

Dynamic Bolts Product Data



Solutions from Materials Technology



Dynamic Bolts

Minova are an authorised distributor of Australian mining industry renowned Garford Bolts. Garford have designed and manufactured Dynamic bolts for Australian mining applications since 2005. Garford products are manufactured to quality accredited standards ISO:9001 at facilities in Perth, Western Australia.

Minova has supplied and serviced Garford products for over 10 years and have enjoyed a beneficial relationship built on trust, communication and co-operation. Garford's Dynamic bolt range includes 15.2 mm diameter Dynamic cable bolts and 21.7 mm diameter Dynamic solid bolts.

The Garford Dynamic Bolts incorporate a specially designed mechanical Dynamic device which is attached to the bar or cable at a specified point depending on the yield requirement of the bolt. The Dynamic device is anchored in the borehole using cement or resin grout. A polyethylene debonding sheath along the bolt length prevents bonding of the steel element with the cement or resin grout, enabling the bolt to be pulled through the Dynamic Device repeatedly.

The Garford Dynamic Solid Bolt incorporates a 21.7 mm diameter smooth surface profile 5152AVH grade steel bar. A large diameter mixing element is attached to the end of the bolt to enable effective mixing of the resin capsule components in large diameter boreholes (typically 45 mm). Intensive testing programs have proven the mixing effectiveness of this element.

The Garford Dynamic Cable Bolt also incorporates the Dynamic device and polyethylene debonding sleeve. In addition the king wire is removed from the cable and replaced with a larger 8 mm diameter spring wire. The Dynamic cable bolt works in principle the same as the Dynamic solid bolt, wherein the cable pulls through the Dynamic device enabling the bolt to absorb energy and remain intact.

Dynamic cable bolts and solid bolts are available in various lengths. Minova also provides a full range of cable bolt and solid bolt accessories including various barrel and wedges and numerous plate designs.

Technical Data

Cable/Bar Mechanical Properties	Dynamic Cable Bolt Minimum	Dynamic Cable Bolt Typical	Dynamic Solid Bolt Minimum	Dynamic Solid Bolt Typical
Core Bolt Diameter – Plain section (mm)	–	15.2	21.45 mm	21.7 mm
Cross Sectional area – Plain section (mm ²)	–	143	361	370
Number of Strands	–	7	N/A	N/A
Yield Strength (MPa)	185–205	202	550	580
Yield Force – 0.2% (kN)	212	235	–	–
Yield Force (kN)	–	–	199	215
Mass per metre – (kg/m)	–	1.125	–	3.0



Cable/Bar Mechanical Properties	Dynamic Cable Bolt Minimum	Dynamic Cable Bolt Typical	Dynamic Solid Bolt Minimum	Dynamic Solid Bolt Typical
Tensile Strength (MPa)	–	–	850	915
Tensile Force (kN)	250	270	307	339
Elongation on 600 mm length (%)	3.5	6.5	–	–
Elongation (%) 5D	–	–	12	16
Mass per metre – (kg/m)	–	1.125	–	3.0

Dynamic Device Properties	Dynamic Cable Bolt Minimum	Dynamic Cable Bolt Typical	Dynamic Solid Bolt Minimum	Dynamic Solid Bolt Typical
Static Force Capacity (kN)	130	150	–	140
Dynamic Force Capacity (kN)	80	120	–	100
Displacement Capacity		up to 300 mm	–	up to 500 mm

Testing Standards

	15.2 mm Dynamic Cable Bolt	21.7 mm Dynamic Solid Bolt
Material	AS1311	AS1442
Steel Grade		5152AVH
Threading	N/A	AS1275
Galvanising	N/A	AS4680

Plates

Minova manufactures a comprehensive range of specially 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

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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

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