

# Double Corrosion Rock Bolts & Cables

## Low Profile Double Corrosion Protection Rock Bolt



### Features:

- The low profile DCP rock bolt is a mechanical point anchored, pre tensioned, post groutable, low profile rock bolt with a grout injection head connection.
- Typical applications include major civil engineering projects, such as tunneling and slope stability, as well as life-of-project infrastructure in the mining industry
- Fully automated or manual installation
- M24 "X" grade steel bar Gr. 650/890MPa, supplied by JENNMAR has superior toughness and ductility through the use of grain refining alloys. The Jennmar "X" grade bolts should provide better performance in mines where Stress Corrosion Cracking is evident and also in areas of high localized horizontal stresses
- The unique, low profile nut design significantly reduces bolt tail protruding from excavation face
- Provision for in-situ proof load testing
- The expansion shell capable of pre-tensioning bolt to 50kN prior to grouting
- Fully encapsulated in high-strength thixotropic grout
- Durable, high-density polyethylene (HDPE), corrugated sheath provides superior corrosion protection achieving a 100 year design life
- Corrugations in sheathing provide excellent load transference between inner and outer grout annuli
- Recommended for drill hole size 48 – 51mm diameter
- Screw on adaptor available for grouting through the head connection
- Bolt can be supplied black or galvanised. Face plate and grout bell available in Gr. 316 stainless steel and are electrically isolated from dissimilar metals to prevent galvanic corrosion
- All standard lengths are available and any length can be produced upon request

- Continued

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## Low Profile Double Corrosion Protection Rock Bolt - *Continued*

### LP Rock Bolt:

Property	Minimum Value	Typical Value
Yield strength (kN)	228	246
Ultimate Tensile strength (kN)	310	348
Shear Strength (kN)	213	243
Elongation %	15	19
Bar core diameter (mm)	21.5	21.7
Cross sectional area (mm <sup>2</sup> )	363	378
Mass/meter (kg/m)	2.8	3
Drill Hole size (mm)	45	-

### LP Rock Bolt Sheath:

Property	Test Method	Cell Class	Acceptance Criteria	Test Results
Density	ASTM D1505	3	>0.940 – 0.947 g/cm <sup>3</sup>	0.948 g/cm <sup>3</sup>
Melt Index	ASTM D1238	3	<0.4 – 0.15 g/ 10 min	0.3g/10 min
Flexural Modulus	ASTM D790	5	758 – 1103 MPa	790 MPa
Tensile Strength	ASTM D638	4	21-24 MPa	22.9MPa
Slow Grout Crack Resistance	ASTM D638 / ASTM F1473	3	Test Condition – C duration – 192 h; Max. Failure rate – 20%	Failure Rate – 0% Duration – 200 h
Hydrostatic Strength Classification	ASTM D2837	3	8.62 MPa	8.62 MPa
Colour		C	2.0% - 3.0 % Carbon Black	2.0% - 3.0% Carbon Black
Softening point (BS 2782:part 1)	BS 2782:part 1		>110 C	120 C
Hardness (Shore D)	BS 2782: part 1		>50	55
Water Absorption at 23 C	ASTM D570		<0.5%	0.2%

Sheathing Corrugations must be uniform and generally sinusoidal in shape, conforming to the following:

1. Wall Thickness (w) of Ducts:  $w > 2\text{mm}$
2. Pitch of corrugations (p):  $6w \leq p \leq 12w$
3. Amplitude of corrugations (a):  $a > 3w$

The profile must not allow voids to be formed in the grout column

The Rock Bolt can be supplied Black or Hot Dipped Galvanised.

Plate is supplied in 316 Stainless steel in accordance with AS1449:1994 or equivalent and are electrically isolated from dissimilar metals to prevent galvanic corrosion.

Conformance Certificates provided for all Civil products