



MINING & CONSTRUCTION

MECHANIZED ROCK EXCAVATION WITH ATLAS COPCO - NO. 3/ 2011



Equipment Choices: Smaller holes and patterns help control the blast

Underground security team

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Atlas Copco recognized in business world

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EDITORIAL



In order to improve communication with our customers, all 14 Atlas Copco Construction & Mining stores in the United States have launched their own websites. The web sites provide regional news and a product focus tailored to the localized needs of our customers.

For example, the local news page for the Denver store reported an event at the Colorado School of Mines featuring the new “Unigrout Smart A” grout plant. In the case of the Ludlow store, their Sales & Service page alerts customers that they have recently added Dynapac rollers, among other equipment, to their product portfolio.

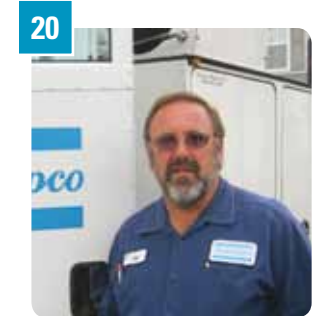
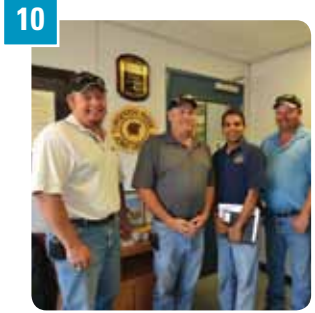
We’ll update these sites every month to make sure that they stay fresh and interesting. The URL for each store is www.atlascopco.us, followed by: /atlanta; /baltimore; /clarkssummit; /denver; /elko; /knoxville; /ludlow; /miami; /milwaukee; /nashville; /sacramento; /tucson; /vista; /phoenix.

These websites illustrate a fundamental benefit of teaming with Atlas Copco, which is, local expertise backed by global support from a manufacturing icon in the mining and construction industry. Supporting your sustainable productivity is our brand promise and we are continually working to ensure the promise comes true.

Dave Pietrzykowski
Vice President
CMT Store Operations

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Good neighbors

*Equipment Choices: Smaller holes
and patterns help control the blast*





Mining has evolved in recent years, taking steps forward in the way that the industry is considerate of the environment and the communities where they operate. Technology plays a major role in that evolution. Osisko Mine at Malartic is developing a new way of doing business. One manager said, “We are building the Osisko culture,” but they are doing many things that will be industry changers, too.

Much of the change is driven by mine ownership and management to offer a better workplace and better community relations.

Manufacturers are changing, too, by engineering products with more operator comfort, fuel economy, ease of maintenance and more cleanly designed machines. And for those drills working close to communities, smaller bore sizes and sound retention are just two changes for the better.

In 2005 Osisko Mining Corporation purchased the Canadian Malartic mine in Northern Quebec and started major exploration drilling. Official production started in May 2011 on the property, which is 40 kilometers west of Val d’Or in the Abitibi Gold Belt.

The placement of the new working mine is unique because it sits within the community of Malartic. So much so that during exploration, core rigs were set up in people’s yards. Almost 200 homes needed to be purchased or moved before push-back

could begin. Osisko Director of Communications H el ene Thibault recalls knocking on people’s doors to let them know when they could expect drilling in their lawns.

Today, less than six months after start-up, the mine is producing 150,000 tons of rock daily with projections to increase that number to 250,000 tons at the beginning of 2012. Moving all that rock created noise, so an earth berm was built to separate the town from the mine. Starting out, sound and dust were a problem, but the berm helped solve that.

Mine Manager Fran ois Vezina said, “Most of the population likes what we are doing. It’s just the new way of doing business.” Of the mine’s 500 employees, 45 percent of them come from the community.

Thibault said, “The employees are our ambassadors to the community. They take the message home with them daily so the community knows what we are doing.”

“A day wouldn't be complete without challenges. We have a couple a day. Easy wouldn't be any fun, and we are having a lot of fun.”

Fran ois Vezina
Mine Manager

A day filled with challenges

The mine has made a number of concessions and adaptations to mining practices to ensure the mining method works for the community. One of the biggest is the size of drilling equipment used.

“We are miners. We like to blow things up,” Vezina said with a smile. This is Vezina’s fourth mine start-up and he knows the many drill options available. He would have liked to have fewer drills with bigger holes, but that was just not practical.

They chose the newest Atlas Copco Pit Viper model available, the PV-235. Producing an 8.5-inch hole, the blast pattern has smaller holes closer together to ensure less impact on the environment. “The idea is to have no dust or vibration outside the mine,” said Vezina.

The mine has purchased 300 blast mats and expects to purchase 100 more to use when blasting close to the berm. “The idea is to plan perfectly and monitor each blast,” said Vezina.

He also likes the automation and precision advantages that come with the RCS system on the rig. “This is intelligent

(on the cover) from left, Sebastien Maltais and Sylvain Levesque are the Atlas Copco service technicians responsible for all PV-235 service work.

(previous page) The town of Malartic is so close to the mine you can see the tops of building and church steeple behind the earth berm in the distance.

(left) Integrity of the hole at surface is maintained with a cardboard tube. Here you can see the hole is 11.7 m.



Driller Mathew Leeker said it took him just one to two weeks to catch on with the operator friendly drilling system. Previously he was a diamond driller. Like all drillers on the PV-235, Leeker very much enjoys the cab's comfort.

equipment. You just push a button and let it drill,” Vezina added. The auto-drilling system starts off slower when collaring the hole, which also reduces ambient noise.

Even the technicians prefer the service advantages with the PV-235. Maintenance Superintendent Bob Hamilton said his guys are “not sweaty and oily at the end of the day.”

Planning each day starts with the weather forecast, especially wind direction. The mine cannot have dust carried into town, yet the crusher needs to be fed. “Here we need to plan farther out because we could have unfavorable wind five days in a row,” Vezina said.

They also have to plan for sound because of the wind. Wind direction affects the sound attenuation and can transport sound farther than expected, but the PV-235 size advantages reduce this problem. “People find our blast boring to watch because you don’t see a lot of rock flying around and don’t feel the ground vibrating too much. But this is what we want to achieve,” said Vezina.

It appears Vezina likes starting new mines because of the challenges. “A day wouldn’t be complete without challenges. We have a couple a day. Easy wouldn’t be any fun, and we are having a lot of fun.”

In the first quarter of 2011 the mine blasted 150,000 tons per day. Osisko operates with a 2:1 waste to ore ratio.

The mine is expected to produce 250,000 ounces of gold in 2011 and over 700,000 in 2012.

The pit is projected to be 2 miles by .6 miles with a 1,312-foot depth. To assist in controlling the blast, the pattern is 20 feet by 20 feet by 32 feet. The goal is to create the smallest rock possible.

Rebirth of a town

The opening of the Malartic mine has been a boon to the small community. Although the town is on the main road leading to Montreal, it was just a town to drive by. With the investment from the mine of new neighborhoods and a \$16 million elementary school construction, the town of 3,000 is now growing again.

Thibault said, “We consider ourselves guests, and we want to leave the town better off. Originally the budget was \$15 million for the school, but because the architect said \$16 million would give us so much more, we spent \$16 million. These are our future miners. We want to give the kids the best quality of life and education.”

The mine also committed \$50,000 yearly to the school as an overall improvement

fund for the next generation. Thibault said, “We don’t think of this as buying the community’s appreciation, but we want the community to win from the gold found here, too.”

Safety was also a long-term consideration. Once a sinking neighborhood because of abandoned underground workings, homes were moved to accommodate the new mine workings. The homes are now in a brand new, family-friendly neighborhood close to the school with new parks.

It was going to cost the city \$29 million to fix the old infrastructure, but the mine’s new development eliminated that expense.

At one time 1,200 construction workers from all over Quebec were working in Malartic.

