

MINOVA

SECURA DB

DYNAMIC YIELDING ROCK BOLT



DESCRIPTION

Minova Secura Dynamic Bolts consists of a Smooth Solid bar with a set of crimped paddles on the toe end. The bolt's head is rolled with proprietary Nova R threads and an integrated dome torque nut. The bolt is encapsulated completely with Lokset® Resin and securely anchored by the unique Minova crimped paddles profile. Custom alloy steel enables large deformation of the smooth section of the bar between the anchor point and face plate, thereby absorbing large amounts of energy in dynamic grounds. The crimped paddles profile also assists in resin film shredding and provides consistent and efficient mixing of resin capsule components.

Available in various lengths, either black or hot dip galvanized.

ADVANTAGES

- > Design includes a unique and historically proven crimped paddles system to improve resin mixing, providing higher bond strength in large diameter boreholes
- > Permanent primary support
- > Consistent pin nut torque drive system, using standard square nut size, standard drivers and installation equipment
- > High strength proprietary 'Nova' thread (R thread) profile consisting in a modified rope thread with large root and small crest areas
- > Maintains support capacity while squeezing ground movement is taking place
- > Allows for full encapsulation to be maintained
- > Can be used in the most common resin bolt hole sizes
- > Installation is similar to regular resin bolt procedures

APPLICATION AND USES

Minova Secura DB is a highly effective ground support element in underground installations and tunnels subjected to large deformations in rock masses, caused by rock bursting or squeezing rock.

TECHNICAL PROPERTIES

PROPERTIES	Secura DB20 R22	Secura DB22 R24
Bolt diameter ¹ (mm)	20	22
Cross-sectional area ¹ (mm ²)	314	380
Paddle Diameter ¹ (mm)	23-27	26-30
Yield Strength ² (MPa)	385	385
Yield Force ² (kN)	130	150
Tensile Strength ² (MPa)	625	625
Tensile Force ² (kN)	195	235
Elongation ¹ (A200 %)	20	20
Breakout Pin Torque (Nm)	85-105	120-170
Displacement Capacity ¹ (mm)	180-220	200-250
Recommended bore hole size (mm)	32-34	32-36
Dynamic Performance (kJ)	>30	>30

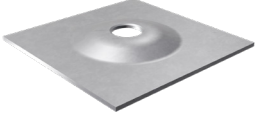

Elongation and Energy values are for a typical 2.4 m long Secura DB bolt. Different lengths will exhibit slightly different results.

¹ Typical
² Minimum

SUPPORTING PRODUCTS

Plates

Minova supplies a comprehensive range of plates for use with the Secura DB. Plates most typically used are:

DESCRIPTION	IMAGE
DOME PLATE 150X150X6MM GR3 OR GR4	
DOME PLATE 150X150X8MM GR5	
DOME PLATE 200X200MM GR4 OR GR5	
PLATE CRN 38X200X200X5MM8L LOOP BK	
PLATE CRN 38X200X200X5MM 8L LOOP GL	

Lokset Resin Capsules

The Lokset system consists of an easily handled capsules filled with a reinforced polyester resin in one compartment and a catalysed mastic filler in the other, separated by a physical barrier. The rotation of the bolt during installation ruptures the capsule, shreds the skin and mixes the two components causing a chemical reaction and transforming the resin mastic into a solid anchor.



PACKAGING AND TRANSPORTATION

Secura DB are packaged in bundles of 100 in a staggered configuration.

TYPICAL BOLT LENGTH (m)	FINISH	DESCRIPTION
1.8 - 3	Black	BOLT SECURA DB20 R22 x L BK
1.8 - 3	Galvanized	BOLT SECURA DB20 R22 x L GL
1.8 - 3.6	Black	BOLT SECURA DB22 R24 x L BK
1.8 - 3.6	Galvanized	BOLT SECURA DB22 R24 x L GL

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TECHNICAL SUPPORT

We provide technical advisory service by a team of specialists in the field. The service includes on site assistance and advice on evaluation trials and laboratory work.

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