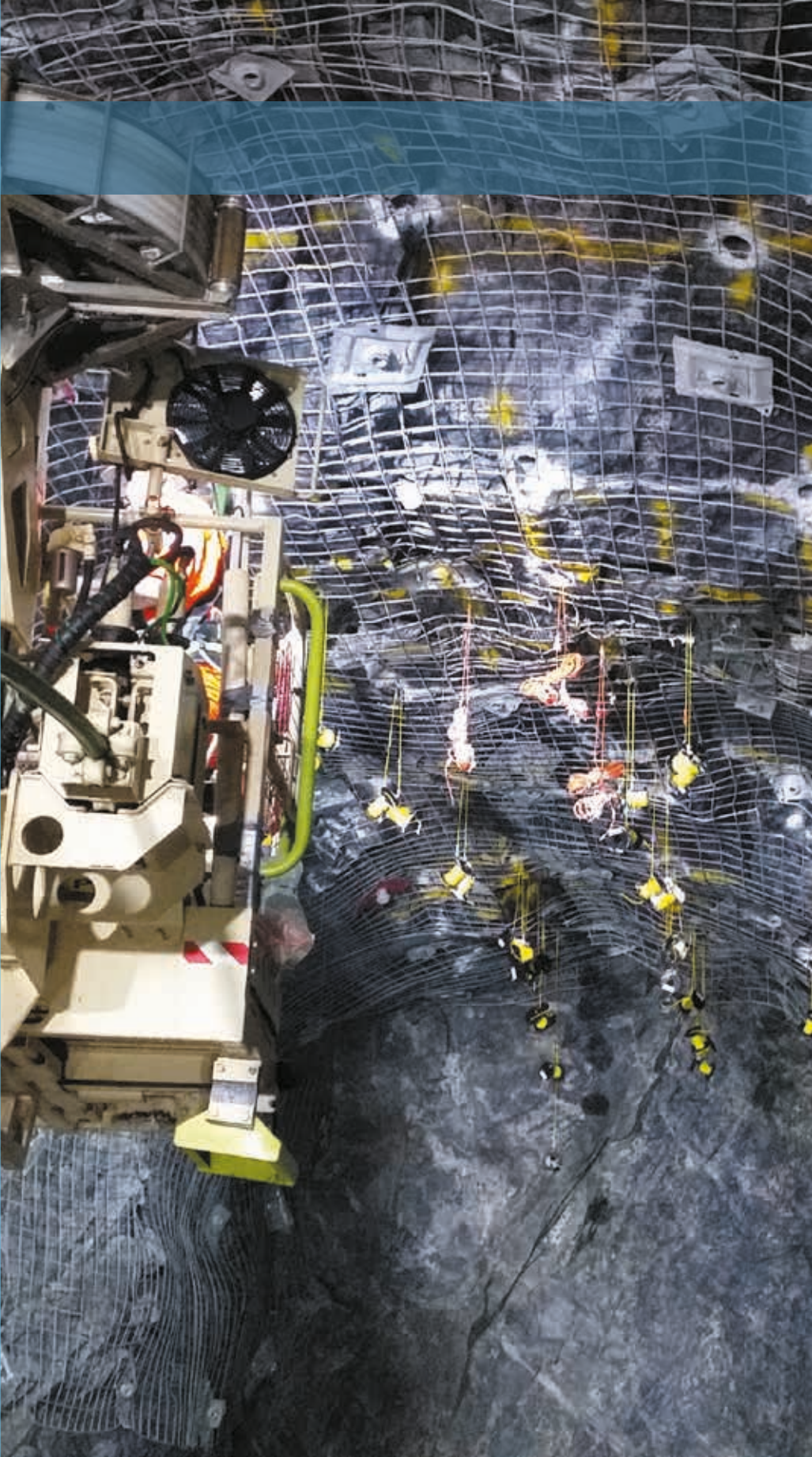


Your underground blasting solutions



Downer
Relationships creating success

DBS
A Downer Company



Innovation – Performance – Success



Our proven track record in blasting combined with our leading edge underground technology means we can offer underground blasting services that are advanced, flexible and customer focused. DBS's specialised high quality services deliver benefits by reducing operating expenses, minimising risk and improving productivity in both development and production charging.

Innovation

Through our partnership with European explosives manufacturer Forcit, and market leading underground equipment manufacturer Normet, DBS is now offering underground operators an innovative underground charging technology that produces superior results.

