



UNIPASS
BOLTING



UNIPASS **NEXT GENERATION** **BOLTING.**

www.minovaglobal.com





SECURING PERFORMANCE. TOGETHER.

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

Our products are engineered to provide safety, efficiency and productivity 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.

**WE ARE KNOWN FOR
OUR HIGH QUALITY
PRODUCTS, TECHNICAL
EXPERTISE & PROBLEM
SOLVING.**

THIS IS A HERITAGE WE ARE
PROUD OF AND WHICH WE
CONTINUE TO BUILD UPON.



GOING DEEPER UNDERGROUND.

With mines going deeper, mining companies and operators are facing challenges related to installation of their ground support.

► **HIGHER RISK TO OPERATORS**

Operators are working in more difficult ground conditions, with increasing convergence, seismic events and rock bursts. Higher stresses and rock movements create the demand for higher performance ground support to decrease safety risks for operators.

► **CHALLENGE ACCEPTED**

Minova have been developing and manufacturing ground support products to the mining industry since 1882. Working in partnership with mining and geotechnical companies and operators, we have developed an innovative and ground-breaking solution to the current and future challenges of hard rock mining, which we call UniPass.

► **INCREASED REQUIREMENTS**

Ground support manufacturers are required to provide product solutions that can help minimise risks and improve safety, efficiency and productivity.

With traditional rock reinforcement solutions, challenges are faced during installation processes, especially in broken ground conditions. These result in decreased safety and lower productivity.

Existing products can have limited yielding capacity and struggle to cope with the increased geotechnical and installation challenges.



UNIPASS: ALL-IN-ONE BOLTING SYSTEM



**OUR HOLLOW BOLTS AND
CARBOTHIX RESINS PROVIDE
AN ALL-IN-ONE BOLTING
SYSTEM NAMED UNIPASS.**

OUR SOLUTION.

► **NEXT GENERATION BOLTING**

UniPass bolting combines our static, yielding and dynamic hollow bolts and CarboThix bulk resins to provide an all-in-one bolting system that has been engineered to suit the most demanding requirements of underground mining and tunnelling.

► **AUTOMATING MINES**

The UniPass bolting system has been designed with semi- or full- automation of ground support installation in mind.

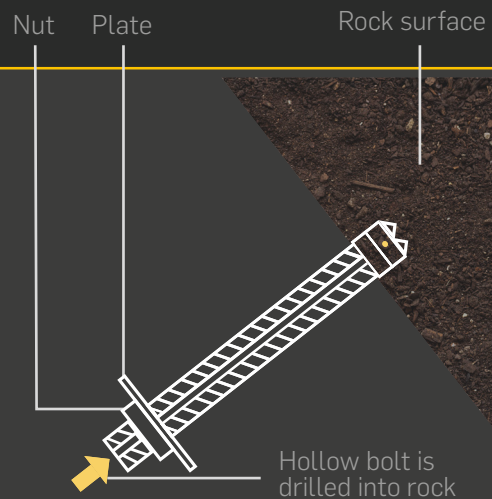
► **INSTALLATION FLEXIBILITY**

The UniPass system can be installed in a one step operation by using our self-drilling bolts. The system can also be installed in pre-drilled holes (two step process). UniPass is adaptable to varying ambient temperatures, humidity and ground conditions.

DRILL. INJECT. GO.

1 DRILL.

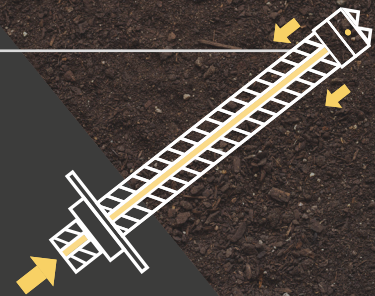
The high quality and unique design of Minova's hollow bolts allows fast and secure insertion of the bolt even in hard rock and in challenging ground conditions.



2 INJECT.

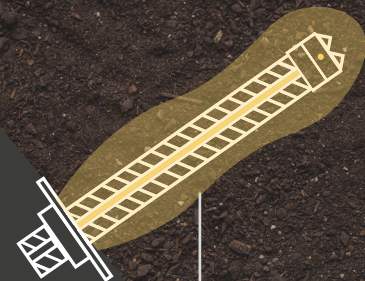
CarboThix, our two-component bulk resin, is injected through our hollow bars, consistently filling the annulus around the bolt.

Resin enters central hollow core of the bolt & exits the bolt or sacrificial drill bit



3 GO.

The super quick reaction of the resin creates a strong bond between the anchor and rock, providing robust and immediate ground support.



Cured CarboThix bonds the anchor and rock

HOLLOW BOLTS.

► **WHY MINOVA HOLLOW BOLTS?**

Our hollow bolts provide you with the required flexibility when choosing the right support for your mining project.

