel assembly and a secondary locking mechanism.

The Excore Safety Overshot is just one of the premium line of in-the-hole tools that comprise the Excore system, which includes head assembly, drill rods and drill bits.



Leading the **green** way

Atlas Copco's electric vehicles save energy costs and keep underground operations moving as fast as they were with diesel





ELECTRIC MINETRUCK

Energy costs can represent as much as 30 percent of a mine's total running costs, whether it is costly diesel fuel for underground vehicles or power to run large ventilation systems. The future is looking greener with the availability of electric powered LHDs and mine trucks, slashing costs and improving the environment both below and above ground.

Underground miners depend on clean air. Emissions from diesel-powered equipment have to be constantly evacuated by ventilation systems that also require a significant amount of energy themselves. By replacing diesel-powered equipment with electric, mines can realize huge potential savings while keeping workers healthier and happier.

Atlas Copco is blazing this green path with the world's first full family of electric-powered underground loaders and trucks. The Green Line includes the Electric Minetruck EMT35 and Minetruck EMT50, with capacities of 35 and 50 tonnes, respectively. The Electric Scooptram EST2D, EST3.5, EST1030 and EST14 loaders have capacities from 3 to 14 tonnes and share components with their diesel counterparts to ensure part and support availability.

According to Underground Rock Excavation division president David Shellhammer, The Green Line represents a major step toward a significantly better environment for all underground miners. Not only do the new line's models offer energy savings, but they create less heat and noise than diesel vehicles for a better working environment.

"At present, the underground mining industry is facing numerous challenges regarding energy efficiency, carbon emissions and environmental footprints," he explained.

"We are the only supplier of underground electric trucks in the world and together with our range of electric loaders we have compiled a family of green alternatives that will change the future of underground mining."

Shellhammer said field tests, as well as products in operation in Canada, the USA, China and Sweden, conclusively prove that the use of electricity instead of diesel to power loading and hauling equipment substantially increases productivity and lowers overall running costs.

The low level of emissions in the mine reduces the energy cost for ventilation by up to 90 percent while still maintaining air quality standards.

Lori-Anne Fleming, business line manager of Underground Mining Equipment in Canada said: "In Canada we see more and more customers considering electric-powered vehicles. Many of the new mines are located in our far north, where temperatures can regularly reach minus 30 degrees Celsius and colder. Not only is it expensive to add additional ventilation to cope with diesel exhaust, but all that air also has to be heated to above freezing. Basically, they have to pay twice for every extra cubic meter of air required. Electric vehicles really become cost effective as well as provide a smaller carbon footprint."

In addition to cost savings and improved working environment, another major advantage of the electric Minetruck is the impressive speed on ramps. Fully loaded on a 15 percent grade, they are twice as fast as any diesel-powered equivalent, so fewer trucks can transport the same volume of material. This translates into an opportunity for significant productivity gains, which Atlas Copco estimates to be at least 20 percent. »



» Trucking with trolleys

The Electric Minetruck underground truck is powered up and down the ramp by an overhead electric trolley rail, not unlike the cables used for traditional city trolley buses or trams. Where there is no access to an overhead trolley rail, for example at the loading and dumping station, the truck disengages itself from the trolley and automatically activates a small, onboard diesel engine.

With an output of just 80 kW, the Electric Minetruck uses only 10 percent of the fuel used by a large diesel engine, but it is still powerful enough to move the truck into position for loading or dumping.

The Electric Minetruck's smart design actually regenerates electric power as empty trucks travel down the ramp. The truck's high efficiency electric motors drive the axles directly, minimizing transmission losses together with a regenerative braking system. Essentially, about 30 percent of the energy that is consumed by fully loaded trucks driving up the ramp is regenerated by the empty trucks driving down.

Greater depth, greater benefits

The Electric Minetruck is ideally suited for deep mines with steep ramps, multiple ore



ELECTRIC SCOOPTRAM

bodies and production operations located below the bottom of the main shaft, a point that Erik Svedlund sees as a significant economic factor.

Svedlund, product manager of electric vehicles, said: "Mines are continuously looking for new ore bodies, and this often means that they have to go deeper. When that happens, they have to decide how to solve their haulage needs. They can either choose to extend the main shaft, which is a big undertaking and an enormous expense for any mine, or they can decide to extend the ramp and prepare it for electric trucks. The latter is much less costly."

