
CHAIN REACTION

A SERIES OF CASE STUDIES ON SASKATCHEWAN'S
INDUSTRIAL AND MINING SUPPLY CHAIN

DYNAINDUSTRIAL

CASE STUDY # 0 0 4



DynaIndustrial: Eight-Foot Ceilings; Six-Foot Bolts

A critical step for safety in an underground mine is to secure the ceilings of the horizontal passageways – the drifts – with large bolts. But how do you safely bolt the ceilings in the first place?

“We got a call from PotashCorp Rocanville back in 2009,” recalls Marland Ottenbreit, general manager of DynaIndustrial. “They were looking for a bolting system that would be safer and less awkward.” This was the ideal challenge for the Saskatchewan company, which specializes in designing and fabricating custom solutions. “Our engineering team began with several visits to the mine,” says Marland. “The most important step in designing anything is to talk to the people who actually do the work. You’ve got to be able to relate to them. You learn a lot from them.”

One of the major design factors was obvious from the outset. “The cutting height of our miner machine can be as low as 8 feet, 3 inches,” says Tyson Bomberak (P.Eng.), Mine Capital Engineer at PotashCorp Rocanville. With the bolts as long as 6 feet, there was little room to spare. The bolting solution demanded a piece of equipment with as low a profile as possible, that could install as large a bolt as possible in the least amount of clearance.

The prototype was developed in 2010, but it barely resembles the DynaBolter of today, thanks to the shared commitment of both DynaIndustrial and PotashCorp to continuous improvement. “The prototype had a lot of thought and time put into it,” says Bomberak, “but, as prototypes are meant to do, there were some areas that needed improvement and additional requests were made once the operators had a chance to run the machine in the mining environment.”

The improvements continued, resulting in the latest version with exceptional handling versatility, dual joystick controls, a multiple bolt carousel, automated epoxy injection, and a boom. Most importantly of all, bolt installation is now much safer than when that first call was made. The DynaBolter allows the single operator to

install the bolt some 15 feet back from the drilling hole, so they are under safe ground or already bolted ground as they progress through the drift. Furthermore, the operator remains in a cab certified for protection from roll-over and falling objects. Speed of installation is the other major benefit. “The operators can load six bolts onto the machine at one time and then install all of them without having to reload,” says Bomberak. “This allows us to install 25 to 30 bolts an hour.”

The evolution of the DynaBolter points to the advantages of major companies working with local fabricators. “We



have worked with DynaIndustrial on this type of machine for over seven years,” says Bomberak. “The employees of DynaIndustrial have become a well-respected resource for many people here at PotashCorp Rocanville including management, engineers, supervisors, tradespeople and miners alike. DynaIndustrial was very willing to come to site and work with us to solve issues and improve the overall design. They were very open with design information and specs, which was very helpful to our engineering department as well as our maintenance crew. The process has resulted in developing not only our operators’ machine of choice, but also an excellent long-term relationship.”





Faster installation



Improved safety



Lower labour costs

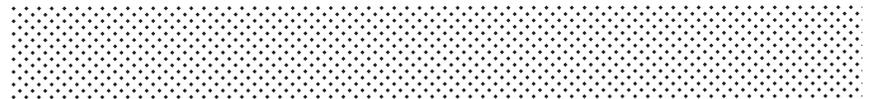
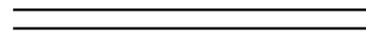
The relationship has also resulted in new markets for DynaIndustrial. “About three years ago, Rob Dukes, our Engineering Manager, shot a video of the DynaBolter in action and posted it on YouTube,” says Ottenbreit. “Soon after, we started getting calls from interested companies, including a mining equipment distributor in South Africa. We began negotiating with them and developed a DynaBolter for hard rock conditions, which was launched in 2014 at the biggest mining show in South Africa.”



PHOTO:
The DynaBolter allows a single operator to safely install up to 30 bolts an hour.



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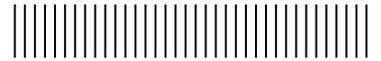
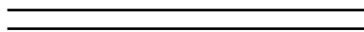


PHOTO:

The DynaBolter is designed to work in spaces with low clearance.

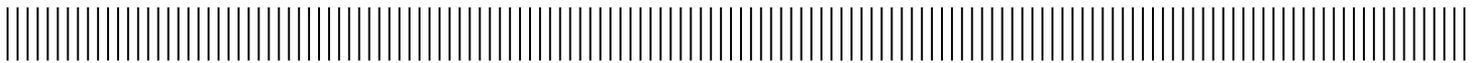


Exemplifying the best of design thinking through collaboration and real-world testing at the mine site, DynaIndustrial developed the DynaBolter – an advanced single-operator machine that keeps the operator in an underground mine on safe ground while installing massive bolts to secure the ceiling overhead.



Orders for the DynaBolter also continue back home, with three new machines delivered to PotashCorp Rocanville in the spring of 2016. According to Ottenbreit, “Normally, it takes about 15 to 20 weeks to manufacture a DynaBolter, but often there are customized design considerations at the outset, which means we modify the machine for specific mining conditions, and for specific types of bolts and bolt lengths.”

Design Thinking – based upon consultation with the actual end-users and in-depth information gathering – has become the hot topic for many business journals, but for DynaIndustrial it has always been at the core of their business. It’s the kind of thinking that international companies need from local fabricators. PotashCorp Rocanville looks to work with companies that share a common goal of looking for solutions and providing products that improve overall safety and a more reliable level of production. In other words, they look for companies like DynaIndustrial.



SIMSA is the Saskatchewan Industrial and Mining Suppliers Association, representing Saskatchewan based companies who provide goods and services to industrial projects.

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