Many businesses see the opportunity here, too. Since the mine’s rebirth, a new theatre has opened, an IGA grocery store was built, a Subway restaurant has opened and a McDonald’s will open soon.

The old abandoned tailings pond was becoming an issue, too. To remedy the situation, Osisko is investing \$12 million to cap the old pond and install a new environmentally friendly drainage system.

Hamilton said this is a win-win for the mine and community. “This is a management issue driven from the top down. It’s »



The service trucks in Canada are all-season friendly by giving the technician a heated place to work in the rear compartment.

» Osisko's philosophy to respect the people and the environment."

To understand the community's level of awareness and satisfaction with the mine, a survey is conducted every two years to look at the overall situation. Thibault said the recent survey found that 85 percent of the community was happy with the mine, 10 percent were not affected and only 5 percent didn't like it. "I don't think we can ever make everyone happy, but we will continue to respond to their needs and communicate with them," said Thibault.

Equipment decision

When looking at equipment there was one focus in mind: Choose technology for the future. "We knew we were taking a chance with new-model equipment, but we are in this for the long term and going with Atlas Copco's experience was important to us," said Vezina.

He added, "We wanted the right structure. We needed the best rigs for where we want to be tomorrow and the training to get us there. Operating is one thing, operating efficiently and safely is another."

He said this was their equipment methodology across the board. "We have 21 of the newest 240-ton trucks on the market—the F series from Cat," said Hamilton.

Mine life and exploration

In total there are nine drills working onsite, with many exploration drills doing reverse-circulation and core drilling. It is expected the mine has a 16-year life, but the exploration is continuing and there is hope that it will go further.

Adding to the PV-235 rigs already working, the mine has just purchased three additional rigs. "We need to invest because gold prices are high."

Recently Vezina signed a three-year service contract for Atlas Copco to maintain the drills. "Those Atlas Copco service techs really do a good job and know what they are doing."

The commitment from Osisko is not just for 16 years, though. "This is a partnership," said Vezina. "I think we need to have a partnership philosophy with suppliers and the community. We learn from our partners. I'm proud of what we are doing here. And we are going to have a lot of fun." ○

BIG BROTHERS, MOVE OVER

The PV-235 combines the best that Pit Vipers offer

The Atlas Copco PV-235 drilling rig is the smallest of the Pit Viper line, offering the most compact footprint of the powerful mid-sized blasthole rigs. The newest of the Pit Vipers, this little brother benefits from the successes of each of its predecessor rigs to become a user-friendly high production powerhouse. But the hydraulic tophead-drive rig permits multi-pass boring of 6- to 10-inch holes to depths of 210 feet with the 40-foot tower (30- and 35-foot tower options are also available).

Power at the fingertips

Offered in both diesel and electric-powered models, the PV-235 diesel rigs can be ordered with Cummins or Caterpillar engines ranging from 540 to 800 hp. These are matched to a variety of low and high pressure compressors. Single-stage, asymmetrical, oil-flooded Atlas Copco or Ingersoll-Rand rotary screw models are available for lower pressure rotary drilling. Two-stage units are available for high pressure for DTH drilling. An Electronic Air Regulation System (EARS) allows low load starting.

The PV-235's controls are electric-over-hydraulic. Delivered with Atlas Copco's Computerized Rig System (RCS), not only can the PV-235 be fitted with wireless-remote tramming, auto-leveling, auto-drilling, measure-while-drilling logging technology and GPS navigation, but it can also share information with other RCS equipment on the site. This means operations can be more fully integrated—even completely integrated, depending on the RCS capability of other equipment—to obtain the benefits of computer optimization.

Operator friendly

Joystick controls are located on the armrests for fingertip control at all times. Options include a camera monitoring system and a floor window for viewing cuttings under the dust flap.

The cantilevered pod-type FOPS designed PV-235 cab not only allows the operator to always face the best direction for visibility during drilling and tramming, but Atlas Copco worked with the cab supplier to achieve further noise reduction. It now features an integrated air conditioning and heating system with thermal insulation for a sound abatement less than 80 dB. And the hydraulically powered compressor, evaporator and condenser are mounted under the cab, not on the side. An optional power system enclosure further reduces noise while also providing cold weather protection. A full-length door in the enclosure ensures unrestricted service access.

Additional noise reduction

Several engineering and design changes contribute to noise reduction, which benefits not only the operator but the working environment in general, making the PV-235 quieter than other rigs. For instance, the cooling system features oversized radiators. They allow the rig to operate in ambient temperatures of up to 125°F (52°C), and their variable-speed control reduces fuel consumption and improves cold weather performance. However, their lower fan speed also lowers noise.

Even the PV-235's feed system is quieter, due primarily to use of a cable design rather than chain.

Serviceability and longevity

The cable feed design demonstrates the same durability and serviceability as the power and air packages of the rig. The cable design resulted in a general weight reduction in the tower and feed system. The automatic cable tensioning system accurately aligns the head, improves cable life, and decreases downtime. The feed cylinders are fine-tuned for optimal high speed feed and retract rates to spend more time drilling, less time tripping. The attention to these details leads to smoother drilling, directly contributing to increased bit life, as well as drill string and feed system longevity.

The screen handling arm of SMD's Boltec prevents personnel from having to work past the secured roof and walls of newly excavated ground during rock bolting.



UNDERGROUND SECURITY TEAM

Mine development company discovers Boltec's speed and dependability

The Small Mine Development (SMD) underground mining company deploys small, efficient teams to its clients' mines. Each team, such as the one currently based at Newmont Mining Corporation's Exodus gold mine near Carlin, Nev., contracts for safe and productive underground mining solutions—including everything from planning, exploration, development and extraction, to shutting down a mine at the end of production. For Exodus, SMD is creating secure access to and from the client's underground

mining operations. They also contribute to production mining at times, serving as an on-site expandable workforce in a pinch.

So far the SMD team at Exodus has drilled, blasted and excavated the ramp for the mine, which declines 11,000 feet, dropping at 12 percent grade more than 1,200 feet in elevation below the site's existing open pit mine. To secure the overhead rock and walls of these operations, SMD uses steel wire screen with Swellex bolts installed by a single Atlas Copco Boltec MC bolter with screen handling arm.

A lot faster

Steve Mathews is SMD's Exodus project manager. Mathews said he discovered one day that it was more efficient to drill 8-foot blastholes in their 16-by-16-foot headings here. "Most people would say it's crazy not to go the full 12 feet, but I noticed doing 8 feet, we're able to muck and bolt a heading in under four hours and get the drill back in there. The faster we can get to drilling, the better."

Taking 8 feet at a time creates a more efficient flow between the drilling and »



While the Boltec is hard at work underground at Newmont's Exodus gold mine, one of SMD's Atlas Copco Boomers waits its turn for preventive care more than a thousand feet above it just outside the maintenance shop.

In front of the rig are SMD's Ramon Beltran, engineer and assistant superintendent; Clark Mansanares, safety superintendent; Danny Anderson, shop superintendent; Steve Mathews, SMD Exodus project manager; Keith Jones, SMD general manager; and Clay Gremel, Atlas Copco area sales manager.

» blasting, and the mucking and bolting phases. This has especially been working well at greater depths in the rock conditions at Exodus, where they have been getting up to three to four rounds a shift. This rhythm improved their advance on many shifts and, although an average doesn't tell the full story, Mathews said their monthly shift average is about 30 feet per day. SMD has created over 27,000 feet of 16-by-16-foot development for the mine.

Learning curve

Mathews said SMD's operators also had to adjust to how much faster the rig is compared to their previous bolters. He grinned, saying, "We have one older operator who learned he doesn't have time to eat lunch between holes. This rig is faster, a lot faster."

On average, he said, the Boltec cycles a Swellex bolt in less than two minutes. Setting as many as 35 bolts an hour is common.

Mathews said when they surprised new-

hire C.J. Urie with the announcement he was to be the new Boltec operator, the promising young operator surprised them back. After one week operating the Boltec on his own, Urie was already averaging three rounds, or 110 to 115 bolts a shift. Mathews said a more experienced operator can get up to 200 bolts a shift but added, "Bolting three rounds a shift is just fine. We'll definitely take that."

