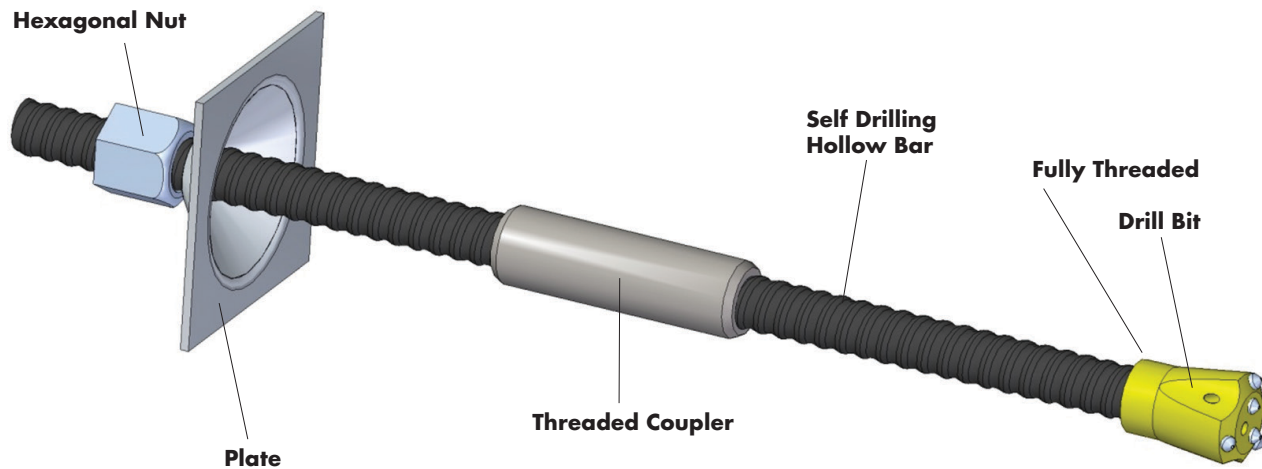


# Self-Drilling Hollow Bar Anchor System



The Self-Drilling bolt is a fully threaded hollow bar that initially serves as a drill rod, utilizing a lost bit. The thread is made to comply to ISO 10208. For use in unconsolidated ground or other difficult ground conditions

- Excellent for spiling (fore-poling)
- Bolt is drilled in and grout is pumped through the center hole with pumpable resin or cement grouts
- The couplers are designed to exceed the ultimate load of the bar by 20%. The couplers are designed to minimize the loss of drill energy
- Several drill bits are available. Most widely used is the EXX Tungsten carbide chisel bit
- Standard length is 3 m (9 ft–10 ft) — Longer lengths are available: 4 m, 6 m
- Galvanized option under ASTM A123

## Installation

The Hollow Bar System is typically installed using rotary percussive drilling. This technique enables high rates of installation, good directional stability and also helps to consolidate the grout within the borehole.

Rotation speeds should be sufficient to cut a true borehole (120–150 RPM for soil nails; 100–130 RPM for mini piles), as opposed to displacement of the soil with the drill bit through

percussion and heavy feed pressures (driven installation). Drilled boreholes ensure enlarged grout bodies together with better permeation of the grout into the surrounding ground. Feed pressures on the drill rods should be regulated in accordance with the cutting performance of the drill bit.

## Simultaneous Drilling and Grouting

Suitable for granular soils and fills. This installation method utilizes a Grout Swivel, grout pump and drifter. The technique combines drilling and grouting as a single operation, ensuring that grout is placed over the full length of the borehole. For ground conditions where borehole collapse is anticipated or where subsequent grout injection down the center of the bar is problematic, simultaneous drilling and grouting is the preferred solution.

Grouting pressures should be regulated to maintain circulation at all times (typically up to 100 psi), with a small amount of grout return visible at the mouth of the borehole. Pressures in excess of 100 psi are generally only required for specialist applications (i.e. anchors in cohesive soils or mining applications).

The choice of grout pump varies between applications, but basic requirements are; thorough mixing of the grout – to avoid blockages at the drill bit; delivery of a continuous volume – to ensure consistent grouting; and maintenance of sufficient pressure.

Bar Size	R25N	R32N	R32S	R38N	R51N
Diameter Over Threads, in. (mm)	0.984 (25)	1.260 (32)	1.260 (32)	1.496 (38)	2.008 (51)
Cross Sectional Area Of Bar a, in <sup>2</sup> . (mm <sup>2</sup> )	0.378 (244)	0.614 (396)	0.756 (488)	1.111 (717)	1.455 (939)
Ultimate Strength, kips	45.0	62.9	71.9	112.4	179.8
Yield Strength, kips	33.7	51.7	49.4	89.9	141.6
Weight, lbs/ft. (kg/m)	1.5 (2.3)	2.3 (3.4)	2.8 (4.1)	4.0 (6.0)	5.6 (8.4)
Maximum Drilling Depths c, ft. (m)	39.4 (12)	52.5 (16)	65.6 (20)	78.7 (24)	98.4 (30)