



SSAB Virsbolt
expandable rock bolt
for rock reinforcement

SSAB



Fast and reliable rock reinforcement with guaranteed mechanical properties

Fast installation

SSAB Virsbolt expandable rock bolt is the fastest way to secure the rock roof when tunneling and mining in both soft and hard rock. The bolts are not sensitive to variations in drill hole diameter.

Instant load bearing

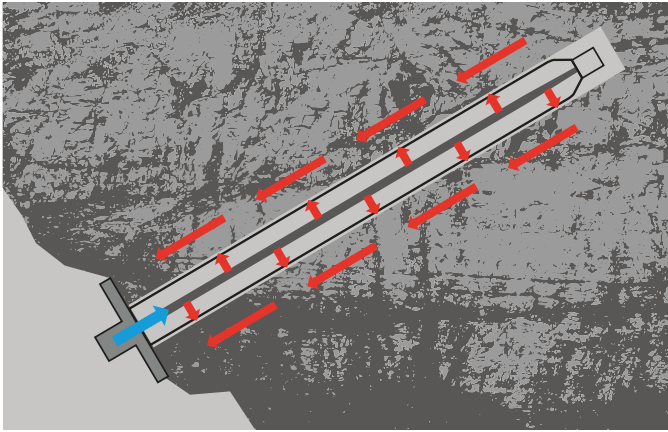
When the hole is drilled, the folded rock bolt is inserted and expanded with water from a high-pressure pump. As soon as the bolt is expanded it squeezes tightly against the rock. The load is carried immediately – no waiting for grout or resin to harden.

High safety

SSAB Virsbolt is made of a steel with exceptional formability properties, ensuring a safe and reliable performance in different rock conditions.

An environmentally friendly solution

SSAB Virsbolt is a safe and environmentally friendly way to speed up your tunneling operation. Just add water, no need for chemicals or cement grout to anchor the bolt. It creates a better working environment without any risk of spreading harmful substances.

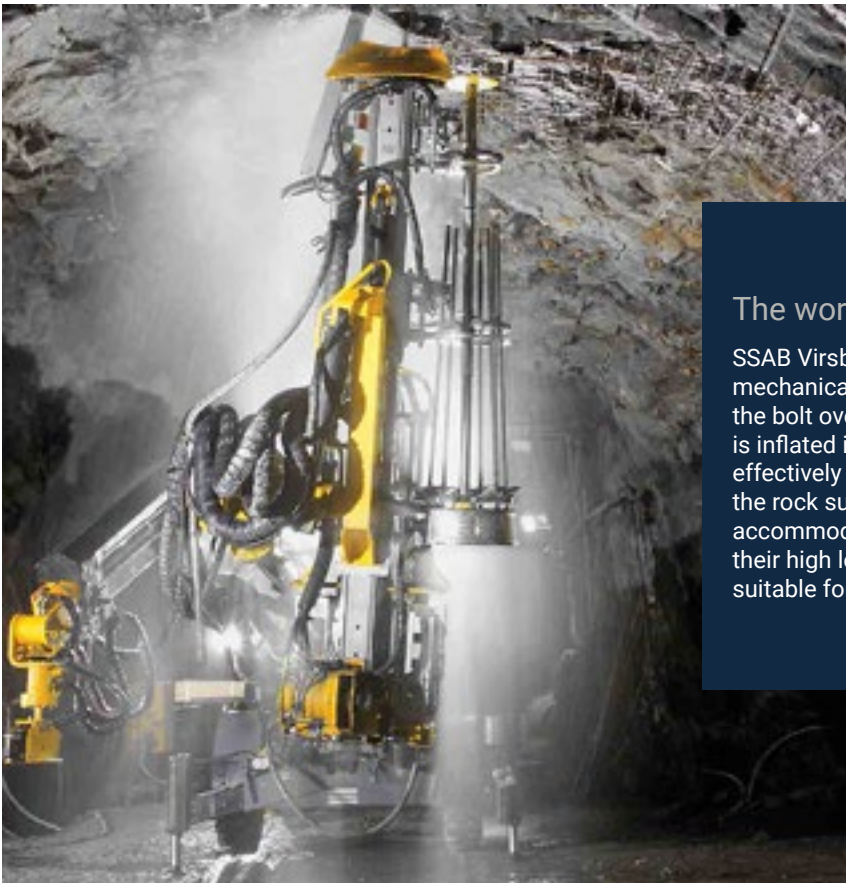
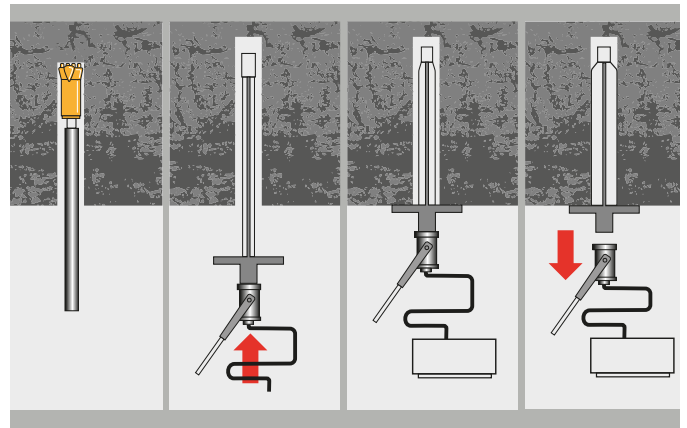


