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THREADBAR ® Resin Anchored Rock Bolts

System Description

Resin bolts, bonded to rock or concrete by a fast curling polyester resin grout, are used extensively for slope stabilization, tie backs, tie downs, and for roof bolts. The resin grout develops a bond superior to that developed by cement grout. Fast gelling resin allows transfer of load to the rock formation within minutes after installing the bolt. The DYWIDAG THREADBAR ® provides a simple, economical and rugged solution to both tensioned and non-tensioned rock bolts and rock anchors when installed within resin grout.

DYWIDAG THREADBAR ®s for prestressing conforming to ASTM A 722 are available in 1" (26 mm), 1-1/4" (32 mm) and 1-3/8" (36 mm) nominal diameters. DYWIDAG THREADBAR ®s - for reinforcing - conforming to ASTM A 615 are available in size #6 through #20.

The rolled-in DYWIDAG thread pattern has no effect on the overall strength or effective area of the threadbar. Conventional rebar and other steels have a reduction of 25 % to 30 % in effective area when machined threads are applied.

Available in mill lengths to 60', the DYWIDAG THREADBAR ®s may be cut to specified lengths before being shipped to the job site or, where circumstances warrant, THREADBAR ®s may be shipped in mill lengths for field cutting with a portable friction or band saw.

The DYWIDAG THREADBAR ®s are used extensively for rock anchors because of their versatility, strength, performance characteristics, and off-the-shelf availability of the most components.

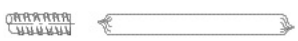
The DYWIDAG THREADBAR ®s for prestressing and reinforcing have a continuous rolled-in pattern of threadlike deformations along their entire length. More durable than machined threads, the deformations allow anchorages and couplers to thread on the threadbar at any point.

The strength of the DYWIDAG THREADBAR ® Anchorages and Couplers for prestressing exceeds the requirements of ACI 318. Test reports are available for the main components of the system. Anchorages and couplers for DYWIDAG THREADBAR ®s for reinforcing develop a minimum of 125 % of the guaranteed yield strength of the threadbar.

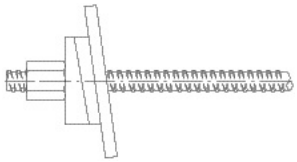
THREADBAR ®s may be coupled to facilitate installation in confined areas or to allow removal of prebolted overcast and resetting of anchors. DYWIDAG THREADBAR ® Anchors can be extended into a structure or function as a form tie.

The components of the DYWIDAG THREADBAR ® System are manufactured in the United States exclusively by DYWIDAG-Systems International.

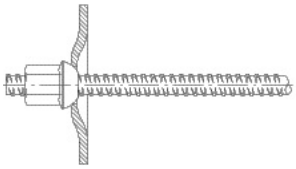
Prestressing Steel Anchorage with Anchor Nut



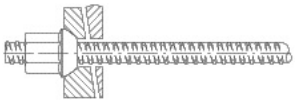
Resin Cartridge



Reinforcing Steel Anchorage with Bevel Washer



Reinforcing Steel Anchorage with Deformed Plate

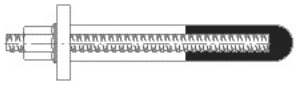


Prestressing Steel Wedge Washer Assembly

Polyester resin is packaged in cartridge form and is available in various diameters and gel times. The cartridge consists of a heat sealed tube of polyester film containing both the resin and the catalyst. The resin and catalyst are separated by a barrier which prevents chemical interaction. The resin cartridges are placed in the borehole before the threadbar is inserted. The resin gels after the components are mixed during the installation of the DYWIDAG THREADBAR ®.

Resin anchored rock bolts are installed in all types of rock or concrete. Track drills, tire mounted drills, jacklegs or stoppers may be used to bore the hole and install the DYWIDAG Bolt.

DYWIDAG Resin Anchors are used where expansion shells are



Tensioned bolts with resin point anchorage.

Tensioned bolts fully resin anchored

DYWIDAG Resin Anchors are used where expansion shells are inappropriate. The resin anchorage length is easily adjusted to fit the varying rock conditions. Resin anchored DYWIDAG Rock Bolts may be installed in bore holes located at any angle above or below horizontal.

Tension bolts with resin point anchorage are used to apply a compressive force across layered rock strata. Tension bolts may be applied using fast setting resin as the point anchorage in conjunction with slow setting resin as a corrosion protection for the free stressing length. Bolt tension is applied after the fast setting resin has cured but before the slow setting resin cures. Untensioned dowels are fully encapsulated with resin and rely on movement of the rock strata to load the bolts.

and grouted.

Untensioned dowels fully resin grouted.

Subject to modification.