

MINING / CONSTRUCTION

Tyta Resin Rock Bolt

STEEL ROCK BOLTS WITH ROBUST THREAD

DESCRIPTION

Rock bolt assemblies with extended-length coarse thread, for multiple re-tightening after installation with resin capsules. Assemblies comprise the stud, matching nut and bearing plate washer, in a range of bolt diameters and lengths.

The stud portion of the Rock Bolt Assembly comprises a deformed steel bar with a cold-rolled thread at one end.

The TYTA Bolt has a 6mm pitch knuckle thread, with proprietary form, from lengths of 200 mm up to a maximum of 500 mm in length.

The material is a hot rolled low-vanadium alloyed high strength carbon steel.

APPLICATION AND USE

The Tyta thread bolt has advantages over conventionally threaded rock bolts where:

- The ground is scaling and multiple re-tightening of the nuts is required
- Mesh is fitted in a second operation, after primary bolting
- Rock surface is very uneven, requiring long travel of the nut to tighten mesh against the surface

ADVANTAGES

- Unique thread has high resistance to damage caused by blasting
- Improved cleaning of the thread thanks to its form
- Easier re-tightening of the nut after rock scaling has taken place, due to reduced or no damage to the threaded portion of the rock bolt
- Improved nut fitment during the meshing process



TECHNICAL DATA

TECHNICAL PROPERTIES

Parameter	20 mm	22 mm	25 mm
Yield strength (MPa)	500	600	500
Ultimate strength (MPa)	640	790	640
Elongation (%)	14	12	14

KEY DIMENSIONS

Parameter	Details
Length	+0 / -5 mm from nominal length specified
Diameter	20, 22 & 25 mm core diameter
Straightness	0.4% of length, maximum deviation
Deformations	Height 0.5 - 0.9 mm, "DD" pattern
End crop	45° or 90°, as specified. Free of burrs and edges that extend beyond the bar profile

NUT / BOLT ASSEMBLY PROPERTIES

Details	20 mm	22 mm	25 mm
Yield strength (kN)	150	203	195
Ultimate Tensile Strength (kN)	195	240	243
Elongation (%)	14	12	14

THREAD PROPERTIES

Parameter	Value
Diameter	22 mm & 26 mm max. diam.
Length	200 mm to max of 500 mm
Form	Proprietary form, 6 mm pitch knuckle thread
Hand	Left Hand
End crop	90°, Free of burrs and edges that extend beyond the bar profile

SPECIAL FEATURES

Details	20 mm	22 mm	25 mm
Secura profile	3 1/2 deformations over 350 mm at end of the bolt		
Secure pitch	97 mm for all diameter bolts		
Profile height	25 mm	27 mm	30 mm

STANDARD MARKING

Nominal Roof Bolt Length (m)	Colour Code*
1.8 to 2.09	Green
2.1 to 2.39	Pink
2.4+	Red

* Threaded ends coloured as per industry standard.

LOAD INDICATORS

Parameter	Details
Fitment	1:10 (Standard packaging)
Load indication	28 – 35 kN (3 mm) 45 – 55 kN (4 mm)

NUT OPTIONS

	Details
Material	Steel, Grade 6, minimum hardness Vickers 220 – 302 HV or Rockwell 20 – 30 HRC
Strength	When fitted to the bar and tested in tension, the nut and thread will not fail before the bar.
Shape & Size	Hexagonal, 32 AF x 27 mm High 36 AF x 27 mm High
Break-out device	Shear pin (See table below)
Location on bolt	Not less than 1 thread to show below nut with shear pin. Special settings as per mine request.

SHEAR PIN BREAKING TORQUE

Details	Hollow Pin	Solid Pin
Break-out torque	6mm Ø 90 –130 N-m	5mm Ø 130 –135N-m

BAR OPTIONS

Diameter (mm)	Length (m)	Thread	Thread Length (mm)
20 & 22	1.8 to 3.0	22 x 6mm Knuckle	200 to 500
25	1.8 to 3.0	26 x 6mm Knuckle	200 to 500

BEARING PLATE (WASHER) OPTIONS

Type	Square Size (mm)	Thickness (mm)	Hole Size
Flat	100, 125, 150	4.5 or 5.0 or 6.0	As per diameter required
Domed Dog Ear	125, 150		
Rib Dome Dog Ear	125, 150		
U plate - 140	150 x 140 x 42.5		
U plate - 200	150 x 200 x 42.5		

Rock bolt assemblies are packaged as complete, ready-to-install units.

PACKAGING AND TRANSPORTATION

Bundles of 10 bolts, with alternating threaded /cropped ends. One bolt per bundle has the washers and load indicators. Each bundle is securely strapped.

Additional load indicators can be supplied to customer specification. The bolts are palletized in bundles of 100 bolts for transportation.

DISPOSAL

Tyta Resin Rock Bolt may be disposed of as ferrous scrap metal.

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