

FLEXIBLE HI-TEN BOLTING

DSI Arnall has developed a new and innovative flexible resin anchored bolt which can be readily pre-tensioned up to 25 tonnes even with at the "face" installation.

In terms of the cable parameters, the HI-TEN (High Tension) Strand bolt is similar in construction to the "Flexibolt" i.e. it provides high tensile strength and shear resistance. The HI-TEN Strand bolt has no thread and uses a special collar with a three segmental wedge to lock off the induced pre-load.

A pneumatic operated, hydraulic tension unit has been developed to pretension the HI-TEN Strand bolt (in a simple way) up to 25 tonnes with angles of tilt up to 30°

The HI-TEN bolt offers advantages of high tensile strength, high shear resistance and long tendon length which, collectively, provide stiffer mechanical properties for strata reinforcement. An additional feature of the HI-TEN Bolt is its rapid installation capability.

METHOD OF INSTALLATION

The required resin anchors are inserted into a 28mm diameter hole. The bolt is spun and, at the same time, pushed to the back of the hole. Note: For spinning purposes the HI-TEN Strand bolt is supplied with a "mixing square". Then the HI-TEN Strand bolt tensioning unit is connected to the bolt and the pre-determined tension applied to the HI-TEN Strand bolt.

ENCAPSULATION

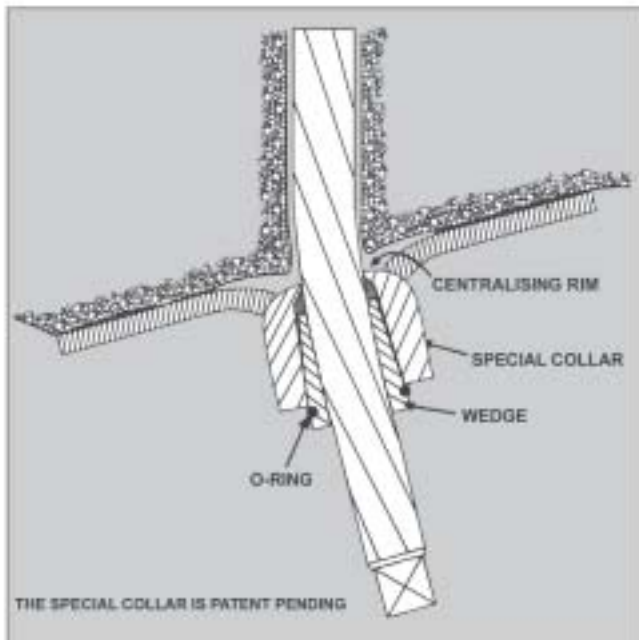
Using a bolting rig, that has a powered cable feeding system, full encapsulation of the bolt maybe achieved. Common encapsulation lengths being obtained are up to 8.0 metres. Using hand held bolting machines, or mounted hydraulic rigs without a powered feeding system, a 1200 x 25mm long resin anchor can be used to provide over 2.0 metres of encapsulation.



HI-TEN Strand BOLT

HI-TEN STRAND BOLT SPECIAL COLLAR

A special collar has been designed for the HI-TEN Strand bolt which has a centralising rim. See Figure 1. This rim allows the collar to remain centralised on the HI-TEN Strand bolt when the washer tilts, thus ensuring proper alignment of the wedges. If the wedges are misaligned, i.e. one sitting deeper than the other the other, significant pre-load can be lost and the system may not perform properly. The special collar & wedge has been designed to suit the application allowing ease and simplicity of tensioning the HI-TEN Strand bolt.



SPECIFICATIONS

Typical Load Capacity:	58 tonnes
Pre-tensioning Load:	up to 25 tonnes
Bolt Diameter:	23.5mm
Recommended Hole size:	28mm
Collar and Wedge Breaking Load:	Minimum: 52 tonnes
Typical Lengths:	4.1 - 8.1 metres
Recommended Roof Plate:	200x200x12mm Domed Plate
Angle of Installation:	up to 30°

DSI ARNALL RESEARCH AND DEVELOPMENT DEPARTMENT

Since the early 70's DSI Arnall has led the way in the development, design and manufacture of strata reinforcement products.

For example:- the introduction of Left Hand Anchor Bar (LHA Bar), Drive Nuts such as the Oz Nuts and High Performance (HP) Oz Nut, Butterflies, Turtle Plates, Resin anchored cable bolts as well as bolts for large hole size such as Posimix Bolts.

These many leading edge products, amongst others, have provided quantum leaps in international strata reinforcement.

To continually improve underground safety and productivity, DSI ARNALL R&D Department has immediate access to the latest worldwide technology through the DSI global network.

As underground strata conditions can be quite diverse DSI ARNALL maintains a close relationship with mine personnel so that the development of any new or modified product is tailor made to suit the end requirements.

As a result, DSI ARNALL have a tradition of service, coupled with quality that makes them a leader in their field.

DYWIDAG SYSTEMS INTERNATIONAL



Corporate Head Office
DYWIDAG-Systems International Pty Limited
Arnall Mining Products Division
25 Pacific Highway Bennetts Green,
NSW 2290, Australia
Phone: +61-2-4948 9099
Fax: +61-2-4948 4087
e-mail: dsi@dywidag.com.au
www.dywidag-systems.com

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