

7-wire Steel Strand (15.2 mm / 17.8 mm)

DESCRIPTION

Normet offers a wide range of cable bolting solutions including static and dynamic cable tendons, faceplates, and cable bolting accessories. Cable bolts are permanent support commonly used in mining applications requiring long, high-tensile anchors to reinforce the walls, roof, and floor of underground openings. Cable bolts are typically longer than 3.0 m in length and can be utilized to reinforce specific zones or stope boundaries to control mining dilution and are commonly encapsulated in either grouts or resin.

Our cable bolt tendons are manufactured using stress-relieved, low relaxation, high-strength 7-wire steel strands and are available in Plain, Spiral-indented, Bulbed (Birdcage), and Yielding configurations. These are available in a black finish or with a galvanized corrosion protection finish and are supplied as either continuous coils or in pre-cut lengths. Pre-cut lengths are available with retaining hooks.

Spiral-indented strands feature a 2.5 mm indented profile rolled into the external surface of the full cable length, very similar to the profile found on rebar. This profiled surface improves the bond between the cable and encapsulating resin or grout by up to 75%, greatly increasing the stiffness of the installed ground support as well as reducing the critical bond length required to support the full load and optimising load transfer into the rock mass.

Bulbed strands are available for applications where increased anchorage and load transfer are required. It provides enhanced point anchorage into the encapsulating medium by allowing resin or grout to flow into the flared feature, while maintaining some ductility in the cable length between the anchors. The bulb diameter is typically 28 mm with up to 5.7 bulbs per meter of cable.

Yielding Cable features steel collars swaged into the cable strand and, if required, debonding sleeves fitted over the cable length between these collars. The yielding mechanism allows the cable to tolerate large deformations in the rock mass without the cable snapping or exhibiting a reduction in tensile confinement. The collars serve as highly effective point anchors into the encapsulating resin or grout and are designed to slide along the cable length if subjected to a tensile load exceeding the yield limit of the collar. This yield limit is customisable per order to suit specific ground conditions. Yielding cable is ideal for applications where rock mass deformation or seismicity is a concern.

KEY BENEFITS

- › Cable bolts are suited to applications requiring anchoring depths exceeding 3.0 m.
- › The flexible nature of the cable allows convenient transport and handling of the product in confined spaces.
- › Cable bolts are substantial and permanent reinforcement suited to long-term high-stress applications.
- › Normet offers injectable resins designed for cable bolting to greatly enhance the speed of installation and curing time.

TYPICAL APPLICATIONS

- › Underground drifts and intersections
- › Mining stopes
- › Drawpoint reinforcement
- › Dilution control
- › Permanent openings
- › Civil and tunnel reinforcement

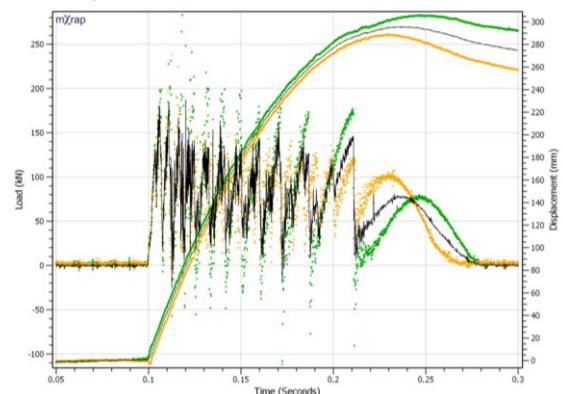
TECHNICAL DATA

Parameter	15.2 mm Cables	17.8 mm Cables
Cross Sectional Area	143 mm ²	195 mm ²
Load at 1% Extension	234 kN	312 kN
Min. Tensile Strength	250 kN	355 kN
Mass per Meter	1.13 kg/m	1.51 kg/m
Elongation	Min. 3.5% Typical: 6.5%	Min. 3.5% Typical: 5.7%
Parameter	15.2 mm Yielding Cables	
Yield force limit	*Selectable 150 – 220 kN	
Ultimate Displacement Capacity	**300 – 400 mm	
Typical Energy Absorption Capacity	***24.6 kJ at 275 mm displacement	

*Yielding force is factory set and adjustable per order within the specified range

**Displacement capacity is factory set and adjustable per order within the specified range

***Based on test results from Normet Dynamic Impact Tester - 26 kJ impulse @4.6 m/s (2T drop mass)



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CONFIGURATIONS

Type	Longitudinal Section
Plain Strand	
Plain Strand (Bulbed)	
Spiral Indented Strand	
Spiral Indented Strand (Bulbed)	
Yielding Cables	

Pre-cut cable length, bulb spacing, and bulb diameter subject to customers specifications

- › Single, twin or multiple strands
- › Plain or debonded lengths
- › Black or Galvanised finish
- › Available in pre-cut lengths or continuous coil



Alternative cable strands can be manufactured according to customer requirements.

