

## HARD ROCK MINING

# R24 SECURA BOLT

## PADDLE BOLT FOR STRATA REINFORCEMENT

### DESCRIPTION

Solid reinforcing bar that is threaded at one end with a R thread profile. A torque nut is attached at this end. Includes a paddle system to improve resin mixing, resin film shredding and provides consistent and efficient mixing of resin capsule components.

The R24 Debonded variant incorporates a polyethylene debonding sleeve that fits over the R24 bolt to allow the steel bar to elongate as the load enters the minimal / typical yield.

Available in various lengths and can be supplied black or hot dip galvanised.

### APPLICATION AND USES

Primary use is strata reinforcement in underground mines and tunnels. Debonded variant suitable for squeezing ground conditions.

### ADVANTAGES OF R24 SECURA

- Design includes a unique paddle system to improve resin mixing providing higher bond strength in large diameter boreholes
- Proven historical performance and extensive quality-controlled manufacture
- Permanent primary support
- Consistent pin nut torque drive system
- High strength 'Nova' thread (R thread) profile including a modified rope thread with large root and small crest areas.
- Proven resin mixing performance
- High load transfer



Figure 1: R24 SECURA BOLT

### ADVANTAGES OF R24 DEBONDED

- Maintains support capacity while squeezing ground movement is taking place
- Can be adjusted to accommodate varied lengths of displacement
- Allows for full encapsulation to be maintained
- Can be used in the most common 35-38mm resin bolt hole size
- Installed using the same installation procedures as regular resin bolting

### TECHNICAL DATA

#### Mechanical Properties

Typical Properties	R24	R24 Debonded
Typical bolt diameter (mm)	22	22
Nominal cross-sectional area-bar (mm <sup>2</sup> )	370	370
Paddle Diameter (mm)	30	30
Yield Strength (MPa)	650	650
Tensile Strength (MPa)	850	850
Typical Tensile Force (MT)	32	32
Mass per meter – Bar (kg/m)	3	3
Elongation 5D (%)	22	22
Elongation Uniform (%)	12.1	12.1
Breakout Pin Torque Nm	120-170	120-170
1,000mm de-bonded (mm) Elongation	-----	140
1,500mm de-bonded (mm) Elongation	-----	200

## Debonded Elongation Testing

Figure 2: 1m Debonded Sample Tensile Test Results

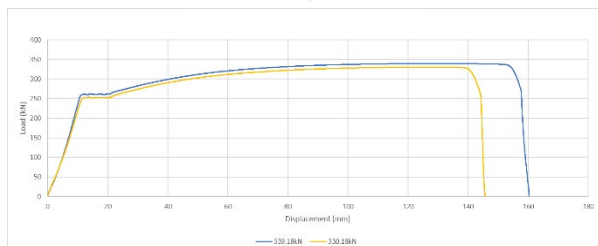
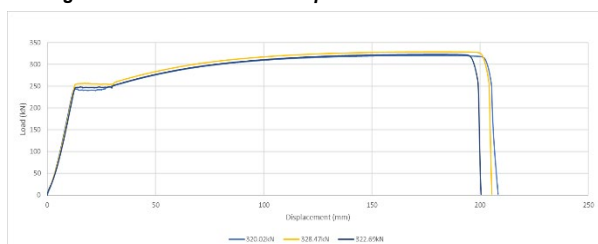


Figure 3: 1.5m Debonded Sample Tensile Test Results

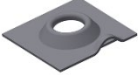
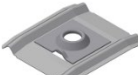



## SUPPORTING PRODUCTS


### Plates

Minova can supply a comprehensive range of plates for use with the R24 Secura bolt.

Plates most typically used with Secura bolts are:

Plate Name	Dimensions (mm)	
Dome Plate	150 x 150 x 7 150 x 150 x 10	
Combi Plate	150x150x5 / 280x300 150x150x7 / 280x300	
Crown Plate	150 x 150 x 5	

### Drivers

Typical Properties		
Driver Length (mm)	800	
Driver detail shank end	Female T38, Pitch 15.5, Left hand	
Driver detail bolt end	42 A/F Female	
Surface Finish	Zinc Plated	
Approx. Weight (Kg)	13	

## Lokset® Resin Capsules

The Lokset system consists of an easily handled cartridge 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.



Figure 4: Lokset Resin Capsule

## PACKAGING

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

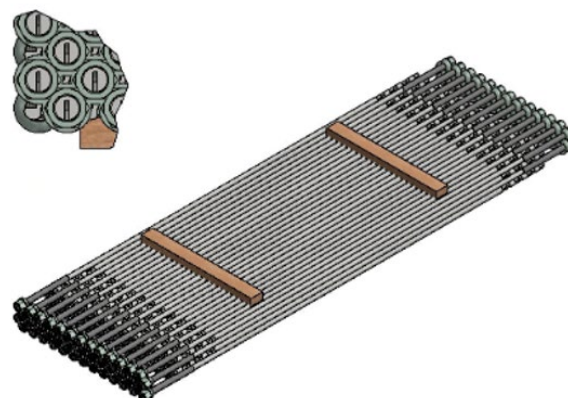


Figure 5: Packaging configuration

## 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.

## MANUFACTURER

### Minova Australia Pty Ltd

An ISO 9001:2015 Quality Management  
Certificated Company



FS 603747

## ADDITIONAL INFORMATION

Minova Australia offers a comprehensive range of products, all of which have been developed after extensive research and testing on a global scale via our international network of operations. These products include:

- Resin anchor systems
- High yield grouts and foams
- Monolithic chock systems
- High performance cable bolt grouts
- Polyurethane resin systems
- Sprayable coatings for ventilation control
- Water stop grouts
- Ventilation formwork systems including: Meshblock and Tecmesh
- Grout mixers and batchers both air and hydraulically operated
- Contract Installations
- Flexible membranes for strata support and waterproofing applications

## CUSTOMER SERVICE

### Minova Australia Pty Ltd

(1800 Minova) 1800 646 682  
(1300 Minova) 1300 646 682  
+61 2 4939 5159 (international)

Email: [sales\\_au@minovaglobal.com](mailto:sales_au@minovaglobal.com)  
Website: [www.minovaglobal.com/apac](http://www.minovaglobal.com/apac)

## LEARN MORE

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