

## HARD ROCK MINING

# R27 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 R27 Debonded variant incorporates a polyethylene debonding sleeve that fits over the R27 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 R27 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: R27 SECURA BOLT

### ADVANTAGES OF R27 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	R27	R27 Debonded
Typical bolt diameter (mm)	22.5	22.5
Nominal cross-sectional area-bar (mm <sup>2</sup> )	455	455
Paddle Diameter (mm)	30	30
Yield Strength (MPa)	600	600
Tensile Strength (MPa)	830	830
Typical Tensile Force (MT)	35	35
Mass per meter – Bar (kg/m)	3.55	3.55
Elongation %	21	21
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

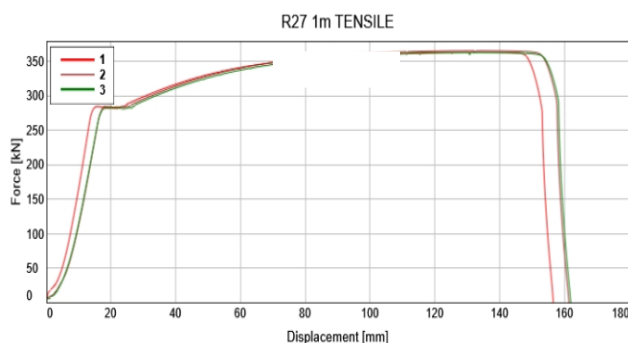


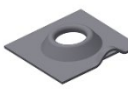
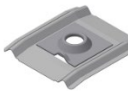
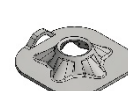
Figure 2: 1m Debonded Sample Tensile Test Results

## SUPPORTING PRODUCTS


### Plates

Minova can supply a comprehensive range of plates for use with the R27 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 3: Lokset Resin Capsule

## PACKAGING

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

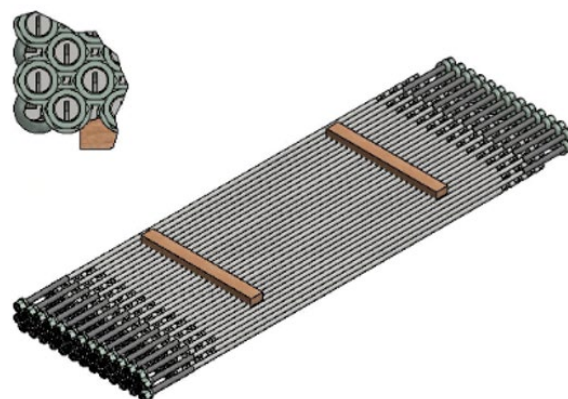


Figure 4: Packaging configuration

## 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

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