

# RESIN AND CEMENT GROUTING SOLUTIONS.





# SECURING PERFORMANCE. TOGETHER.

We are an international producer of high-performance ground support products for the mining, construction and energy industries.

Our products are engineered to provide safety, efficiency and certainty to your operations wherever you are.

We can provide you with tailored solution offerings for a variety of applications whatever it takes.

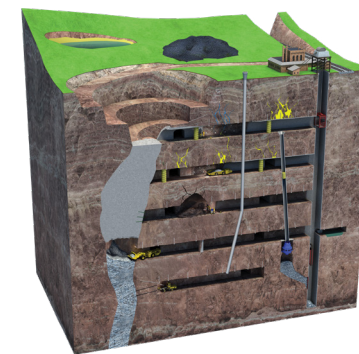
We can help you increase project performance and overcome application challenges through a flexible product portfolio with a wide range of differing characteristics, wherever you go.

## OUR INDUSTRIES.

We serve the mining, construction and energy sectors.

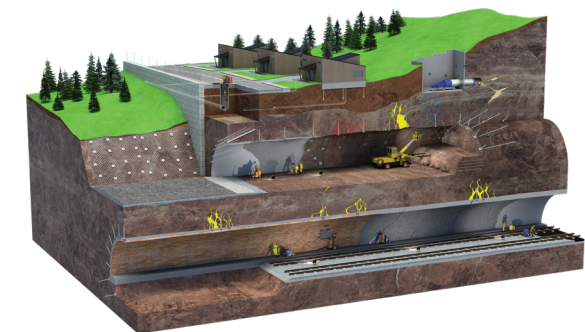
### COAL MINING

We are a leader in providing safe environments in extremely fractured and fluid ground conditions. We understand that safety and efficiency are the key requirements of coal production.



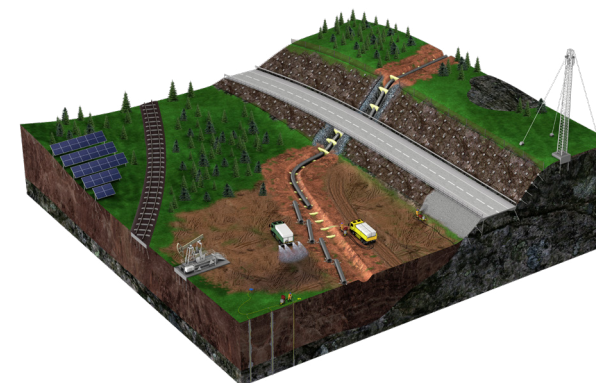
### HARD ROCK MINING

We support underground hard rock mines across the primary commodities. Our products are designed to provide safety, improve efficiency and include automated solutions



### CONSTRUCTION

Stemming from our mining expertise, we have a wide range of products that are used in the construction industry. Our solutions are utilised in both above and below ground assets to secure, repair, restore and rehabilitate.



### ENERGY

We support many types of geostabilisation and structural repair projects in the energy sector. Our products and services include solutions in the oil & gas and renewable energy sectors.



# SAFETY FIRST.

## INNOVATING PERFORMANCE

Minova has been developing and delivering pioneering ground support systems for the mining, construction and energy industries since 1882. With this experience, we have become a global leader, operating in over 25 countries with manufacturing plants on five continents.

### PROACTIVE PARTNERSHIPS

We are an industry innovator and leader both in technology and application expertise.

Our product and applications specialists from around the globe provide on-site technical support for your projects no matter the location.

With primary focus on safety, our success comes from customer-connected engineers and chemists who continually innovate and perfect solutions, raising industry standards.

### TAILORED SOLUTIONS

We specialise in total solutions and vital technologies designed to meet your challenges.

Our wide array of products and services includes:

- Anchoring, rock bolting and soil nailing
- Concrete repairs
- Construction adhesives
- Customer support and consulting
- Erosion control
- Filling of cavities, voids and backfilling
- Ground consolidation
- Joint sealing
- Micropiling and underpinning
- Mine gas sealing and ventilation control
- Pipe repairs
- Slope stabilisation
- Structural repair
- Water sealing



# DEFYING THE TOUGHEST CONDITIONS.

We partner with our customers to design solutions for the world's most challenging ground control problems.

We are renowned for our world-class products, our ability to be creative and for getting it right.

Two notable examples of our abilities are the Ólafsfjörður and Siglufjörður tunnels.

Our resin-based technologies were used to manage Iceland's Ólafsfjörður and Siglufjörður tunnel projects.

With water conditions of extreme thermal heat to near freezing, high pressure (30+ bar) and large volume flows (600–2500 L / min) the use of injection cements or basic resins was impossible.

Our polyurethane resins (PUR) and silicate resins were successfully injected and technical support was provided by our experienced engineering and applications team to meet the challenging conditions.







# PRODUCT APPLICATION FLEXIBILITY.

The application of resins or cements is determined by the expectation of the final result and project requirements. Our experts develop the products to meet your requirements regardless of the parameters.

### CEMENT-BASED MATERIALS

Injection, pumping and/or filling with cement-based materials is predominantly a standard practice, benefiting from cost-effective and easy application.

We offer a range of microfine cements for injection into micro-cracks.