Making the switch

SMD acquired its first Atlas Copco Boltec in 2007 for a project at another location. Mathews, who has helped operators at two different mines go through the brand transition, said the Boltec's computerized operation was new to them.

SMD General Manager Keith Jones



The Boltec's operator monitors performance data from a full-color display above the control console.



After only one week as a Boltec operator, C.J. Urie was installing more than 110 Swellex bolts a shift.

said they had been aware of the Boltec and its reputation for performance but candidly admitted their first purchase was because “it was available.” Necessity had created an opportunity to try a Boltec, and the Atlas Copco store and service center in nearby Elko, Nev., provided one promptly.

SMD had no reservations about buying the Boltec, Mathews said, as the company had been interested in the Boltec’s advanced technology. “We like to keep up, having the best equipment possible.”

Automation

Atlas Copco’s Rig Control System (RCS) is an advanced electronics platform that allows a computer to monitor and govern nearly every function of the bolter, providing the operator with feedback on a full-color display panel above the console.

The Boltec’s automated drilling cycle includes electronic sensors that adjust to variations in rock conditions, optimizing rate of penetration and extending tool life.

It properly inserts and expands a Swellex bolt to the prescribed psi. The system includes integrated diagnostics and fault location as well as a USB port to download drill settings and make performance information available for engineers and technicians.

Screen handling

The Boltec unit at Exodus has an optional screen handling arm that makes it unnecessary for personnel to work in an unprotected area of the heading. The operator performs screening and bolting from the unit’s FOPS-approved cab. The screen handling arm grasps a sheet of steel screen, then lifts, positions and holds it in place while the Boltec’s COP 1132 hammer drills the 8-foot hole. The cradle rotates to the injection and bolting indexes to install and tension a Swellex bolt from its 10-bolt carousel. The operator monitors performance on the display for each step. There are versions of the Boltec that can be operated remotely, as well.

From a guy who knows

It’s hard to find a more enthusiastic fan of the Boltec than shop superintendent, Danny Anderson. Mathews laughed as he described Anderson’s passion for the rig, “He believes it’s the best and will debate anyone who thinks otherwise.”

Anderson said he hasn’t had to do much other than typical hose replacement and oil changes. He explained that SMD prefers to spend the two hours it takes to tram the Boltec in and out of the mine for a thorough maintenance and steam-cleaning session than to keep it underground, removing any temptation to just keep it running. Other than regular cleaning and a thorough check once a week, Anderson said, “It’s been running or ready to run 24/7 ever since it got here.”

Mathews said the Boltec’s performance statistics and its ability to win over SMD’s operators have the company looking forward to future Boltec acquisitions as they increase their fleet size for additional projects. ☉

Holding their ground

Swellex conversion at Turquoise Ridge



Clay Gremel, Atlas Copco area sales manager; Rory Upshaw, engineering technician; Arun Rai, senior support engineer and group supervisor; Charles Boyd, Atlas Copco product support sales representative; and Louis Sandbak, senior geotechnical engineer.

Turquoise Ridge gold mine lies about 40 miles northeast of Winnemucca, Nev. The property is 75 percent owned by Barrick Gold Corporation and 25 percent Newmont Mining Corporation but is being operated by Barrick. The mine has a good working relationship with Atlas Copco, and includes Atlas Copco MT2010, MT431B, and MT436B mine trucks in its hauler fleet at this location.

In 2009, Turquoise Ridge became the first underground mine to put Atlas Copco's improved Swellex bolt systems to the test. The ground support team was searching for better techniques to deal with difficult ground conditions. They set out to evaluate just about every major ground stabilization product and the reliability of several manufacturers. As a result, the mine now uses Atlas Copco 8-foot PM 12 Swellex with PVC coating extensively

in its operations, replacing other ground support systems. The team is also exploring additional applications for Swellex connectibles.

Higher grades in poor conditions

The mine's access from gate to workings generally cuts through competent stone at Turquoise Ridge. The ore body at depth, however, complicates matters. Group Supervisor Arun Rai, who is also the senior support engineer, said the more difficult the conditions here, the higher they find the grade of ore to be.

Senior Geotechnical Engineer Louis Sandbak explained that where altered limestone mixes with banded and decalcified clays, they can find isolated ore pockets yielding up to 2.4 ounces per ton. He said that in such places bolting techniques

alone will not provide sufficient support.

Rai described the production method that is required. It is a type of cut-and-fill, except that crews must extract ore from the top down, beginning with a 10-by-10-foot uppercut. After backfilling the uppercut with concrete, they take a 12-by-12-foot cut beneath it, bolting into the fill as they go, generally using a 3-by-4-foot pattern. They will cut again below that at 14 by 14 feet, backfilling each cut before making the next below it.

Comparing support systems

The ground support team had incorporated a variety of stabilization techniques throughout the mine, determining which to use based on its unique benefits and drawbacks. Friction bolt anchors worked well in the better rock conditions and in

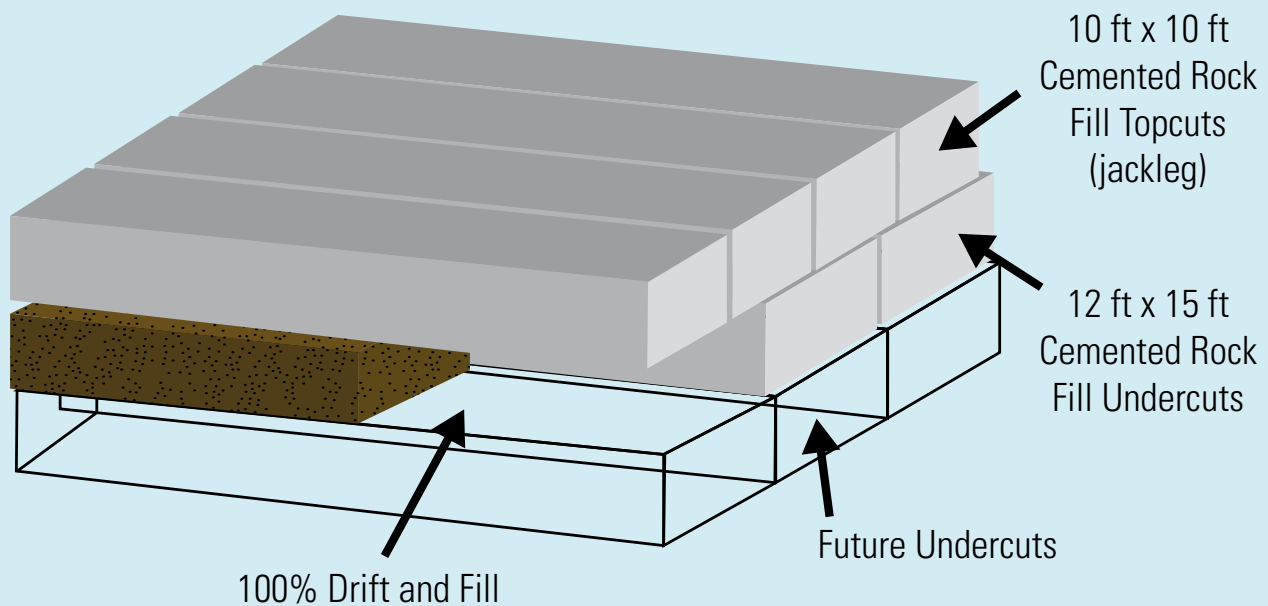
the backfill of the uppercut. The design factor for ground support is 1.3 in the mine, meaning the chosen support system must have a capability rated to be at least 30 percent higher than the anticipated stress load wherever it is used. Rai said they like to see at least 1.5, which exceeds the design factor. This is what mine engineers call the Factor of Safety (FOS). In the backfill, friction bolts could demonstrate a 1.8 FOS. However, testing showed that friction bolts alone would not reliably meet even the 1.3 design factor in less competent conditions. Friction bolts are also susceptible to corrosion in the more acidic areas of the mine. They needed a better solution.