The deeper the mine, the more savings can be realized. This is mainly due to ventilation costs, which increase exponentially with depth. In fact, only slight increases in depth result in much greater energy consumption. For example, Svedlund calculates that if a mine 1,000 meters deep decides to increase its depth by only 100 meters to 1,100 meters, it will require a 10 percent increase in ventilation but a 33 percent increase in energy. In addition, the mine may also need to add a cooling system or increase the current system's capacity to what it may have.

A typical case in point is a mine in the Sudbury area. The mine decided to expand



below its 1,000 meter main level and is now trucking ore from 1,700 meters using Atlas Copco electric trucks. The mine has avoided the huge expense of installing a new shaft and has saved the energy costs of extending its ventilation system to cope with diesel-powered vehicles.

The trucks carry a 50-tonne payload and are able to tram fully loaded at speeds of up to 18 kilometers per hour up a 16 percent grade, compared to 8 or 9 kilometers per hour for a conventional diesel truck. The trucks receive power from a series of overhead trolley lines extending 8 kilometers, serving several levels of the mine.

The Electric Scooptram is seeing similar success. Atlas Copco estimates that these 100 percent emission-free vehicles reduce energy consumption by about 70 percent compared to diesel-powered loaders and can also run on renewable energy such as wind or hydro power. Maintenance is also reduced over the Scooptram's diesel counterparts.

Portable generator

Transporting the loaders to wherever they need to be in the mine is no problem thanks to a unique trailer-mounted generator system. The generator, designed for the harsh underground environment, simply hooks up behind the loader and provides all the power the loader needs in order to tram to different load/dump sites or the workshop. It provides this power for as long as it is necessary.

Once a loader has reached its destination, the generator can be unhooked, parked or towed away. A single generator is nor-


mally enough to support a fleet of loaders and can also "double up" as an emergency power source for the mine.

Cable management

The most innovative part of the LHD package is the Scooptram's unique cable reel management system. Cable is expensive and is exposed to high wear and tear in underground mines on conventional electric loaders. The Green Line loaders solve this problem with a patented Low Tension System that makes it possible to keep a 300- to 400-meter cable constantly under control—not too tight, which would increase the risk of damage on walls and corners or restrict the mobility of the vehicle, and not too slack, so that it will avoid the risk being run over or becoming snagged beneath the vehicle.

As the loader moves away from the electric power point, the cable extends at a controlled speed. As the loader backs up, it is automatically reeled back in again onto the drum. This technology means that the tension is minimized at all times, which extends the life of the cable, and also keeps it out of the way as the driver maneuvers the vehicle.

In introducing The Green Line, Atlas Copco emphasizes that the advantages offered by the product range go beyond saving money or increasing efficiency.

Svedlund said: "To reduce energy consumption and energy costs is naturally a very important issue for all of our customers, but it is also important for the planet. Even when powered with electricity made by coal, electric vehicles will reduce CO₂ emissions by about 25 percent compared with the equivalent vehicle powered by diesel." 



Precision paving

Quebec welcomes North America's first Dynapac SD2550CS paver with full length screed control up to 14 m wide



The rigidity of the screed's extensions ensures a smooth, dense and uniform mat all along the width of the road even up to 14 meters. Operators had no trouble transitioning from the Topcon system they were familiar with to the ski-less Moba leveling system.

North America's first Atlas Copco Dynapac SD2550CS has been working on highways in Quebec since November 2012. The R300TVE screed's extensions are like no others, giving it the ability to lay a three-lane road without an offset second machine and its crew following. Up to 14-meter-wide paving means up to three lanes without any longitudinal joints.

Normand Cantin, Atlas Copco sales manager for Quebec and Eastern Canada, said the biggest selling point is the control that contractors are getting over the full width of the mat. "They are consistently getting good results for smoothness."

Continuous, seamless paving

As measured by the International Roughness Index, smoothness for one recent project barely noted any measurable dips. Cantin pointed out that any dips to be found at all could be attributed to stopping and restarting, which was unavoidable on this project due to intermittent road surface preparations.