Ready for all underground work

- Underground mining
- Underground civil engineering work
- Tunneling

Four steps to a secured rock roof

1. The hole is drilled to the necessary length with standard rock drilling equipment.
2. The bolt is inserted with or without the optional face plate.
3. Pressure pump is attached and expands the pipe with a pressure up to 30 MPa.
4. Pump is removed, and the rock is secured.



The working principle

SSAB Virsbolt expandable rock bolt forms a mechanical interlock between the borehole wall and the bolt over the full bolt length. When SSAB Virsbolt is inflated it also contracts in the bolt length which effectively tensions the bolt's face plate against the rock surface. The rock bolts are designed to accommodate large rock movements and still maintain their high load bearing capacity. SSAB Virsbolt is suitable for both manual and mechanized installation.

A heritage of quality

SSAB has been a trusted global supplier of expandable rock bolts for more than 40 years. The whole production chain is controlled by SSAB, ensuring a high and stable product quality.

SSAB Virsbolt comes with performance guarantees

SSAB guarantees a minimum breaking load as well as corresponding elongation for all SSAB Virsbolt. The bolts are available in two types. SSAB Virsbolt is cold formed and SSAB Virsbolt+ is cold formed and normalized. Each type includes bolts with three different load bearing capacities: 12, 16 and 24 metric tonnes.

The difference between SSAB Virsbolt and SSAB Virsbolt+ is the elongation characteristics. SSAB Virsbolt has a typical elongation A5 of 15 %. SSAB Virsbolt+ has a typical elongation A5 of 30 %, making this product a leader in expandable rock bolts.

SSAB Virsbolt+ is made of a steel which goes through a specially developed annealing process. This gives the bolts their exceptional elongation characteristics while still maintaining the high load bearing capacity. SSAB Virsbolt+ offers superior performance in rock with high deformability characteristics, for example squeezing rock.

How we make SSAB Virsbolt

- Manufactured 100 % from high-quality Nordic steel
- Quality assured and certified rock reinforcement product
- Traceability throughout the manufacturing process
- Short delivery times
- Reliable logistics

Thoroughly controlled and documented processes guarantee a high, even quality with reliable performance for every bolt. SSAB Virsbolt undergoes eddy current non-destructive testing, inflation tests and flattening tests. The bolts have total traceability from steel production to final bolt.





“We have been using rock bolts from SSAB for several years. We’re happy with the quality and SSAB is easy to deal with. They are quick to respond and give us the support we need.”

Tom Söderman, Vice President, Kemi Mine Ferrochrome, Outokumpu



Also available with corrosion protection

SSAB Virsbolt and SSAB Virsbolt+ can be delivered with corrosion protection from a polymer alloy coating. This will save a step in your production and thereby time and money.