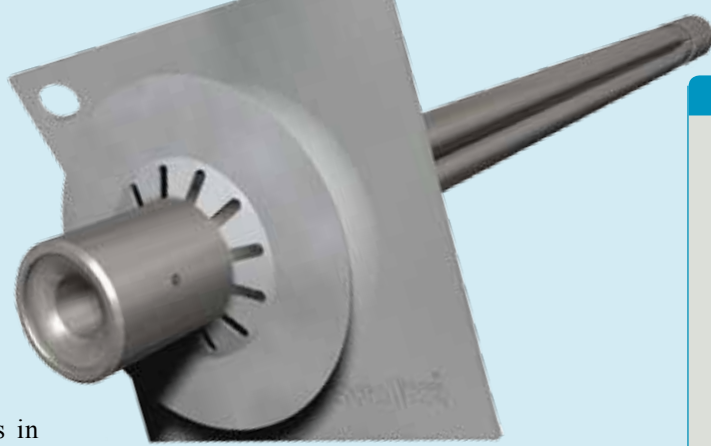
Both cable bolting and resin bolting provided ample strength when the team could use them. Cable bolts offered an added advantage in that they could be cut to length. Resin bolting offers faster installation times. Both methods have a totally grout-encapsulated design that provides corrosion resistance. But cable bolting requires skilled technique and a cure time that delays production for the longest period of all the techniques under comparison. And quality control for both cable bolting and resin grouting is based on specially created samples, not the supporting bolts themselves, since testing would alter them. Also, there is no way



After nearly two years of using Swellex exclusively for rehabbing and in new stabilization projects, the Barrick team could readily list several benefits they received from the Swellex conversion. Their own personnel are installing it with a bolting rig. Installation is fast and is performed consistently and reliably. Operations resume immediately after bolting. Quality control is assured during installation, since the pressure gauge provides immediate verification as an integral part of each bolt's installation. Pull-testing is easy to conduct and can be performed on any bolt as it does not alter the bolt's functional reliability.

419,000 ft of Topcuts Project-to-Date





» to ensure that grout is not lost to voids and seams in the rock during application, which would mean incomplete contact with the sides of the boreholes along their full length.

Sandbak explained that the skill level to install each system also gave them an additional concern to deal with. Both cable bolting and resin bolting require that a mine either devise and maintain a specialized training program for its own personnel or else subcontract the job to a third party development company “to make sure they were done right,” Sandbak said.

And these techniques also entailed cure times that delayed operations wherever they were used.

A total solution

When the ground development team tested Swellex in Turquoise Ridge’s conditions, they found it to be easy to use and reliable in poorer rock conditions without production delay, quality issues or a need for subcontractors. Rai said their pull tests demonstrated that Swellex had twice the strength of split sets in this mine’s conditions.

Rory Upshaw, the group’s engineering technician, said that although they initially were looking at Swellex as a solution for their difficult ground and rehab applications, it occurred to them it would work well in all their applications. Development plans now specify various Swellex bolts throughout the mine, from 8-foot lighter duty bolts up through 20-foot connectible.

By now, after comparing a number of manufacturers to choose the best value for their operations, the group has selected Atlas Copco. Upshaw said they compared expandable rock bolts from several vendors, ranking them by three points: cost, quality, and service.

Cost was simplest to evaluate. One vendor was eliminated for having the highest price and least value.

While pull-testing demonstrated similar results among the products initially, quality varied widely among providers. They discovered so many manufacturing defects in the bolts supplied by some companies that their products were dismissed as unreliable. To accommodate another competitor’s bolts, the bolter’s chucks had to be re-engineered.

Upshaw said when one vendor provided anticorrosion samples, he could “strip off the thin rubber-like coating with a pocket knife” and even peel it off with his thumbnail.

The team agreed that Atlas Copco Swellex had none of these issues. Today they are reluctant to depend on any other manufacturer for their expandable bolt systems.

Close customer support

Upshaw said, too, Atlas Copco’s service has been exemplary, complimenting the company on their response time.

Charles Boyd is the Atlas Copco product support sales representative to Turquoise Ridge. Boyd, who is based out of Atlas Copco’s Elko, Nev., store, visits regularly and checks their Swellex inventory for them personally.

Two additional services Atlas Copco offers its Swellex customers are pull-testing and bore inspection. Also, Barrick may take Boyd up on an upcoming training opportunity.

Training is just one of the added values they receive from teaming up with Atlas Copco for their Swellex needs. ◉



Atlas Copco demonstration photo

HOW THIS SMART SYSTEM WORKS

Swellex is a rock bolt made of a welded tube folded in on itself down its length. One end is sealed. A specially designed pump forces water in at high pressure, expanding the bolt to contact the sides of the hole along its full length, unlike a cable bolt.

A plate is slid onto the bolt before installation and sits against the inflation bushing of the bolt to provide face and screen support. Once the bolt has fully expanded, the pressure is released. The bolt maintains its full contact friction grip without any threat to the formation from over-pressurization.

Swellex components come in a variety of sizes to match the job. The length of bolt to use and size of the plate will depend on the formation’s composition and competence.

Several Swellex features distinguish it from other roof-bolting and stabilization techniques, such as tension resin grouted rebar.

For instance, with Swellex there are fewer quality control steps to take compared to resin grouting. Resin supplies must be kept warm. And since resin has a limited useful shelf life, resin inventory must be carefully stocked and monitored according to factory-supplied expiration schedules. Management of resin supplies, therefore, creates extra steps for warehousing.

Resin grouting technique also involves more training and additional inspection of technique to ensure it is being set according to manufacturer’s instructions. These specify rotation speed and number of rotations.

Resin grouting often entails more than one person, each in charge of subsequent steps of an installation process. On the other hand Swellex, whether installed manually or with a bolter rig, requires only one person for installation.

If there is a gap or seam, the Swellex bolt bridges it. There is no grout to lose to voids.

Grouting must be tested on sample installations. But with Swellex, quality control is built in as part of every bolt’s installation: When the pump reads 300 bar and holds, the bolt has been properly installed. Pull testing can be performed immediately after installation.

So not only is Swellex a competent and versatile support system, it’s faster, it reduces labor and warehousing costs, and it offers the utmost in quality control.

PUTTING THE **ROC D3 RRC** TO THE TEST »



(previous page) The company said the T45 steel and this rig's ample power allows them to switch from 3-inch holes for presplitting to 3 1/2-inch production work without having to switch steels.

North America's first radio remote controlled D3 fared well in its first year of hard use

Throughout this past year Maine Drilling and Blasting (MD&B) has put the first Atlas Copco ROC D3 RRC™ surface drill rig to the test. It's the first radio remote control ROC D3 in the United States.

MD&B is one of the largest drilling operations in the United States, with six regional service areas spanning all of New England and much of the Mid Atlantic.

MD&B has experience with just about every make and model of surface drill rig available, continually trying out new products to find the most durable, economical and productive rigs for its fleet, which includes 27 Atlas Copco ROC D7s—18 of which feature radio remote control—and 26 ROC 642/D3 machines. These ROC 642/D3s account for about a third of MD&B's 90 rigs.

Exceeding expectations

They began by putting the new D3 RRC up against one of their larger capacity workhorses, an Atlas Copco ROC D7, in a side-by-side evaluation in a Connecticut quarry.

Jeremy Caron, MD&B's superintendent for that region, said the trial "really wasn't designed as a fair test. But in the 3- to 3 1/2-inch hole range at least, the D3 kept pace with the D7. It really did. And its holes were straighter."

They did opt for the larger hammer on their new D3. Mike Wentworth, who is the Northeast Region Store Manager for Atlas Copco, said the D3 comes with two hammer options, the standard Atlas Copco COP 1240™ or the beefier COP 1640™. MD&B requested the COP 1640.