The job was on Highway 73's north- and south-bound lanes near St. Joseph de Beauce. The SD2550CS was to lay 27,000 tonnes of bitumen-polymer modified ESG-10-3 in a 10-yard-wide layer at 65 mm thick. Pneumatic tire and steel drum rollers would follow up to compact it to 50 mm.

The SD2550CS uses an electric-heated, vibrating R300TVE screed. The "TVE" designation means the screed has integral pre-compaction tamper bars, screed vibration and electrical heating. The screed heating system is powered by an onboard 60 kW generator. Dump trucks filled the paver's hopper via a transfer unit and fed the screed 16 to 18 tonnes of asphalt mix to start the paving run.

Once started, uninterrupted progress continued throughout a run by use of a material transfer vehicle (MTV), which backed up the SD2550CS paver's 15-tonne hopper with its own 25-tonne hopper. This ensured smooth exchanges as each of 22 tri-axle dump trucks traded places in front of the MTV. As soon as a truck was empty, it returned to one of the two asphalt plants to keep loads coming. Plants were within 10 kilometers of the project. Delivery was steady.

Helpful hopper

Smooth paving begins with smooth material handling. The SD2550CS paver has two independently controlled conveyor chains with dual feeder bars. Two 500-millimeter diameter center-mounted augers transfer asphalt for uniform distribution along the screed and extensions. The two auger motors are adjustable in height up to 300 millimeters.

For this job the 3-meter-wide basic screed was fitted left and right with one 1-meter-wide fixed extension each, and then one more fixed extension of 1.375 meters.

The 1-meter hydraulic extensions allow width adjustments where lanes come together without having to stop to unbolt or rebolt the extensions. Total width of the screed closed was 7.5 meters and total width open was 9.5 meters. »



» Cantin said he knows of other brands that have tried to extend screeds 10 meters or more, but their extensions couldn't support the width.

He noted that the screed for the SD2550CS also has tamper bars, which run up to 1,100 vibrations per minute. The tamper bars pre-compact the material for the vibrating screed running up to 2,300 vpm for denser compaction, reducing the work of the rollers in high density jobs. Total weight of the screed was 8,000 kilograms.

On-site technician

Atlas Copco technician Marco Paris was both at the shop during configuration of the SD2550CS and on site for startup. Paris said, "Other manufacturers don't have the rigidity the Dynapac screed does. At 14 meters, theirs would be blowing in the wind out there. It's a good design."

The contractor on this job also wanted a fume extractor to give the operator relief from fumes and heat. Paris said the configurations and add-ons took about two-and-a-half weeks to install. Once at the site, he served as trainer and consultant for the two operators and four screed men.

