

MINING / CONSTRUCTION / TUNNELING / GEO-TECHNICAL**EXRB EXPANDABLE ROCK BOLTS****ROCK STABILIZATION****DESCRIPTION**

The EXRB Expandable Rock Bolt is a full column anchored rock bolt that forms a mechanical interlock between the entire bolt and the borehole wall. When rock surrounding an underground excavation needs to be reinforced or stabilized, choose Minova's EXRB to create the safe and stable working environment your site requires.

The EXRB offers fast and reliable rock reinforcement with assured quality and guaranteed mechanical properties.

Minova EXRB consists of a folded steel tube with upper bushing and inflation bushing welded at each end of the tube. A specially designed adjustable face plate is delivered as an option.

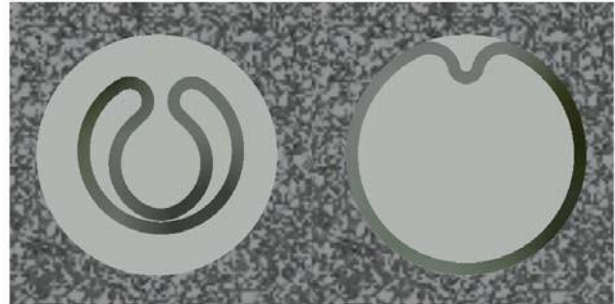
EXRB requires steel with extremely good elongation and formability properties. This produces a finished bolt that will be able to accommodate large rock movements and still maintain its high load bearing capacity. EXRB delivers a high level of safety and uninterrupted production in the customer's operations.

USE

The EXRB is a cost-effective means of rock reinforcement in a variety of rock conditions from hard to soft rock. It is flexible and allows for variations in the borehole diameter. The EXRB is designed to accommodate large rock movements and while maintaining high load bearing capacity.

ADVANTAGES

- Provides immediate and full support action
- Accommodates large rock movements while maintaining high load bearing capacity.
- High deformation characteristics accommodates ground movements in tension as well as in shear

**THE EXRB DIFFERENCE**

- High quality raw materials
- Energy efficient steel production
- Seamless production control in our own facilities throughout the manufacturing process
- Production according to ISO 9001 & ISO 14001
- QA and certified engineered rock reinforcement product
- Full production chain customization on request
- Traceability throughout the manufacturing process
- Short delivery times
- All EXRB may be supplied with a protective coating
- Reliable logistics

SAFE AND EASY INSTALLATION

- Accommodates variations in borehole diameter
- Quality assured installation - when the pump stops the bolt is successfully installed
- No cement grout or other chemicals required to anchor the bolt

TECHNICAL DATA / DESIGN DATA

FEATURES

Minova's EXRB ensures a minimum breaking load as well as corresponding elongation. EXRB are available in two types, EXRB (cold formed) and EXRB+ (cold formed and normalized). Each type is available in three different load bearing capacities.

EXRB 120 / 120+ 12 metric tons

EXRB 160 / 160+ 16 metric tons

EXRB 240 / 160+ 24 metric tons

Consult your local Minova USA, Inc. Customer Service Representative for more information.

The difference between the EXRB and EXRB+ is the elongation characteristics: the EXRB (cold formed type) has an elongation of approximately 15% and the EXRB+ (cold formed and normalized type) has an elongation of approximately 30%. The EXRB+ is made of unique steel which goes through a specially developed annealing process, giving the bolts their exceptional elongation characteristics while still maintaining their high load bearing capacity. This process gives the EXRB+ superior properties allowing it to accommodate large rock deformation even in highly deformable rock masses.

TECHNICAL PROPERTIES	EXRB 120	EXRB 120+	EXRB 160	EXRB 160+	EXRB 240	EXRB 240+
Bolt diameter	28 mm		38 mm		38 mm	
Profile diameter	27.5 mm		36 mm		36 mm	
Material thickness	2 mm		2 mm		3 mm	
Upper bushing diameter	28 mm		38 mm		38 mm	
Inflation bushing diameter	30/37 mm		41/48 mm		41/48 mm	
Hole diameter	32 - 39 mm		43 - 52 mm		43 - 52 mm	
Minimum breaking load	120 kN		160 kN		240 kN	230 kN
Minimum elongation	10 %	20 %	10 %	20 %	10 %	20 %
Typical elongation	15 %	30 %	15 %	30 %	15 %	30 %
Standard lengths*	1.5 – 4.0 m		2.4 – 6.0 m		2.4 – 6.0 m	



APPROVALS AND CERTIFICATES



an ISO 9001:2015
Quality Management System Certified Company.

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ADDITIONAL DOCUMENTATION

Started more than 135 years ago, Minova is a global manufacturer and supplier of chemical and mechanical earth control products and support equipment. With manufacturing plants on five continents and operations in more than 25 countries, Minova is an industry-leading provider of ground support solutions for the underground mining, construction and energy industries.

If further information is required consult Minova Americas website: www.minovaglobal.com.

- Steel Bolts, Plates, Other Steel Articles Safety Data Sheet (SDS)
- Minova Guide to Rock Bolting
- Minova Chemicals, Polymers & Steel Application Guide

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