Caron believes the reason the compact D3 performs so well is the way it drills. "It works itself into high impact. It sort of builds up to it. I think that's a significant improvement. That's why there's a lack of deviation in a 3 1/2-inch hole."

He said MD&B's purchase of the rig was "a no brainer—better production, cheaper cost..."

Dave Bijolle, MD&B's training manager

and service representative, said the D3 is a boon to production. "Previously, if there was deviation, we'd have to detune the drill and usually end up losing production because we'd slow things down so much to try to get a straighter hole. But we didn't have to sacrifice production with the D3. The drill control systems of the D3 let us deal with changes in geology. We increased daily production."

Reduced silica exposure

Terry Bower, the MD&B equipment manager involved in the testing of the unit, listed a number of improvements in the rig and its radio controls compared to earlier remote control models. Safety, he said, was the biggest benefit.

One of the more surprising safety discoveries was that remote control operators

in general are exposed to less silica dust than operators in sealed cabs. Silica sensors were placed on operators' shirts to collect ambient air samples during their eight-hour shifts. Although cab operators were exposed to levels far below health requirements, radio remote

operators, who operate in open air away from the drilling, encountered less dust. One theory is that the air circulation systems were picking up what operators unavoidably bring into their sealed cabins on their boots and clothing.

Bower judged the RRC model to be even safer to operate than their early model D3s, which have platforms that operators work from and that they ride on as they tram over terrain.

Drillers at first worried that they wouldn't be able to "feel the terrain" in the D3 RRC, making them less capable of protecting the rig from precarious situations. But Bower said after using the radio control, none wanted to give it up.

The long boom of the D3 reaches high faces, too, without the operator ever entering the "danger zone" as the rig stretches itself out to full utility.

Bower also liked various operational enhancements. Although radio remote controls have featured automatic shutdown for some time, previous versions were subject to interference that shut them down unexpectedly during operation. However, the D3 RRC includes improved signal transmission that is less vulnerable to disruptions.

Rig of choice

Caron could also list several reasons why the D3 impressed MD&B, and just as Bower did, Caron placed safety first.

"RRC winch work is fantastic. You can winch off, say on a 45-degree slope, and then you can get a 360-degree walk-around, see things from all sides before

you tram over top of them. It's safer for my crews, who can work it from back where they have good footing," Caron said.

"There's the mobility of it and the fact it's an RRC. And it has automatic rod handling. So, I used to have to tie up three men drilling a hole on steep grades. But this, just one person."

As for upkeep, Caron says they have experienced "no mechanical issues. It's

I used to have to tie up three men drilling a hole on steep grades. But this, just one person."

Jeremy Caron
MD&B Superintendent



been a good rig from a maintenance point. Even as hard as we've used it in line drilling, presplit, mass production...."

While he listed the variety of applications, Caron was reminded of yet another D3 benefit: "Nice thing with its T45 steel is, we can use it for 3-inch holes in line or presplit. Then we can use the same drill steel for 3 1/2-inch production work. The D3 has the power, and we're using the same steel, so we don't need to change anything."

For construction work, when we're drilling 3 1/2-inch holes with cuts of 30 feet or less, it's definitely my rig of choice," Caron said, adding, "If I had the chance to pick up a couple more D3s tomorrow, I certainly would."

First-year appraisal

MD&B has by now used the D3 RRC in a variety of jobs. "The first two were in Connecticut," Caron said, "doing a variety of

line drilling and production work of 3- to 3 1/2-inch holes, 10 to 40 feet deep, on a highway project and on a railroad job, cutting roadway and leveling a site for future construction projects. [The D3] drilled 3 1/2-inch holes with its T45 steel as well as the D7 on T 51. Even 50 to 55 feet deep, drilling straighter holes. No deviation."

Nine-year veteran MD&B driller Brett DeMayo was the D3 operator on the railroad job. He said he has worked other rigs but "they should get more of these [D3 RRCs].

"I really like this drill, I really do. I ran an older style D7—and I love the D7, don't get me wrong—but by the third hole with the D3 I had it down. It's not a D7, but it can really climb around on angles. I'm more comfortable tramming it over rough ground. Compared to the D7 I was used to, and in the 3- to 3 1/2-inch range, the D3 is pretty close in drilling."

MD&B's regional superintendent, Jeremy Caron, said that "for construction work, when we're drilling 3 1/2-inch holes with cuts of 30 feet or less, it's definitely my rig of choice. If I had a chance to pick up a couple more D3s tomorrow, I certainly would."

DeMayo said, "The D7s, they drill harder and push harder right away. The D3 doesn't do that. So 3-, 3 1/2- and even 4-inch holes can be straighter, without losing production."

He said he got drill footage comparable to the larger D7 and offered a tip to drillers who make the switch: "Take your time, and learn it at your own pace."

To date, MD&B still owns the only radio remote controlled D3 in the country but is in the process of purchasing a second. ☉

THEY LAST TOO LONG

ROC L8 joins fleet of veteran drill rigs
that have never needed replacement



Don Powell of Southern Indiana Drilling works an area he refers to as a driller's paradise. He and his six drillers work for nine steady quarry clients in a 60-mile radius of their Scottsburg headquarters.

Vice President of Atlas Copco Independent Distributors Tom Borer has known Powell for years. He said the longevity of Powell's client relationships is not just about regional opportunity, attributing Powell's success to his expertise and reliability.

"He's one of the best drillers I've ever known," Borer said, adding that Powell does "whatever it takes" to get a job done. "When that has meant staying 20 hours on a job, Powell has done it. His clients know he will not let them down."

His equipment has the same reputation. Borer said, "It's ridiculous how much life Don gets from his equipment—rigs, bits. Everything." He still owns and operates every rig he ever purchased since 1994, starting with his first Ingersoll-Rand T4. He remained loyal to the brand through its 2004 acquisition by Atlas Copco. His most recent purchase is an Atlas Copco ROC L8. Powell works with Atlas Copco distributor Brandeis Machinery and Supply and counts on his sales representative Doug Flynn to help him with what he needs.

Borer gestured toward two Ingersoll-Rand T4BH rigs receiving preventive maintenance this day from Powell's crew on an asphalt pad that the Sellersburg Stone quarry made for them. The first, a 1994, has over 20,000 hours on it. Neither it nor its sister rig, the 1990 model next to it, have ever been refurbished.

"I really should take them in for refurbishing," Powell said, explaining that he's just too busy. He can't take these rigs out of production. Nor does it seem all that necessary.

"The problem is they last too long," Tom Borer said, joking. He credited Powell for keeping his machines in shape. "They are running great. He keeps them in good shape," said Borer.

When asked just how hard these rigs work for him, Powell answered, "I put 65,000 feet on one in one month. That was a really good month." It was during a record year for the quarry, which yielded nearly 3 million tons of aggregate. This year they will make 1.5 million tons.

He now owns seven rigs: three T4



Keen observance of preventive maintenance schedules and an innate gift for understanding his machines get owner Don Powell “ridiculous” longevity from his rigs and tools. He switches between an Atlas Copco QL 50 hammer and a competitor’s to maintain high production in his clients’ quarries. Driller Chris Greenwood mans the controls during the changeout.

“It’s ridiculous how much life Don gets from his equipment—rigs, bits. Everything.”

Tom Borer

Vice President, Atlas Copco
Independent Distributors

rigs, a DM-45, ECM 720, ECM 690, and a brand new Atlas Copco ROC L8.

All of his rigs except for the DM-45 are on the job every day. He used to do stripping work with the DM-45, which is just too big for the quarry bench work he does today. He keeps it on hand in case a quarry should want to expand and then need a great deal of overburden removed.

So when Don Powell bought his most recent acquisition, the ROC L8, it wasn’t a replacement rig or an upgrade. It was an addition. The new L8 looks as though it will continue the legacy of its brand. Only six months on the job, it already has over 75,000 drill feet on it.