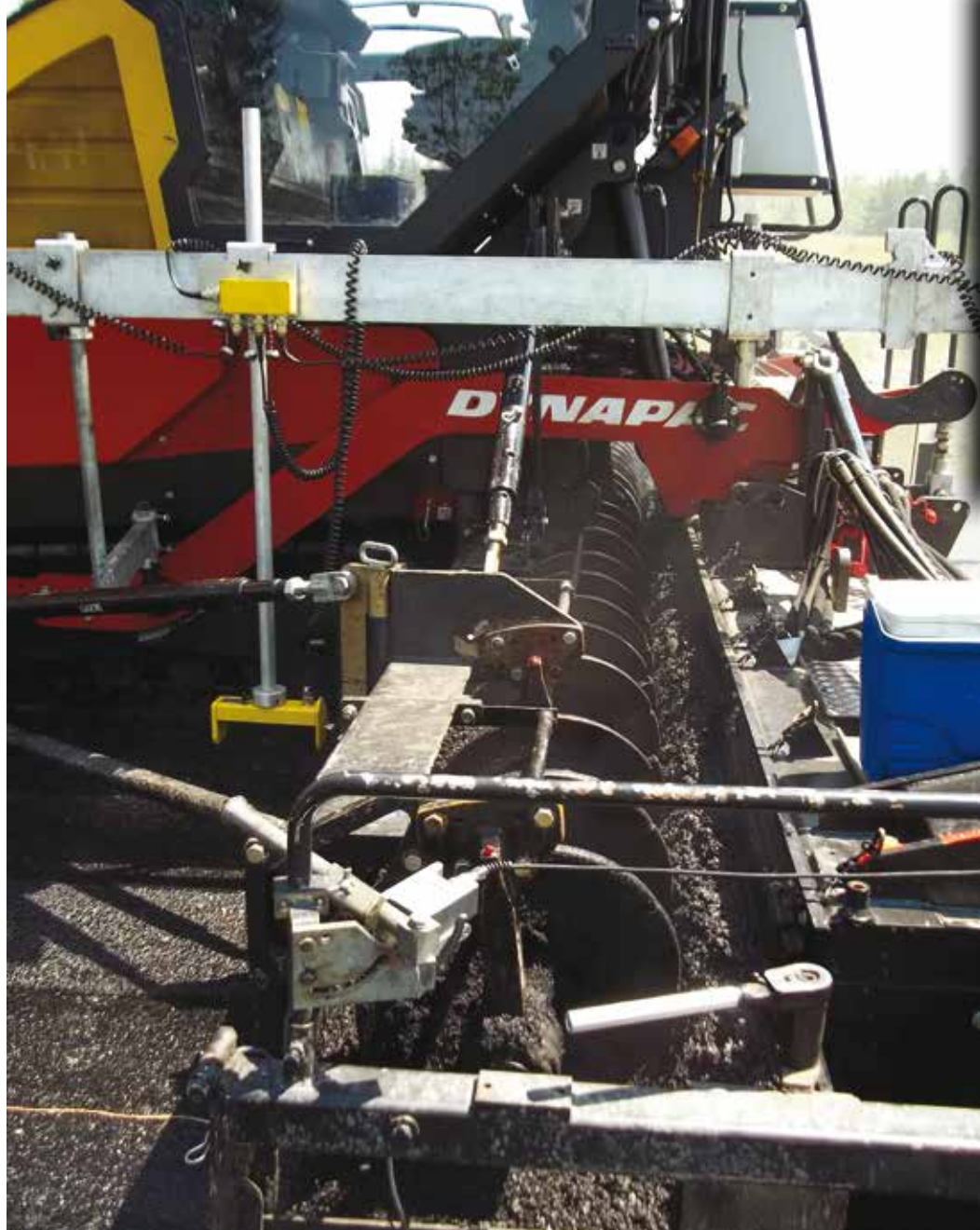
Paris said training mostly consisted of transitioning the crew members from operation of their 12-year-old Dynapac F30C to the latest technology of the super-wide paver. "The SD2550CS was similar to their other paver except for the electronic controls and the Moba-Matic leveling system. They were used to Topcon. But it should be noted just how easy it was to learn." Paris said after only a couple days, they were confident on the unit. He left them to their work, remaining on call if they should need him.

Performance

The paver's 8.8-meter working width was set at 5 meters left and 3.875 meters right. Crown was 2 percent. This covered the left shoulder, the passing lane and the right lane. A smaller paver came behind to put in the right shoulder at a 3 percent grade.

Paris was impressed with the thermograph readings from the back of the screed that monitored how even the temperature was. There can be no more than a 5 degree Celsius variance. "Inspectors looked at the auger bearing and the drive box, the places where you might normally expect to see a drop. But the thermograph camera showed no streaking issues whatsoever."

Asphalt in the hopper was 140 degrees Celsius. Behind the screed and all along its width temperatures uniformly averaged between 135 to 137 degrees.



The 500 millimeter (19.68-inch) diameter augers distribute the mix evenly across the full width of the screed.

The SD2550CS tracked paver's 193 kW (260 hp) Cummins QSB 6.7, C 260 engine can comfortably support paving at a rate of 1,100 tonnes an hour at paving speeds of up to 9.5 meters per hour. Here the crew was moving along at 4.5 meters a minute. Progress was about 3,000 tonnes laid by shift's end. Cantin said running without interruption the paver would easily have laid about 6,800 tonnes in a 10-hour shift.

