

# M24 Rock Bolt Product Data



Solutions from Materials Technology





## M24 Rock Bolts



Minova "M24 Rock Bolts" have been developed for use in point anchored or fully encapsulated roof and rib bolting applications. All bolts are available in either Extra High Tensile "X" grade steel or standard "S" mild steel grade. All bolts are manufactured with a rolled M24 x 3.0 mm pitch right hand thread and are supplied complete with an anti-friction washer, dome washer and hexagonal 36 mm drive nut. Individual bolt lengths are visually identifiable by a coloured dome washer on each bolt. All Minova products including the M24 bolt are manufactured to strict quality control guidelines in accordance with Minova's quality system. Product conformance certificates are available on request.

Minova utilises high grade steel with a ribbed surface profile for enhanced resin mixing and load transfer. Like all other Minova strata support products, "M24 Rock Bolts" have been thoroughly evaluated at Minova's purpose designed test facility in Nowra NSW. Information on this facility and evaluation program is available on request.

Drive nut options available include resin nuts (available in multiple break out strengths) and pin nuts. Minova Chemdrive® (resin) nuts have been used successfully in the Australian mining industry since 1984. The various breakout strengths are designated by the resin colour. Drive nut specifications including breakout torques is available on a separate Minova – Drive Nut PDS.

Secura paddle bolts are also available in  $\frac{3}{4}$ " UNC S grade steel for rib bolt applications. The unique Secura paddle system provides efficient resin mixing utilising a smaller diameter bolt in a standard <28 mm diameter hole. Additional information is available from the Minova – Secura Bolt® PDS. Additional information on safe and correct resin bolting practices is available from the Minova – Lokset® Resin Capsule PDS and the "Minova Guide to Resin Grouted Rockbolts".

Qualified Minova representatives are available to assist in any necessary underground evaluation programs. Industry standard training and assessment procedures exist for all Minova products including "M24 Rock Bolts". All Minova service representatives are accredited workplace trainer/assessors and are experienced in the use of all Minova products.

M24 “X” grade bolts are manufactured using Australian produced HSAC840 grade high tensile steel rebar. HSAC840 is a superior steel grade, offering greater potential performance in conditions subject to stress corrosion cracking.

M24 bolts are recommended for use in 27–28 mm diameter holes. If larger diameter holes are to be used, it is recommended to utilise a product from Minova’s Secura Bolt range. Secura Bolts include a specifically designed paddle configuration for improved resin mixing in larger diameter holes. Full information and specifications are available from the Minova – Secura Bolt PDS.

## Technical Data

Mechanical Properties	M24 X Grade Minimum	M24 X Grade Typical	M24 S Grade Minimum	M24 S Grade Typical
Nominal Bar Core Diameter (mm)	21.6	21.70	21.6	21.70
Nominal Rib Height Diameter (mm)	22.6	23.20	22.6	23.20
Nominal Cross Sectional Area – Bar (mm <sup>2</sup> )	365	370	365	370
Yield Stress (Strength – MPa)	600	650	300	340
* Yield Force Minimum Diameter (MT)	19.0	20.6	9.5	10.8
** Yield Force Typical Diameter (MT)	22.6	24.5	11.3	12.8
Ultimate Tensile Stress (Strength – MPa)	840	890	440	490
* Tensile Force Minimum (MT)	26.6	29.3	13.9	15.5
** Tensile Force Typical (MT)	31.7	33.6	16.6	18.5
Elongation (%) 5D	15	19	22	27
Mass per metre – Bar (kg/m)	–	2.9	–	2.9

Note: Metric Tonne (MT)

\* Yield Force Minimum and Tensile Force Minimum values are calculated on the smallest diameter area of the bolt (thread root diameter) as per AS1275-1985 and ASTM F432-04.

\*\* Yield Force Typical and Tensile Force Typical values are calculated on the nominal cross sectional area of the bar, as provided by the steel supplier.



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## Testing Standards

	M24 X Grade	M24 S Grade
Steel Bar	HSAC840	AS/NZS 3679.1-300
Galvanising	A54680	A54680
Bar Straightness	AS 1442-1991	AS 1442-1991

## Packaging

Bolts are individually packaged in lots of 5 and grouped in bundles of 30. Bolt nuts and threads can be plastic wrapped, with bundles plastic strapped.

All codes listed below include right hand thread. Left hand threaded bolts are available on request. Other sizes and combinations are available on request. Hot dip galvanised bolts are also available.

## Codes, Dimensions and Weights

Item Code	Description	Unit Weight	Pack Size
M2418XBG	M24 1.8m Rock Bolt – X Grade Black, Chemdrive Green Nut	5.4 kg	30
M2418XBP	M24 1.8m Rock Bolt – X Grade Black, Pin Nut	5.4 kg	30
M2421XBG	M24 2.1 m Rock Bolt – X Grade Black, Chemdrive Green Nut	6.3 kg	30
M2421XBP	M24 2.1 m Rock Bolt – X Grade Black, Pin Nut	6.3 kg	30
M2424XBG	M24 2.4 m Rock Bolt – X Grade Black, Chemdrive Green Nut	7.2 kg	30
M2424XBP	M24 2.4 m Rock Bolt – X Grade Black, Pin Nut	7.2 kg	30
M2412SBY	M24 1.2 m Rock Bolt – S Grade Black, Chemdrive Yellow Nut	3.6 kg	30
M2415SBY	M24 1.5 m Rock Bolt – S Grade Black, Chemdrive Yellow Nut	4.5 kg	30
M2418SBY	M24 1.8m Rock Bolt – S Grade Black, Chemdrive Yellow Nut	5.4 kg	30

## Plates

Minova manufactures a comprehensive range of specifically designed plates for use with rock bolts and cable bolts. Extensive product data is available on Minova's full range of plates from Minova's product catalogue and web site, [www.minova.com.au](http://www.minova.com.au) Plates most typically used with M24 Bolts are:

### Crown Plate 42

- 150 mm x 150 mm x 5 mm

### Dome Plate 36

- 150 mm x 150 mm x 6 mm, 8 mm, 10 mm

### Combi Plate 36

- 240 x 300 mm                      • 125 x 125 mm x 4 mm



## Product Service Support

Minova provides a full service support package to customers, including underground pull testing, operator awareness training, underground audits and stock control assistance. Each service package is developed to suit the individual customers requirements.

All aspects of Minova's product service support service is provided by experienced trained and qualified personnel.

## Additional Information

For additional information relating to any aspect of this product specification data, including product performance, quality, testing, specification, range, availability etc. please contact your nearest Minova office, or email: [technicalsupport@minovaint.com](mailto:technicalsupport@minovaint.com)

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July 2010



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