In this quarry the L8 is used in place of a T4. The L8’s hefty compressor delivers 865 cfm at 350 psi, which is ample enough to keep pace with a T4 on the 40-foot limestone benches. Rate of penetration here between the two is comparable in the quarry’s level, good-quality limestone. Powell drills here trading off between an Atlas Copco QL 50 hammer and a competitor’s 5-inch model, both equipped with 5 ½-inch bits; the two rigs


will average 3 ½ feet a minute.

The T4 trips a little faster because it has fewer sections to makeup and breakout for the same distance, just three rods to the L8’s four or five. However, the L8 shines in this quarry work because it offers rapid setup on these benches. It does not need to lower its boom to move about from hole to hole or pattern to pattern, and the boom itself can move forward, backward and to the side for lining up quickly on pattern targets.

The L8’s operator never leaves the cab to switch from driver to operator, never even changes position, in fact. Its dual oscillating tracks can handle rougher terrain and drilling attitudes.

While he has plenty of utility for his T4s, he said the L8 is more productive at less cost in this quarry application.

Unless you are the L8’s assigned driller, Chris Greenwood, you won’t ever get the opportunity to run Southern Indiana Drilling’s L8. And if you are thinking of waiting for it to breakdown to get a deal on it, good luck.

Powell’s rigs last too long. 

Making the **grade**

The Atlas Copco Flex D Unigrout plant provided perfectly consistent grout for the annual sand column testing. The clear columns permit direct observation and precise assessment of permeability and penetration rates for various grouts and admixtures.



(left to right) Mark Bernthaler, Marketing Manager Ground Engineering, Atlas Copco Austria; Mike O'Hara, Service Technician Atlas Copco U.S.; Bill Warfield, Business Development Manager, Geotechnical Drilling and Exploration (GDE) Atlas Copco U.S.; Ken McClanahan, Sales Specialist, GDE Atlas Copco U.S.; Tom Umscheid, Product Specialist, Atlas Copco U.S.; and Fernando Martins, Product Manager grouting equipment, Atlas Copco Sweden.



Smart A mixes teaching with testing at Grouting Fundamentals field day

For the third year in a row Atlas Copco has contributed to the Colorado School of Mines Grouting Fundamentals and Current Practice field day. As part of the week-long class, the day presents students with practical demonstrations of strategies, techniques and equipment.

This year's field day was hosted by Baski, Inc. The Baski property in Englewood, Colo., was an ideal location not far from the school.

The site offered ample grounds for the fair-like arrangement of various demonstrations. These included micropile push and pull testing, admixture presentations, and a low-mobility compaction grouting application used on one of the company's concrete storage slabs, as well as the school's annual sand column permeation testing.

Intelligent grout plant

Atlas Copco donated use of a new Unigrout™ Smart A grout plant and a three-person presentation team. The plant was used to provide uniformly mixed grout to the exact specifications required for a Bureau of Reclamation sand column permeability test. The test was created to evaluate penetration performance of various grout brands by ratio and admixture content, comparing permeation differences resulting from such things as changes in grout thickness and the addition of plasticizers.

Business Development Manager of Atlas Copco Geotechnical Drilling and Exploration Bill Warfield delivered a brief presentation on the Unigrout Smart A as Ken McClanahan operated

the system to mix and pump the grout for the sand column test.

McClanahan, a sales specialist with Atlas Copco, has over 40 years of field experience in grouting applications. Tom Umschied, an Atlas Copco product specialist based in the Denver area, served as McClanahan's helper for the day's event.

The Unigrout Smart A is an "intelligent" system, said Warfield, in that it can mix, pump, monitor, log and control flow and pressure precisely. McClanahan, whose right arm was in a sling due to a recent shoulder surgery, ran the system one-handed without any difficulty.

High-tech mixer

Brian Iske of De Neef Construction Chemicals, who donated some of the materials used in the field experience, said that the Unigrout Smart A is exactly the kind of plant needed for his products. A colloidal mixer, Iske said, is the best way to ensure that every particle is completely and uniformly wetted during mixing for correct consistency.

Test process

Raymond Henn of Lyman Henn Inc., who is also an adjunct professor at the school, presided over the testing. He said the test shows students the results of varying water-cement ratio and the use of admixtures, as well as the difference between using Portland and ultrafine cements.

Equipment for the permeation testing process, which was set up on a flat-bed trailer, consisted of five 60-inch plastic cylinders with 7 ½ inch internal diameters. Each was carefully filled with an exact amount of gravel and then sand as the columns were tapped with a rubber mallet.

One by one, The Unigrout Smart A supplied a grout batch prepared and mixed exactly as instructed. The grout was injected into the bottom of each cylinder at a specified psi and rate of flow for 10 minutes. An attendant recorded the height of permeation as measured by an attached ruler every minute for 20 minutes.

For example, one company's grout, mixed in a 1:1 ratio, showed 14 inches after two minutes. In another column a micro-fine grout product mixed 1:1 and containing a plasticizing additive fully permeated the column's sand, reaching the top in less than 20 minutes.

World class


More than 80 students attended this year's course, which Colorado School of Mines has offered annually since 1979 except for the year 2001. Enrollees represented private contracting firms from the U.S. and Puerto Rico, as well as government agencies such as the Army Corps of Engineers and the Bureau of Reclamation. They also came from several countries from South America and Europe.

Those new to their professions said they were grateful for the course, calling it a good introduction to grouting. Evelyn Sanchez is the quality control (QC) manager of a project in Chicago. Her interests lay primarily in the "techniques, foam, and chemicals," she said, declaring that the field day was the best part of the course for her.

Veronica Madera of the Bureau of Reclamation was attending to keep pace of grouting innovations for her part in a jointly funded, long-term Bureau of Reclamation and Army Corps of Engineers program for grout research. She said she really appreciated the chance to "get outside and see the equipment."

Sebastian Aban of Bolivia, representing his country's largest geotechnical company, LIMS Ingenieros Consultores, said he was most interested in the technical aspects of grouting methods and on recent advancements in the chemical additives to take back for use on LIMS' projects. The 50-year-old company has built or made repairs on 90 percent of the dams in Bolivia.

Aban also believed the new network of contacts he made with other class members to be a great course value.

Atlas Copco has been a leading pioneer in the grouting industry since 1921. The Unigrout Smart A with Pug45D is one of the company's recent grout plant systems designed specifically for the U.S. 



HOW THIS SMART SYSTEM WORKS

Bill Warfield, business development manager of Atlas Copco Geotechnical Drilling and Exploration, describes the Unigrout Smart A as an intelligent grouting system. The automated platform comes in two versions, Dosac Lite and Dosac Full.

Dosac Full can store up to 99 grouting mix programs, enabling a preprogrammed batch to be called up on demand. Dosac Lite stores only one program, precisely repeating the water-cement ratio and mixing time batch after batch, for as long as water and grout are available.

Unigrout Smart A Components

In addition to its Cemix high-speed, high-shear colloidal mixer and Cemag agitation tank, the Unigrout Smart A includes a Dosac control panel, two grout pump options and a Logac monitoring and logging unit.

It is driven by a hydraulic power plant, such as a diesel-powered Atlas Copco Pug 45 D.

Modes of Operation

The plant may be operated in either fully automatic or manual mode. To operate the Unigrout Smart A as a fully automated mixing process, the operator first ensures that all three manual operation levers at the bottom of the Dosac control panel are in "Position One."

As soon as the unit has power, the operator turns the system on by pressing the green Start button. Next, the operator programs the water/cement mix by weight. Then the operator enters the time for mixing. One minute is typical, but any prescribed time can be entered.

Pressing the Start button a second time begins the process. Every function from this point forward takes place automatically without further inputs from the operator. Water is injected into the Cemix and the high speed, high shear colloidal mixer starts. As soon as load sensors determine the correct weight of water is in the container, a separate circuit starts the cement silo's auger feed. The silo is vibrated as cement is being fed into the tank, which guards against compaction, ensuring uniform consistency of the powder.