Quality with cost savings

With its ability to pave up to 14 meters wide in one pass, Cantin said the SD2550CS excels at highway work. Its well-designed extensions ensure that it lays down a smooth,

dense, high quality mat for the full width. But it's also a money-saver. For comparison, had this job been done with two smaller pavers running staggered, labor and maintenance costs would have been greater. Cantin factored in having just one three-man crew compared to six people required to run two pavers at once. Each paver would also have had an MTV operated by two more people. Basically, he said, a contractor doubles labor costs for the pavers and adds two machines to the job.

Quebec has given the Atlas Copco SD2550CS a warm reception, but it's the SD2550CS that is laying down the welcome mat. ☺

COMMITTED TO SUSTAINABLE PRODUCTIVITY

Meet Atlas Copco at booth #51923. See how we can work together for your business.
March 4–8 in Las Vegas, USA



QUARRY

- blasting • breaking
- crushing • screening
- line drilling • wire sawing
- light towers • generators
- compressors



SITE PREP

- cluster drills • casing advancement systems • geotechnical drilling rigs
- core drilling tools • hydraulic breakers and cutters • bucket crushers • grapples • pulverizers
- concrete equipment • handheld tools • grout pumps • light towers
- generators • compressors
- compaction equipment



ROAD CONSTRUCTION

- pavers • rollers • soil compactors • milling machines
- tampers • portable compressors • generators
- solar and diesel light towers



Atlas Copco Compressors Canada maximizes customer service and minimizes airfreight through Macs²

Atlas Copco announces that Macs² program has been selected as a finalist for the Supply Chain Award Project of the Year 2013. The annual contest is organized by PICS, a Belgian supply chain society and associate of the American APICS organization, and VIB, a Belgian Organization for Sourcing and Logistic management, both well known for their trainings and certifications in Supply Chain Management. Projects are validated on their contribution to the total supply chain process, degree of innovation, change management and of course measurable and proven results.

Within the Macs² concept, Atlas Copco's customer centers in overseas countries are provided with an inventory management and reporting tool that is centrally governed by the Logistic Competence Centre in Antwerp, Belgium. The local warehouses keep stock that is replenished from the central hub with sea freight; only items that are not sold often within the domestic market are flown in from the distribution center. The inventory management tool is part of a central web-based application that optimizes stock levels and generates daily stock refills, taking the most optimal transport mode into consideration. This has led to a decrease of total logistic cost, healthier stocks, and an increase in customer service and efficient administrative and warehousing procedures.

Through this innovative program, which has been tested and piloted in Atlas Copco Compressors Canada since early 2011, Atlas Copco aims to increase spare parts availability for customers in a sustainable way. This means taking into consideration overall logistic costs, Atlas Copco's impact on the environment, and the empowerment of local organizations to establish excellent logistic processes throughout the supply chain.

Atlas Copco MEYCO expands underground product range

Atlas Copco now offers mobile equipment for applying sprayed concrete (shotcreting) in underground mining and tunneling operations.

The Atlas Copco MEYCO lines include carrier-mounted concrete spraying equipment, concrete spraying arms and accelerator dosing systems.

"This is a good strategic fit for Atlas Copco as it broadens the offering for our existing customers," said Bob Fassl, business area president for Atlas Copco Mining and Rock Excavation Technique. "Shotcreting is a growth segment

thanks to high safety requirements in tunneling, and we look forward to introducing these products through our global sales channels, both to mining and underground civil construction customers."



Atlas Copco introduces the LPD-LD post driver

Atlas Copco has completed its post driver range with the addition of its lightweight LPD-LD. The fifth model in a family of drivers, the LPD-LD weighs just 39 pounds. Atlas Copco now offers a model precisely matched to any handheld or crane-lifted driving job from 3/8-inch to 6-inch poles, steel rods or profiles.

The LPD-LD design was evolved from the same impact mechanism used on the LH 11 pick hammer. With its high frequency and heavy hitting power, the LPD-LD drives ground rods, anchors, tent spikes and fences in almost any terrain.

The new post driver accepts rods or posts from less than half an inch to 2.5 inches. Adaptors can be replaced by sliding out the pins and adaptor, replacing the adaptor with a standard bushing covering 0.5- to 1-inch rods or with driver heads from 2 to 2.5 inches. Use of a standard 5/8-inch or 1-inch bushing allows the LPD-LD post driver to be used for driving ground rods.