► **OPTIMISED BOLT AND DRILL BIT DIAMETERS**

With the drill bits welded onto the bolts, you can reduce the diameter of borehole and shorten drilling time. The welded drill bit also reduces the annulus and provides better anchorage capacity and optimises resin consumption.

► **VARIOUS BOLT OPTIONS**

We offer hollow bolts for applications in static, yielding and dynamic conditions. A wide range of lengths and configurations is available to suit your ground support requirements.

► **PROVEN SYSTEM**

These high quality bolts have been successfully trialled and tested and are supplied to our customers around the globe. With hundreds of thousands of bolts already installed, you can limit your risks by choosing a proven system.

HOLLOW BOLT OPTIONS

We offer three families of bolts responding to the different requirements of your mining project.

► **STATIC BOLTS**

for static conditions

► **YIELDING BOLTS**

for converging ground

► **DYNAMIC BOLTS**

for dynamic / seismic conditions

ALL BOLTS ARE AVAILABLE WITH OR WITHOUT SACRIFICIAL DRILL BITS. SACRIFICIAL DRILL BITS ARE WELDED ONTO THE BOLT TO MINIMISE DRILLING TIME & RESIN CONSUMPTION.



UNIPASS BOLT ACCESSORIES.

Our UniPass bolting system comes with a range of accessories to enhance your bolting installation process.



► DRILL BITS

Different types are available depending on rock hardness and bolt length



► PLATES

Various geometries are provided depending on your requirements



► NUTS

We offer both standard and lock nuts to secure your bolt and plate

UNIPASS TECHNICAL DATA.

MECHANICAL DATA

Bolt Type	Ultimate Load [kN]	Yield Load [kN]
Static R25	200	150
Static R28 S	300	240
Static R32L	210	160
Static R32N	280	230
Static R32S	360	280
Yielding R32/100	240	155
Yielding R28/150	220	170
Yielding R28/200	210	145
Dynamic R28/150	Dynamic energy absorption is proven between 20-50 kJ depending on type and configuration.	
Dynamic R28/200		



Please refer to UniPass hollow bolt technical data sheets for full specification details.

WHAT IS CARBOTHIX?

CarboThix™ products are instantly thickening (thixotropic), fast curing, two-component silicate resins, specially designed for installation of rock bolts into strata and for consolidation injection in disrupted strata.

FLEXIBLE GROUTING SOLUTION

CarboThix products are our flagship silicate resins, which increase your safety, efficiency and productivity.

Available as CarboThix 2/Standard, CarboThix Fast and CarboThix Rapid, the resins are designed for use in various ambient temperatures. These resins also work in the presence of water allowing for flexible utilisation.

Due to its unique thixotropic properties, CarboThix instantly thickens when pumping is stopped.

Compared to traditional grouts, which need 24-48 hours to develop initial strength, CarboThix can be loaded in minutes providing you with early support and improving your cycle time.

Minova approved static mixers and flushing agents are available for use with CarboThix.

WHY CARBOTHIX?

- ▶ Fast setting - load bearing in minutes
- ▶ Reduces bolt hold time
- ▶ Optimum load transfer
- ▶ Full bolt encapsulation
- ▶ Improved corrosion resistance
- ▶ Fills surrounding cracks
- ▶ Volume adjustable to varying borehole dimensions
- ▶ Optimised resin usage
- ▶ Consistent performance



**CARBOTHIX
INCREASES
YOUR SAFETY,
IMPROVES
EFFICIENCY
AND
PRODUCTIVITY.**

THE FUTURE OF BOLTING.