When the programmed mixing time is reached, the unit automatically transfers the batch to the Cemag agit-tank. The Cemag holds twice the volume of the Cemix, so it is possible to have up to three batches ready for pumping with only one agit-tank. Additional agit-tanks can be added to keep larger volumes and different batches available as needed.



Ken McClanahan sets up a Dosac Lite.

Manual Mode

To operate the Unigrout Smart A in manual mode, the operator simply sets the first lower lever to the "hand" icon, which turns automation off. Now the operator can make manual inputs with the knobs and levers, making thinner or thicker grout, mixing it for more or less time, and transferring it to the agit-tank when desired.

Pumping

The Unigrout Smart A uses one control box to operate either of its two pumps: a progressive cavity pump or the Pumpac piston pump.

The Pumpac piston pump allows the operator to control flow and pressure separately and is capable of up to 60 gallons per minute at 800 psi. A built-in safety lock prevents accidentally changing pumps while the system is under pressure. Pumping pressure will never exceed the limit set by the operator.

Logac

The Logac grouting monitor and logging system may be used with any Unigrout grouting plant, but it comes as a standard feature of the Smart A. Set to grouting, Logac will record pressure, flow, and cumulative volume for each grouted hole by hole number.

This information can be downloaded with a specially programmed USB memory device, making it available for grouting logs and reports using common software, such as Excel spreadsheet.

In addition to grout pumping, the Logac can also be set to GIN and Lugeon.

MAKING PROMISES COME TRUE

Doing what field technicians do best

Today the Atlas Copco Total Station Navigation option for underground face drilling rigs and bolters comes as a single part number with standardized installation procedure. But kit #8994203200 had not yet fully evolved when Greer Limestone of Morgantown, W.Va., ordered the first one ever to be purchased in North America—second in the world—for its new Atlas Copco Boltec LC bolter.

Having tested well in Orebro, Sweden, the kit's manufacture was only just then getting ramped up for global distribution. It was a brand new option that required an expert technician to troubleshoot installation. No problem. Atlas Copco has the industry's best field technicians close at hand anywhere their equipment is being used. Close service is, after all, the company's hallmark.

Greer Limestone is West Virginia's largest limestone operation, producing end-products that range from all grades of limestone to agricultural lime, limestone sand and rip rap, all to precise customer specifications.

But the company did not pursue the Total Station Navigation system just for automated ease in making bolting patterns. To them the precision of the Total Navigation System means unparalleled safety.

Eliminating guesswork

Jim Brooks, the Atlas Copco field technician who installed Greer's navigation package, said the system is something like GPS but, of course, GPS does not work underground. Instead it uses a set of fixed references to calculate position precisely. The operator places bolts within a half inch of specification and knows their position to within a quarter degree of angle of the mining engineer's plans. The system records this data for every bolt, showing even the tiniest bit of deviation and what it means to the next bolt's placement.

The log documents that the bolts were placed exactly according to plan. Where there are areas with poorer conditions in

the mine, engineers can use the information to make the most exact plan adjustments. There is no guesswork.

This degree of precision in ground support is not a federal requirement. It's totally voluntary on Greer Limestone's part.

Brooks had high praise for the company: "I've always felt that Greer Limestone was one of the more cutting edge or advanced companies. Installing Total Navigation is just one more way they demonstrate how their people are hugely important to them, that safety is number one."

Local technician, global support

Just as Greer Limestone demonstrated its commitment to its people ordering Total Station Navigation, Brooks demonstrated the commitment of a field technician to his customer while installing it. "This kind of installation lets a field technician do what field technicians do best. We make promises come true."

Brooks does not take full credit for the installation, which took about three weeks. "I did the tear down and installation, but Atlas Copco engineer Anders Anderson, a very, very smart man, came in to help me with the programming."

Some parts he sent back for replacement, working back and forth with Sweden, partnering with Atlas Copco design

The Atlas Copco Boltec LC is a fully mechanized rock bolting rig for bolt lengths from 5 to 20 feet and roof heights up to 39 feet. It is equipped with Atlas Copco's Rig Control System for positioning, drilling and bolting and with the COP 1132 hydraulic rock drill, specially designed for bolt-hole drilling. The Total Station Navigation option is available to help drillers place bolts exactly to engineer specifications.




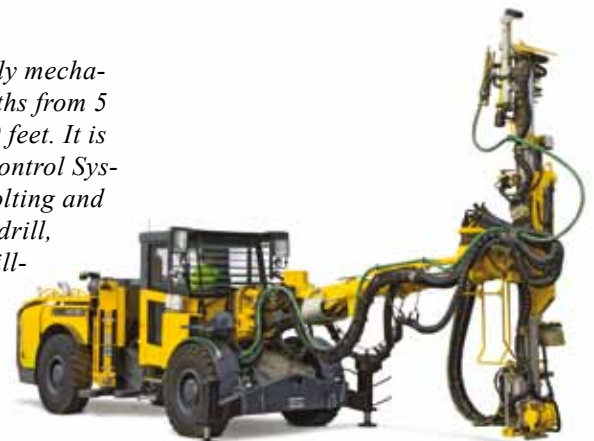
JIM BROOKS

engineers. Brooks' technical observations and suggestions were incorporated into what have now become the smooth installations of the system being performed today.

Success is the only option

Once they had the modules and transceiver working, they tested the system repeatedly, troubleshooting it, eliminating any potential for failure. Together Brooks and Anderson trained Greer Limestone's own engineers how to incorporate Total Station Navigation into their own computer system. They stayed with the operator after the operator began to use the system, on hand to assist in any way.

As the first technician to install it, Brooks has the unique satisfaction of knowing his successful field work influenced what has now become the standardized Total Station Navigation kit. 





Atlas Copco on Forbes' list of world's most innovative companies

Atlas Copco has been included on a list of the world's 100 most innovative companies, published recently by the renowned business magazine Forbes. Placed as number 67 on the global list, Atlas Copco joins the ranks of companies such as Apple, Google and Amazon, which all are valued at a premium by investors who anticipate future innovations to generate good returns.

Atlas Copco introduces T-WiZ™ T-thread drilling system

Atlas Copco has introduced a patented T-thread drilling system called T-WiZ, which has been designed to be the toughest (trapezoidal) T-thread system on the market. It features a stronger thread surface and other proprietary improvements to provide less wear on the threads and faster rod changes, with results indicating up to a 30-percent longer service life.

The new T-WiZ drilling system was designed to work in the toughest rock formations, including fractured rock that could result in off-line drilling or over-stressed threads. The T-WiZ drilling system provides better thread efficiency and greater thread stability for quicker rod changes. All drilling applications, including underground, construction and surface mining will benefit from this new design.



Keeping the standard (trapezoidal) T-threaded profiles allows you to operate the T-WiZ components with standard T-threaded components; however, the longer service life can only be achieved when the complete drill string is made up of Atlas Copco T-WiZ products. The "secret" is hidden in a stronger thread surface and other proprietary improvements to the T-WiZ drill rods and striking bars.

Atlas Copco T-WiZ components are provided in three dimensions: T-38, T-45, and T-51 threaded (M/F) Speedrods and shank adapters.

Atlas Copco designs new cab for the Pit Viper 270 series

Atlas Copco Drilling Solutions has released a newly designed cab for the Pit Viper 270 series of blasthole rigs. The cab is larger, features improvements in visibility and comfort, and adds a number of productivity enhancements.



Larger windows, an excavator-style chair on an elevated platform and a more robust set of windshield wipers all contribute to greater visibility in the new cab. The cleaner, more comfortable work environment also features improved door seals with additional cabin insulation that reduce ambient sound to less than 70 decibels. This also improves climate control during the summer and winter months.

