

**HARD ROCK MINING**

**FRICTION BOLTS**

**IMMEDIATE FRICTIONAL SUPPORT**

**DESCRIPTION**

Friction bolts are considered the simplest form of ground support. Bolts provide immediate frictional support at the face and can be installed with hand held or mechanised equipment. For additional load bearing capacity, the bolts can be post grouted with cement grouts.

Available in either black or hot dip galvanized steel and are manufactured in 34mm, 40mm, 41mm and 47mm diameters and various lengths from 600 mm to 3,000 mm.

**APPLICATION AND USES**

Primary use is strata reinforcement in underground mines. Used in the development and production headings for immediate support.

**ADVANTAGES**

- Increased contact surface providing higher pull out loads
- Immediate frictional support at the face
- Install with hand-held or mechanised equipment
- Bolts can be post-grouted with Minova anchoring grouts for extra load bearing capacity
- Quick and easy installation



**TECHNICAL DATA**

**Mechanical Properties**

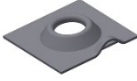

Minimum Properties	34mm	40/41 mm	47mm
Typical Bolt Diameter (mm)	34	40	47
Yield Strength (MPa)	410	410	350
Yield Force (MT)	7.2	8.4	11.6
Tensile Strength (MPa)	520	520	430
Tensile Force (MT)	9.1	10.7	14.2
Elongation <sup>1</sup> %	18	18	20
Outer Diameter (mm)	34.9±0.5	41±1	47.5±1
Taper Diameter (mm)	21±1	26±2	34-37
Taper Length (mm)	75±2	75±1	75±1
Slot Width (mm)	14.9±2	20±2	24.5±1
End Slot Width (mm)	0-5	0-5	0-5
Ring Standoff Distance (mm)	3.75±0.25	5.5±0.25	5.5±0.25
Material Thickness (mm)	2.3	2.3	3.2
Bolt Length (mm)	L +/- 15mm	1475-1525	L +/- 15mm

<sup>1</sup> 80mm sample

**Plates**


Minova can supply a comprehensive range of plates for use with friction bolts.

Plates most typically used with friction bolts are:

Plate Name	Dimensions (mm)	
Dome Plate	150 x 150 x 4 150 x 150 x 7 200 x 200 x 4	
Combi Plate	280 x 300 240 x 300	

**Drivers**

Minova can supply a range of drivers for use with hand-held or mechanised bolting equipment.

Typical Properties		
Driver Length (mm)	500	
Driver detail shank end	Female T38, Pitch 15.5, Left hand	
Surface Finish	Zinc Plated	
Approx. Weight (Kg)	8	

**Anchoring Cement Grouts**

Minova offer a comprehensive range of cement grouts for general and specific bolting applications. Visit [www.minovaglobal.com/apac](http://www.minovaglobal.com/apac) to learn which grout is right for your application.

**PACKAGING AND TRANSPORTATION**

Packed 150 bolts per pallet

**APPROVALS AND CERTIFICATES**

Comply with AS 1554.1  
Comply with AS/NZS 4680

**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. All technical data sheets can be found on [www.minovalglobal.com](http://www.minovalglobal.com)

**MANUFACTURER**

**Minova Australia Pty Ltd**

An ISO 9001:2015 Quality Management Certified 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:

- 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
- Flexible membranes for strata support and waterproofing applications

## **CUSTOMER SERVICE**

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