New design features a PTFE guide bushing to reduce the risk of damage on the zinc or copper surface of the ground rods. The anvil has been engineered to directly strike the top of the rod or pole when a bushing adaptor is fitted. When a larger drive adaptor is being used, the anvil will strike the actual adaptor.

Operating with a maximum fluid power of 5 gallons per minute, the LPD-LD's high-frequency driving assures less damage to the top of the rod and assists in a smooth application overall.

Atlas Copco receives international design award for new Rig Control System

Atlas Copco was included among the winners of the International Design Excellence Award (IDEA) 2013 competition. The new Atlas Copco Rig Control System, RCS 5, and its interface design earned a bronze award in the digital design category. Atlas Copco is the first company in the mining industry to receive a design award for a control system. Issued by the Industrial Designers Society of America (IDSA), the IDEA competition was established in 1980 and ranks among the most preeminent international design competitions.



RCS 5 is a hardware and software interface solution designed for drill rigs. As the primary connection between the rig and the operator, the RCS 5 assists in monitoring and controlling the rig and enables hands-on or remote control operation. The system also logs events, errors or status information for future analysis.

The interface is designed to accommodate different scenarios such as ambidextrousness or color blindness of the operator and variable light conditions. It fulfills all industry and usability standards, and by incorporating

self-explanatory symbols the RCS 5 can be used globally.

Operators navigate using a 15-inch touch screen display. Drilling is controlled by two multifunctional joysticks. Primary functions for drilling are grouped together on the top of the controller. The joysticks allow the operator to focus on drilling instead of searching for functions on the keyboard or display.

RCS 5 is currently available on Atlas Copco's E-series of large development drill rigs.



ATLAS COPCO COMPRESSORS CANADA

HEAD OFFICE:

30 Montrose
Dollard-des-Ormeaux, QC H9B 3J9
Tel: 514-421-4121 | Fax: 514-421-1950

| | | |
|----|-------------|--------------|
| BC | Delta | 604-940-0380 |
| AB | Calgary | 403-259-6069 |
| AB | Edmonton | 780-483-7214 |
| ON | Kitchener | 519-748-2266 |
| ON | Mississauga | 905-846-9369 |

ATLAS COPCO MINING AND ROCK EXCAVATION TECHNIQUE CANADA

HEAD OFFICE:

1025 Tristar Drive
Mississauga, ON L5T 1W5
Tel: 289-562-0100

| | | |
|-----|-------------------|--------------|
| BC | Langley | 604-607-0439 |
| BC | Prince George | 250-562-8786 |
| SK | Creighton | 306-688-3090 |
| SK | Saskatoon | 306-933-2900 |
| MB | Thompson | 204-778-8005 |
| MB | Winnipeg | 204-633-4888 |
| ON | Balmertown | 807-735-1104 |
| ON | Lively | 705-673-6711 |
| ON | Marathon | 807-229-9910 |
| ON | Timmins | 705-268-5595 |
| QC | Cadillac | 819-759-3601 |
| QC | Saint Apollinaire | 418-881-0101 |
| QC | Val D'Or | 819-825-6121 |
| NF | Pasadena | 709-686-2480 |
| NF | Wabush | 709-288-0216 |
| NWT | Yellowknife | 867-920-7033 |

ATLAS COPCO CONSTRUCTION EQUIPMENT CANADA

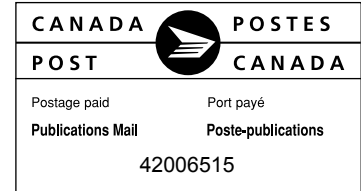
HEAD OFFICE:

1025 Tristar Drive
Mississauga, ON L5T 1W5
Tel: 1-800-582-6726

For more information, please visit www.atlascopco.ca
accmc@ca.atlascopco.com 800-465-6719

MINING & CONSTRUCTION

1025 Tristar Drive
Mississauga, ON
L5T 1W5



Committed to Sustainable Productivity



Atlas Copco brings innovation and efficiency to your job site wherever it might be. We are excited to showcase our expertly engineered equipment and superior service at the ConExpo Con/Agg show in March 2014. We'll see you there! Booth # 51923

800-465-6719
www.atlascopco.ca



Sustainable Productivity

Atlas Copco