INSTALLATION

Cable bolts are installed into a pre-drilled hole through a variety of manual or mechanized installation methods. The anchor is bonded into the rock mass by an encapsulating grout or resin. For manual installations, a retaining hook is included at the end of the cable to hold the anchor in place while the resin or grout cures.

Plain strand cable bolts in single or twin-strand configurations are typically installed in 48 mm or 64 mm diameter holes. Bulbed cables in single or twin-strand configurations, typically with 28 mm bulbs, are installed in a minimum 51 mm holes.

For applications requiring pre-tensioning of the installed cable, Normet offers a range of expansion shells as well as barrel and wedge assemblies.

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Normet Cable Bolt System



ROCK REINFORCEMENT

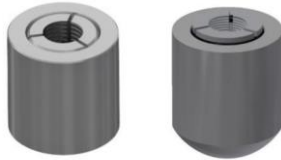
TECHNICAL DATA SHEET

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ACCESSORIES

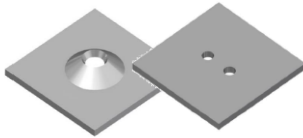
BARREL AND WEDGE

- › Provides pre-tensioning at the collar of the hole and secures the faceplate.
- › Dimensions (L x D): 45 mm x 42 mm, Weight: 0.40 kg
- › Barrels can be galvanized or zinc-plated.



FACE PLATES

- › Available in flat or domed plates with either a black steel or galvanized finish.
- › Plates are manufactured in accordance with AS 1594 and AS 4680 standards.



Parameter	Value	
Typical Dimensions	Dimension	Thickness
	200 x 200 mm	8 / 10 mm
	150 x 150 mm	8 mm
	300 x 300 mm	10 / 12 mm
Typical Yield Strength	210 – 310 MPa	
Typical Tensile Strength	300 – 400 MPa	

PACKAGING

PLATES

- › Standard plate pallet consists of 250 plates.
- › Supplied strapped and palletised to customer requirements.

BARREL AND WEDGE

- › Supplied in buckets of 50 units.

PACKAGING

PRE-CUT COILS

- › Lengths from 4.5 m up to 25 m.
- › Individual lengths of 5 metres or less are supplied strapped in bundles of 50 units.
- › Individual lengths 6 metres and above are supplied coiled and packaged into 25 units per stack.
- › Other packaging quantities are available on request.
- › Cables are colour-coded for identification.

CONTINUOUS COILS

- › Continuous coils are supplied, strapped, palletised, and wrapped to suit various cassette sizes.

Product	ID (mm)	OD (mm)	Height (mm)	Width (mm)
Bulbed	(+20)			
500 mtr 1 bpm	810	1150 (-10 +30)	170 (-5 +15)	290 (-5 +5)
600 mtr 1 bpm	810	1230 (-10 +40)	210 (-5 +20)	270 (-10 +15)
600 mtr 1 bpm Galv	810	1270 (-10 +20)	230 (-5 +20)	320 (-5 +5)
650 mtr 1 bpm	810	1260 (-20 +30)	210 (-10 +25)	310 (-10 +15)
650 mtr 1 bpm Agnew	810	1270 (-10 +30)	230 (-5 +15)	280 (-5 +5)
700 mtr 1 bpm	810	1260 (-20 +20)	220 (-20 +20)	320 (-20 +15)
700 mtr 1 bpm Galv	810	1300 (-20 +30)	255 (-15 +15)	305 (-5 +15)
850 mtr 1 bpm	850 (I.D attachments)*	1330 (-10 +30)	250 (-5 +10)	350 (-10 +5)
1000 mtr 1 bpm K-K	850 (-10 +10)	1360 (-20 +20)	260 (-15 +15)	350 (-15 +15)
1300 mtr 1 bpm	810	1170 (± 10)	175 (± 15)	740 (±15)
Plain	(+20)	(-10 +20)	(-10 +15)	(-10 +5)
600 mtr	810	1150	160	280
600 mtr Galv	810	1210	200	280
800 mtr	810	1250	220	280
1000 mtr	850 (I.D attachments)*	1290	220	330

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