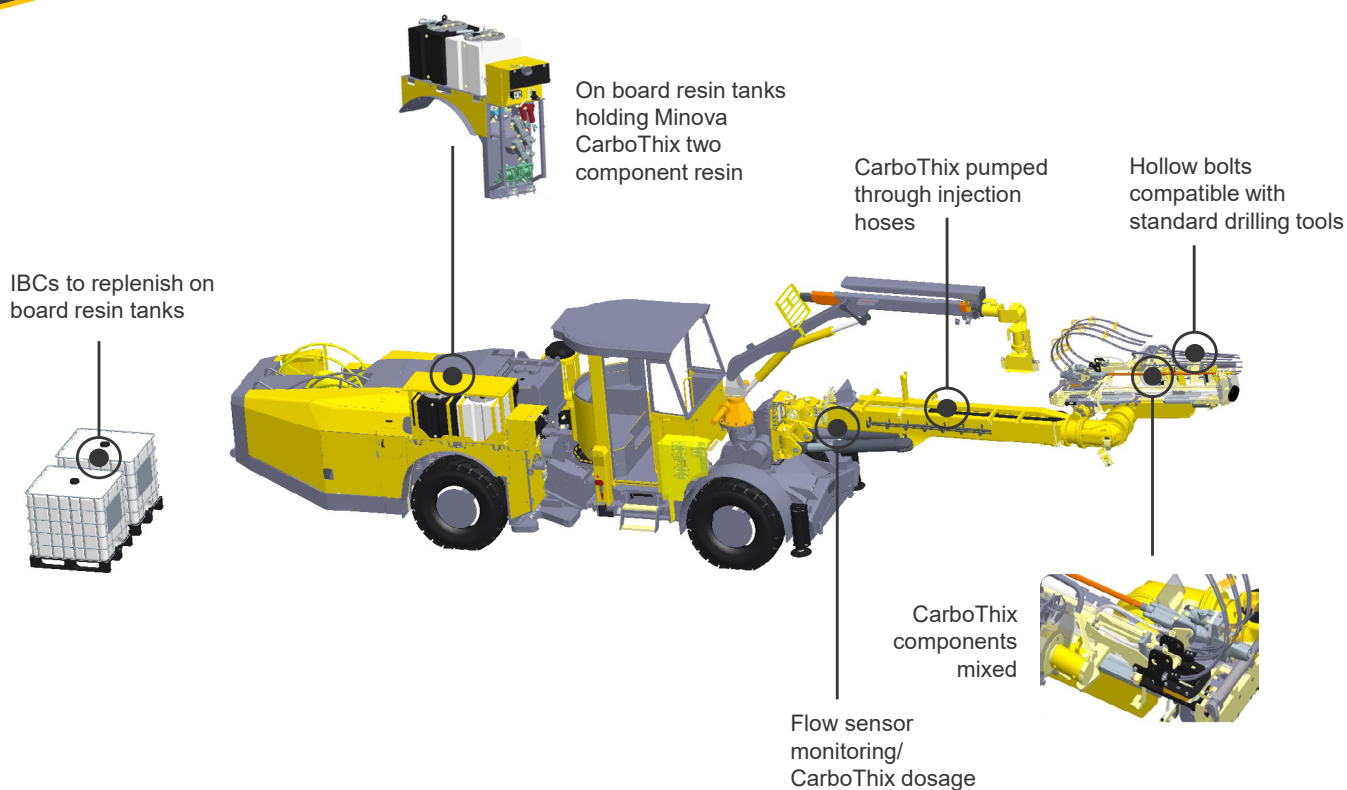
SUPPORTING AUTOMATION


We offer the complete solution for your underground challenges.

We leverage our hollow bolts and CarboThix technologies, ensuring the highest safety and efficiency in mining and tunnelling environments.

Converging and dynamic ground conditions, including fractured and loose rock, are easily overcome.

The UniPass bolting system enables full automation of the bolting cycle, reducing worker exposure to harmful and hazardous situations and decreasing installation time in excavated areas.





WHY CHOOSE UNIPASS?

Our UniPass Bolting System brings you product reliability,
reduces project costs and improves your safety on site.



IMPROVED SAFETY

- ▶ Keeping the miner away from the face
- ▶ Reduced manual handling
- ▶ Early support due to fast curing of the resin



INCREASED PRODUCTIVITY

- ▶ Improved advance rate /cycle times
- ▶ No cleaning (as for a cement system saves 1-1.5 hours per shift)
- ▶ On/off solution, can stand for weeks without draining the hoses/pumps
- ▶ Full encapsulation (load transfer, corrosion protection)
- ▶ Eliminates traditional issues caused by using cartridges in broken ground



FAST CURING

- ▶ Minimised disruption of rock integrity
- ▶ Fast system providing full support capacity shortly after injection
- ▶ Unlimited resin volume adjustable to local conditions (cracks & voids)



TESTED & PROVEN

- ▶ Extensive health and safety assessments
- ▶ Extensively tested in laboratories and field
- ▶ Confirmation testing undertaken at GIG & CANMET



HIGH QUALITY PRODUCTS

- ▶ High performing bolting system in wet and geotechnically challenging ground conditions
- ▶ Guaranteed resin mixing for high quality installation



ONE INTEGRATED SUPPLIER

- ▶ One point of contact
- ▶ Proven compatibility of bolt and resin components
- ▶ Compatible static mixers and flushing agents available



SUPPORTING AUTOMATION

- ▶ Automation/remote control compatible
- ▶ On-board logging and recording available - providing QC for every bolt installed



UNIPASS
BOLTING

SECURING PERFORMANCE. TOGETHER.

UNIPASS GROUND SUPPORT

The UniPass bolting system is an innovative solution, which combines hollow bolts and our original bulk injectable CarboThix resins.

By combining these products, we have created a unique bolting offer, that has been engineered to suit the most demanding requirements in underground mining and tunnelling.

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 **MINOVA**