



# MEGABolt-ERB

## Expandable Rock Bolt



**Fast and reliable rock reinforcement with guaranteed mechanical properties**

PRODUCT BY

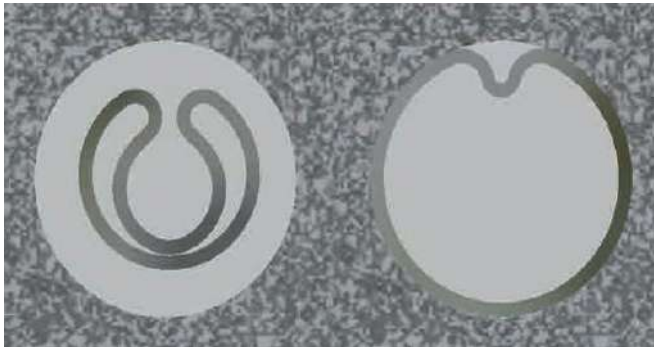
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Classification : External General Purpose

## Description



Rock surrounding underground excavations needs to be reinforced and stabilized in order to provide for a stable and safe working environment.

The ERB - Expandable Rock Bolt is a full column anchored rock bolt that forms a mechanical interlock between the borehole wall and the bolt over the full bolt length. This is achieved by inflating the ERB by means of high-water pressure. When the pump stops the ERB immediately provides full rock support action. Also, when the ERB is inflated it causes a contraction in the bolt length which effectively tensions the face plate against the rock surface.

## Applications

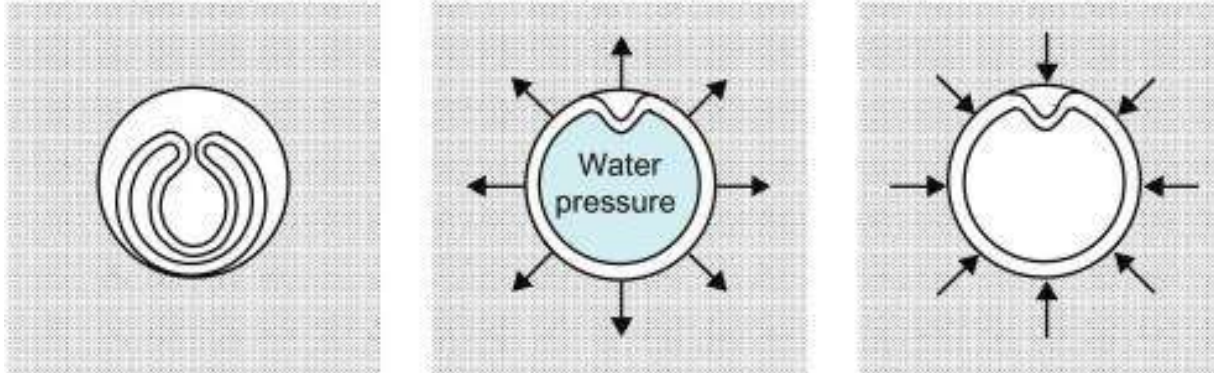
The ERB is a cost-effective means of rock reinforcement in a variety of rock conditions from soft to hard rock. It is flexible and will allow variations in the borehole diameter. The ERB is designed to accommodate large rock movements and still maintain its high load bearing capacity. Further the ERB is an environmentally friendly rock reinforcement solution with no cement grout or other chemicals required to anchor the bolt. The ERB may be installed manually or fully mechanized - just add water. The main applications of ERB are:

- Underground mining
- Underground civil engineering work
- Road- and railway tunnels
- Underground storage facilities

## Advantages

- ❖ Provides immediate and full support action
- ❖ Accommodate large rock movements and still maintain its high load bearing capacity
- ❖ High deformability to accommodate ground movements in tension as well as in shear

## Technological Features



The MEGABolt ERB range features friction bolts with superior product characteristics to meet the most demanding roof support applications. The high load bearing capacity combined with excellent elongation properties ensure safer working conditions and faster excavation cycles for low costs.

Reinforcement with ERB occurs by hydroforming (i.e. expanding) the bolt with high pressure water against a drill hole wall. ERBs expand into the shape of the hole when water at high pressure is pumped. The bolt expands to create a friction and interlocking anchor. MEGABolt's ERB provide immediate full load bearing capacity with safe and easy installation. Installation is easy and flexible to fit various drill hole diameters.

MEGABolt ERB consists of 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.

ERB 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. The MEGABolt ERB delivers a high level of safety and uninterrupted production in the customer's operations.

High quality steel guarantees homogenous material for MEGABOLT ERB, Expandable rock bolts. Expandable rock bolts are manufactured from unique steel in the Nordics. Each production stage from steel manufacturing to profiling and assembling of rock bolts belongs to partners own production and quality control chain. Quality control secures that the product is regularly tested to guarantee quality and safety. Each individual ERB is marked with a unique code, which enables full traceability of the bolts



## Technical Specifications

MEGABolt guarantees a minimum breaking load as well as corresponding elongation for all ERB. MEGABolt ERB are available in two types,

- ❖ MEGABolt ERB (cold formed)
- ❖ MEGABolt ERB+ (cold formed and normalized).

Each type includes bolts with three different load bearing capacities:

- ❖ MEGABolt ERB120 and ERB+120 with a load bearing capacity of 12 Kn.
- ❖ MEGABolt ERB160 and ERB+160 with a load bearing capacity of 16 Kn.
- ❖ MEGABolt ERB240 and ERB+240 with a load bearing capacity of 24 Kn.

The difference between the MEGABolt ERB and MEGABolt ERB+ is the elongation characteristics: the cold formed type, the MEGABolt ERB has an elongation A5 ~ 15 % and the cold formed and normalized type the MEGABolt ERB+ has an elongation of A5 ~ 30 %.

With MEGABolt ERB+, MEGABolt is the leading manufacturer of expandable rock bolts. The MEGABolt ERB+ is made of special steel which go through a specially developed annealing process which give the bolts their exceptional elongation characteristics and still maintain the high load bearing capacity. This gives the MEGABolt ERB+ superior properties in order to accommodate large rock deformation in high deformability rock masses, e.g. squeezing rock.

	ERB 120	ERB 120+	ERB 160	ERB 160+	ERB 240	ERB 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 brushing 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	