Performance

Our experience in underground blasting, our culture, attitude and approach to diversity complement our strengths in providing effective underground blasting solutions. We pride ourselves on flexibility and providing our customers with a tailor-made approach to meet their site-specific needs.

Success

Through developing positive relationships, we commit to delivering superior results through innovation and high performance, and strive to exceed our customers' expectations.

Supply service

Our supply service includes the manufacture, supply and delivery of bulk explosives using state-of-the-art Charmec LC and BOS equipment. Our underground emulsion formulation only requires a single gassing chemical that offers the full range of densities producing site-sensitised, pumpable emulsion which is suitable for use in horizontal holes, as well as vertical up-holes and down-holes.

Tailored customer operated services

Through our highly flexible service offering, our equipment is designed for customer operation using fully integrated bulk emulsion systems, and includes options for installation of our BOS unit, designed to retrofit onto our customers' existing carriers.

The technology within our system offers superior results, catering for both the novice and highly experienced operator. The DBS system ensures the highest standards of quality control, delivering a consistently superior outcome every time.

Total loading service

This service builds on our supply service to incorporate all the associated underground charging operations and blasting.

Current and recent underground emulsion services

- **Challenger (South Australia),** production and development charging.
- **St Ives (Western Australia),** production charging.
- **Jundee (Western Australia),** production and development charging.
- **Karari (Western Australia),** production charging.
- **Granny Smith, Wallaby (Western Australia),** production and development charging.

Charmec

DBS joined forces with innovative European explosives manufacturer, Forcit Explosives, and market-leading underground equipment manufacturer, Normet, to offer underground operators a new option – leading edge underground technology delivered by a trusted Australian blasting services provider.

For over a decade, Normet has specifically manufactured the Charmec LC 605 VE (C) to fully integrate the Forcit emulsion-delivery system. Now, through DBS's partnership with Forcit, DBS has exclusive access to this technology in the Australian market.

Forcit

Over 100 years' experience in explosive manufacturing, offering emulsion and delivery system technology, and product and technical support.

Normet

Incorporates Forcit technology in building and commissioning the system and provides scheduled maintenance and ongoing mechanical support.

DBS

Combining the emulsion and explosives technology with the high-tech delivery systems, manufacturing and blasting experience to offer Australian mining companies an integrated, reliable and superior underground charging solution for the underground blasting market.

The Charmec LC 605 VE (C) Charger

Equipped with both production and development emulsion-charging capabilities, the Charmec LC is designed to deal with the harsh conditions encountered in underground charging operations.

Its accurate loading and perimeter control – reducing damage and overbreak to the final walls – has made it a popular choice in the tunnelling and mining industries.

Through the unique development charging systems (which can be manually or mechanically inserted into and extracted from the charge hole), the development hose-handling system allows different levels of decoupled charging to be applied across the face (lace loading). The automated hose-handling system enables extremely accurate lace loading, meaning the perimeter and easer holes can be loaded at the optimum ratio, in order to control perimeter blasting. This eliminates the need for packaged perimeter products, as the decoupling ratio can be tailored to the mine's requirements.

In production, charging Heat9000 is applied via pre-set options for the operator, to change the density with the touch of a button.

The single gassing chemical is unique to our formulation and repeatability of accuracy is managed via the CANBUS control system. The retention of the emulsion up-hole is second to none, with proven results across all hole diameters from 76mm to 102mm.

Production hose-handling system

Eliminating all manual handling of the charge hose, the production hose reel is strategically located for ease and movability, the reel is mounted at the front of the cabin on the carrier boom and is capable of holding 60 metres of hose.





The hose pusher can be operated by a radio hand-held remote from either the ground or in the basket. The functionality is managed via the control system and capable of pre-set density ranges determined by the hole size and density.

Development hose-handling system

Through its unique charging system (which can be manually or mechanically inserted into, and extracted from, the charge hole), the development hose-handling system allows different levels of decoupled charging to be applied to the face with extremely high accuracy.

The hose reel is mounted behind the charge basket and is hydraulically driven for ease of operation and to keep the hose off the ground. The functionality is managed via the control system and hand-held remote.

Lace loading

The automated hose-handling system also enables high precision lace loading, allowing the perimeter and easer holes to be loaded at the optimum ratio to control perimeter blasting. This eliminates the need for packaged perimeter products, as the decoupling ratio can be tailored to the mine's requirements.

This offers supreme results in ground control and overbreak, tailoring to the ground type and mine requirements.