### RESIN-BASED MATERIALS

Resin-based technologies offer higher penetration rates than cement-based materials.

Our resins can seal, stabilise, or consolidate cracks and joints thanks to their high flexibility and adjustable setting times in both hot or near freezing temperatures.

These products can set instantly when in contact with groundwater or when pumping stops, delivering fast solutions for water stoppage.

These quick reaction speeds and high early strengths allow for extreme resistance to pressurised water washout while still being able to seal off inflows under demanding conditions.

# WHATEVER YOU DO.

Our applications experience, high quality products and equipment provides you with unique support in a variety of applications.

### SEALING AND WATER CONTROL

Our products prevent or reduce inflow into underground structures to stop erosion and structural instability.

### STRENGTHENING

Our grouts support the original rock and soil parameters, including compressive strength, shear resistance, tensile strength and/or cohesion.

### FILLING

Our flexible portfolio includes filling of empty spaces, including cavities or over-breaks to control rock movement, annulus grouting, and ventilation barriers.

### CONSOLIDATION

Our products are used for consolidation by filling rock mass discontinuities. We can help reduce the compressibility of the soil matrix in construction applications.

# WE MANUFACTURE A RANGE OF SPECIALTY GROUTING PRODUCTS DESIGNED TO MEET PROJECT REQUIREMENTS.





# ENCAPSULATED GROUTS.

## LOKSET® | CAPCEM®

Our grouting solutions cater to the most demanding environments. We drive innovation in our production of encapsulated grout technologies.

Striving to simplify the grouting process, we developed our encapsulated grouts such as Lokset and Capcem, which are used in the mining, construction and energy sectors.

### LOKSET

Lokset is our innovative resin-based grouting capsule for bolting applications.

Lokset is renowned for its reliability, fast setting times, high bonding strength and ease of use.

The capsules are available in various sizes, with varying setting times and viscosity to give you the right level of flexibility.

### CAPCEM

Capcem is a cementitious capsule designed for easy handling in bolting applications.

It eliminates the need for mixing and pumping equipment, minimising grout wastage.

Capcem's non-shrink features ensure effective contact between the bolt/bar and grout, contributing to a successful load transfer and increasing site safety.

Being a chloride free product, it helps to avoid corrosion and thanks to its thixotropic nature, loss of grout is prevented even from overhead holes, reducing operational cost.

### IMPROVING PERFORMANCE

Our special cementitious grouts and resins are used in both manual or automatic installation, they provide you with an adaptable solution for your project.



# THE COMPLETE SITE PACKAGE.

We are more than just a manufacturer.

Thanks to years of expertise and a proven track record in customer support, we have developed a full range of additional support services and equipment to help you deliver your projects.

We aim to go over and beyond to ensure that you receive a full product support.

To assist your needs, we provide a specialist suite of packages to increase your safety, efficiency and profitability.

Our site support extends to:

- Application services
- Consultation services and product expertise
- Drilling and bolting equipment
- Grouting accessories and Lokset installation systems
- Pump and injection solutions
- Sprayed solutions

# PUMPABLE GROUTS.

We leverage our global technology resources to offer a range of pumpable cement and resin grouts for anchoring applications.

## PUMPABLE CEMENT GROUTS

Our cement grouting solutions for rock bolting applications range from standard pumpable to high-performance rapid setting and high-strength grouts.

Our diverse and comprehensive portfolio is used for bolting applications for mining, construction and energy industries, but it may also be used for general strata injection and consolidation.

Our cement anchoring products include materials suitable for both manual and mechanised bolt grouting technologies. They are supplied pre-blended and pre-packaged for your ease of use.

All grouts are formulated with an expansion compensation system and are resistant to shrinkage.



## PUMPABLE/INJECTABLE RESINS

Over the years we have led technology in the development of ultra-fast curing silicate and polyurethane one and two component resins for use in our main industry sectors. Our products are used where time is of the essence, allowing you to speed up the traditional 24-hour curing period that cementitious grouting systems require.

Typical applications include:

- Grouting of cable bolts, steel/GFRP bolts, Self-drilling anchors and our broader range of anchoring products.
- Injection of cracks, fissures and joints in mines and construction assets.

Our pumpable CarboThix resins, used with our SDA bolting systems, form our One Step Bolting System™. The immediate bonding of the resin makes it possible to load the bolts without leaving the borehole, making the bolting process safer, significantly quicker and more efficient.



# SUPPORTING CREATIVE ENGINEERING.

There are times, where you need to think outside of the box and develop a solution to a nearly insolvable problem. We have the right products and expertise to help you when you need us the most.

We know that when a project is time-critical, you need all the support and options available at hand that can solve the issues.

Our vast product portfolio allows you to choose a tailored solution, giving you the best operational flexibility.

An example of our product application was in the Republic of Karelia (Russia), where a dam has eroded over time and water leakage was observed with a flow rate of about 50 l/min resulting in wash out.

To stop the high-pressure wash out a combination of Minova injection resins plus cement grouts were injected into the same borehole one after the other.

Once this resin and cement combination successfully countered the wash out, a second resin, with a longer reaction time, was injected to fill the remaining fissures.

A polyurethane cement suspension was injected to stop remaining leakage where suitable.

A combination of our products allowed the customer to tackle the problem and resolver the issue in a timely manner.