The air conditioning unit is located under the cab for easy maintenance access and has been redesigned to maximize airflow on the operator. Its compressor, evaporator and condenser are

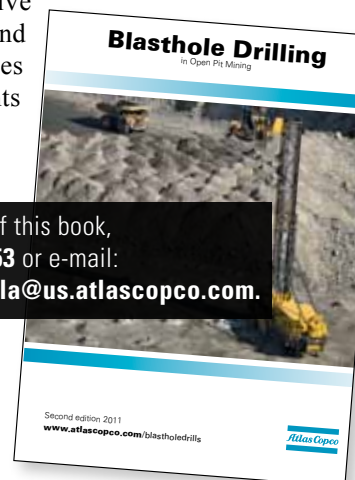
all hydraulically driven. Since the unit does not rely on power from the engine, it is a more reliable source of cabin climate control.

Lighting is now integrated into the cabin's profile, increasing safety and ease of maintenance. Lights are serviced from inside the cab itself.

Three buddy seats are included in the cab, all of which may be flipped up to provide extra storage. Optionally, any of these seats may be replaced with a refrigerator, locker or microwave. One buddy seat may be upgraded to a trainee seat complete with backrest and seatbelt assembly.

Latest edition of Blasthole Drilling in Open Pit Mining

Atlas Copco has just released the latest edition of Blasthole Drilling in Open Pit Mining, a resource book full of technical examples of mining from around the world. You will read special reports that provide a broad perspective from those active in the industry and drillers themselves sharing comments on equipment.



For a free copy of this book, call 972-496-7253 or e-mail: Justin.Cocchiola@us.atlascopco.com.

Atlas Copco celebrates with grand opening of Miami-area store

Atlas Copco has opened the doors on its 13th U.S. store in Pompano Beach, Fla. The store was opened to support the large customer base already in southern Florida, especially for the Dynapac line, and as a response to the many aftermarket requests for Atlas Copco parts and services from the Miami area.



Opening the store in south Florida allows Atlas Copco to take advantage of the strong road construction market in the area with their full Dynapac line of pavers and compaction equipment. Other products featured at the new store include the full line of Secoroc rock drilling tools, surface crawler drill rigs, and geotechnical drilling tools and accessories. The Miami store will



JEFF DOLEZAL
Area Salesman



MIKE LAZELLA
Branch Administrator

also carry the new Atlas Copco Powercrusher line of mobile rock crushers and screeners.

Recent appointments of Jeff Dolezal as area salesman and Mike LaZella as branch administrator have filled key leadership posts at the store.

The Miami Atlas Copco store is located in the city of Pompano Beach. It is just a half mile from the Florida Turnpike and 2.5 miles from I-95, providing convenient access to the region.

For the past five years, Dolezal has been selling and renting equipment, including heavy road machinery, on be-

half of a south Florida AED distributor.

In his new role, Dolezal will be responsible for developing sales and rental opportunities in the south Florida market, as well as specific parts of the Caribbean market for several Atlas Copco product lines. These lines include the Dynapac full line of road compaction, paving, milling and concrete equipment, the Powercrusher line of mobile crushers and screeners, surface drill rigs, and rock drilling tools.

LaZella, a graduate of the University of Minnesota Duluth, has been active in the construction industry for more than three years. He has previous equipment rental experience with a major-line construction distributor.

LaZella will be responsible for the customer support functions of service, rental and parts for the new Miami Store. He will also support Atlas Copco sales efforts in southern Florida. In addition, as Branch Administrator, LaZella is responsible for the facility and its environmental requirements, and the normal day-to-day activities of the store.

Atlas Copco announces personnel changes

ANDREW REDFERN has been appointed to the position of Capital Equipment Manager at Atlas Copco Construction Mining Technique (CMT) USA LLC based in Commerce City, Colo., effective immediately.



BRUCE BEATTY has accepted appointment to the position of Product and Business Development Manager, Horizontal Directional Drilling (HDD) and Raisebore for Atlas Copco CMT USA LLC.

RYAN YOUNGBLOOD has been appointed to the position of Ground Support Sales Manager, Northwest, for Atlas Copco CMT USA LLC.



CHAD FRENCH has been appointed to the position of Service Manager for the Atlas Copco branch in Elko, Nev.

ALLEN CHITTY has been appointed to the position of Product Specialist, Surface Drilling Equipment (SDE), for Atlas Copco CMT USA LLC.



BRYAN BARTON has been appointed to the new position of Product Support and Training Specialist—Underground Rock Excavation (URE) for Atlas Copco.

MIKE WENTWORTH has been appointed to the position of Product Manager, Surface Drilling Equipment (SDE), for Atlas Copco CMT USA LLC.



Atlas Copco awarded prestigious clean energy research grant

The U.S. Dept. of Energy (DOE) has awarded Atlas Copco Secoroc \$3.4 million for a three-year research and development project. Working with Sandia National Laboratories, Atlas Copco will create a down-the-hole (DTH) hammer design capable of low-cost, high-production drilling in the high temperatures of deep geothermal wells.

The grant is one of 32 research and design projects for geothermal power production funded through a \$38 million initiative by the DOE's Office of Energy Efficiency and Renewable Energy. These projects are designed to meet President Obama's challenge to generate 80 percent of U.S. electricity from clean energy sources by 2035.

Ron Boyd, the Atlas Copco Secoroc project manager for deep-hole drilling applications, said the project is a result of Atlas Copco's current work with Sandia National Laboratories. Known foremost for its work developing science-based technologies for U.S. national security, Sandia also partners with government, industry, and academic institutions to address scientific challenges on a broad range of national issues, including energy security.

"If you mention geothermal drilling, people may think of water well rigs making holes on residential and commercial properties. People are more familiar with that use of the word," Boyd said. He added that even within the mining and drilling industry most people are not likely to understand the challenges that geothermal-based electricity generation presents to the industry.

"Depending on the heat source, they are typically drilling 2,000 to 5,000 feet down. The deeper you drill, the hotter and more expensive it is," Boyd explained. To date, this has excluded current down-the-hole (DTH) hammer design because the hammers have heat-vulnerable parts, including rubber and plastic. "They are drilling at 300 degrees Fahrenheit and higher."

The overall DOE goal is to increase the feasibility of geothermal energy production by lowering the cost and financial risk associated with this environmentally friendly means of power generation.

Interim Tier 4 generators available

To help its portable equipment customers meet today's Interim Tier 4 emission standards, Atlas Copco is introducing a range of Interim Tier 4 generators in the power category above 150 kVA. The QAS 150 JD T4, QAS 250 JD T4 and QAS 330 JD T4 offer minimized energy use, noise levels and environmental impact. The new generators are produced in Rock Hill, SC.

The QAS 150 JD T4, QAS 250 JD T4 and QAS 330 JD T4 are powered by a fully Interim Tier 4 compliant John Deere engines with VGT (variable geometry turbocharger) technology. The three generators offer low noise levels and a significant increase in energy efficiency. One tank of diesel lasts up to 24 hours at full load.

The generators have a containment base to prevent leakage, offering customers significant environmental benefits. As a result, customers no longer have to be concerned with soil contamination. In January 2011, Interim Tier 4 emission regulations for 130-560 kW off-road diesel engines went into effect.



Atlas Copco becomes national distributor of MAI self-drilling anchors

Atlas Copco Construction Mining Technique USA LLC has announced that it is the distributor for MAI self-drilling anchors (SDA) in the USA. While Atlas Copco MAI GmbH had sold its business related to self-drilling anchors to Minova, a member of the Australian group Orica Limited, the new distributor arrangement will assure continued high levels of service to existing and new customers. The U.S. is one of the world's leading markets for the MAI SDA product.

Atlas Copco will continue to provide product to its customer base at the same price levels and using the same part numbers as before the divestiture. Current stock will continue to be replenished at the current level.

"Our customers won't notice any difference," commented Doug Podraza, Product Manager of Geotechnical Consumables for Atlas Copco. "Atlas Copco and Minova have a strong working relationship globally. We look forward to continuing to serve our MAI Bar SDA customers."

WHERE TO FIND US

Please contact your nearest Atlas Copco Customer Center.

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