DBS Bolt on System (BOS)

The BOS emulsion delivery system has the capacity for all underground development and production charging requirements.

The DBS BOS is designed and manufactured by Normet to be mounted onto Normet carriers ranging from 1614, MC 605 and LC 605 and specifically designed for the customer's operation. This offers a BOS purpose built for integration with the customer's existing Normet charging machines.

The BOS is fitted with the same hose handling and control system as the Charmec LC, offering flexibility to suit customer requirements, with high accuracy and charging capability.

The BOS design offers the same on board CANBUS control system with the main control interface mounted on the unit. The addition of a second control screen in the basket is operated via the handheld remote, offering the operator all pre-set functions, pumping capabilities and benefits of the fully integrated LC Charmec, mounted to the carrier.

Key Benefits

- the most advanced and safest system on the market;
- accurate loading in development and production;
- easy to use and customer-operated by simply bolting onto customer's carrier;
- capacity to load up-holes and down-holes;
- lace loading or decoupled hole loading for development perimeter charging;
- large number of pre-set densities at the push of a button;
- delivers a variable pump rate of up to 95kg/min;
- computer controlled hose handling systems; and
- records all data from each use in great detail.

“

The most advanced and safest system on the market – operated by you”

Emulsion

Our emulsion is a proven high quality, high energy product. Variable densities can be achieved with a single gassing chemical.

DBS Underground HEAT®9000

DBS HEAT®9000 delivers significantly more energy than other products in the market. DBS HEAT®9000 is a proven and tested ANE formulation currently used in Scandinavia and Australia for underground development and production blasting.

DBS HEAT®9000 requires only one gassing agent to vary its final in-hole density. The need for a single gassing chemical is unique to our formulation and repeatability accuracy is managed via the on board CANBUS control system. This unique single gasser ability eliminates the need for different gassers for different final in-hole densities and the requirement for acid. This has obvious advantages in the reduction of chemical handling risks as well as procurement, transport, as well as storage and management of a reduced number of line items.

The DBS HEAT®9000 coupled with the unique development charging system allows unprecedented customisation of development charging.

The automated hose-handling system enables extremely accurate lace loading (decoupled charge loading), meaning the perimeter and easer holes can be loaded to the optimum Powder Factor ratio to control perimeter blasting.

This completely eliminates packaged perimeter products and the inflexibility of their application.

Production charging with DBS HEAT®9000 is made easy via pre-set options for different product densities and hole diameters. These options are selected by the operator at the touch of a button from their natural work station. The inherent accuracy of the ANE delivery system means the retention of delivered emulsion up-hole is second to none, and designed uncharged collar lengths are attained accurately every time.





We offer superior in-hole retention, with a very high VOD, resulting in increased fragmentation and results.”

Benefits

DBS HEAT®9000 benefits include:

- very high VOD increasing fragmentation and results;
- higher VOD maintained in smaller hole diameters;
- requires only a single gassing agent, reducing the possibility of generating NOx gas;
- less fume generation and quicker re-entry times after blasting;
- tailored to the mine's requirements and has a critical diameter of 17 millimetres;
- capable of lace loading, eliminating the need for expensive non variable packaged perimeter products;
- is capable of unprecedented up-hole product retention in holes up to 102 millimetres in diameter;
- proven and widely used in Scandinavia for over ten years and currently in Australia for the past three years in underground excavations, tunnelling and mining; and
- very high correlation between designed loading parameters and actual loading parameters
 - uncharged collar lengths, product does not migrate due to gassing
 - Kg/BCM ratio. No in-hole product density profile. Product is the same density at all points in the hole.

Zero Harm and our people



Our people are committed to working safely and Zero Harm is embedded in our culture and everything we do.

Zero Harm

At DBS Underground, we are committed to working safely with our customers and taking care of each other. Zero Harm, in respect to our people and the environment is our highest priority.

Our people

We are proud of our people and the diverse skills they bring to projects. Our strong safety and training focus works in parallel with creativity, innovation and hard work, to provide optimal solutions to our customers.

We have a team who is very experienced in underground blasting, who have a passion for results and working with our customers to deliver the best possible outcome.

Training

DBS Underground provides effective performance through our skilled Cert IV operators/trainers. All trainees receive on-the-job training in an underground mining environment through a quality operator training package. This includes practical one-on-one training and supervision across all aspects of our service offering.

Our Promise

To work closely with customers to help them succeed, using world leading innovation and solutions.







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