The world's most versatile range of expandable rock bolts

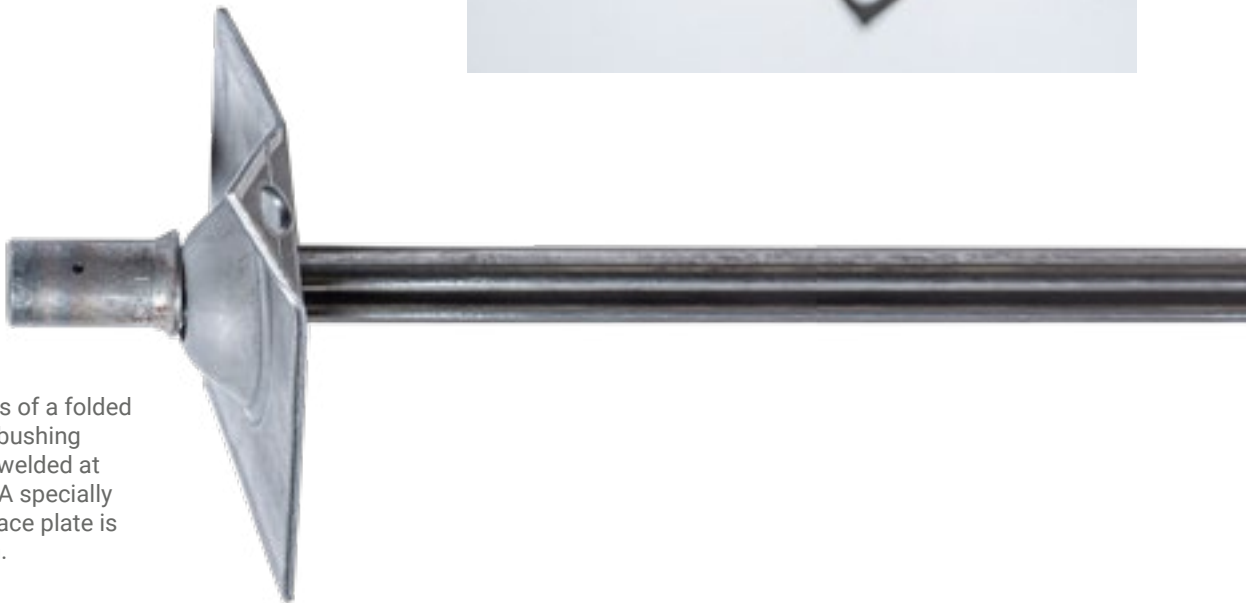
Technical properties for SSAB Virsbolt and SSAB Virsbolt+

	120	120+	160	160+	240	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	15 %	25 %	15 %	25 %	15 %	25 %
Typical elongation	20 %	30 %	20 %	30 %	20 %	30 %
Standard lengths*	1.5-4.0 m		2.4-6.0 m		2.4-6.0 m	

* Other lengths on request

The adjustable face plate

The choice of face plate is critical to the load bearing capacity of any rock bolt. The adjustable face plate for SSAB Virsbolt is designed to provide optimum support action. It will secure the installation without introducing unfavourable tensile stresses into the bolt head and will ensure that the face plate always lies flat against the rock surface. This is facilitated by the elliptical bolt hole and the domed plate.



SSAB Virsbolt 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.



Delivered to suit your needs

Each production stage from steel manufacturing to profiling and assembling of rock bolts is covered by SSAB's own production and quality control chain. Each individual bolt is marked with a unique code, which enables full traceability.

SSAB Virsbolt is delivered in standard bundles, loaded on trucks or in 20' containers. The bolts may be delivered in full container load (FCL) or less container load (LCL) at customer request. All SSAB Virsbolt can be ordered with an oil coating which protects against corrosion during transport and storage. SSAB's delivery performance is high due to effective logistics and short delivery times, which makes SSAB's expandable rock bolts a cost-effective solution worldwide.

Quality assured SSAB Virsbolt ready to be shipped to underground construction and mining sites worldwide.

SSAB

SSAB is a Nordic and US-based steel company. SSAB offers value added products and services developed in close cooperation with its customers to create a stronger, lighter and more sustainable world. SSAB has employees in over 50 countries. SSAB has production facilities in Sweden, Finland and the US. SSAB is listed on Nasdaq Stockholm and has a secondary listing on Nasdaq Helsinki. www.ssab.com. Join us also on social media: Facebook, Instagram, LinkedIn, Twitter and YouTube.

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