

## ATRA® ACCESSORIES OVERVIEW

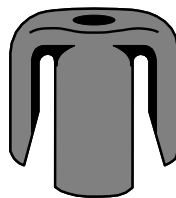
### The ATRA® Stake Clip

The **ATRA® Stake Clip**, illustrated in Figure 1, is a molded, high-strength polymeric device developed by Presto Geosystems. The ATRA Stake Clip is used on stakes to form the ATRA® Anchor as illustrated in Figure 2.

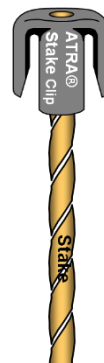
The ATRA Stake Clip provides time and material savings during the installation of the Presto GEOWEB system.

The ATRA® Clip is available in two styles:

- For US applications to fit #4 rebar
- For Metric applications to fit 10-12 mm diameter rods



**Figure 1** ATRA® Stake Clip



**Figure 2** ATRA® Anchor

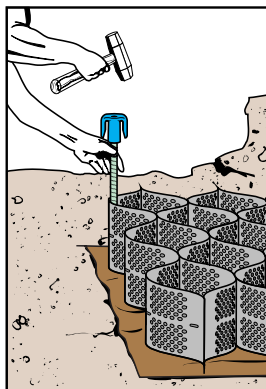
### The ATRA® Anchor System

**ATRA® Anchors** provide additional anchorage and resistance to sliding and/or uplift forces to the GEOWEB section with or without tendons for crest, toe, and internal anchoring.

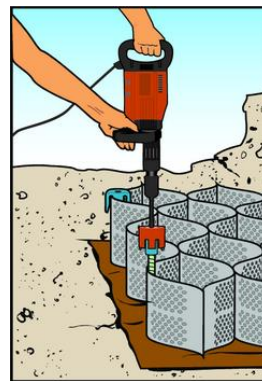
Both metal (common rebar) and non-metallic stakes may be selected based on site soil conditions. If long-term durability is desired in corrosive environments, the sand coated, Glass Fiber Reinforced Polymer (GFRP) stake is the recommended material rather than more costly corrosion-resistant coatings over steel. Presto Geosystems provides pre-assembled ATRA GFRP Anchors in a variety of anchor lengths.

#### Benefits of ATRA Anchors vs. J-Hooks:

- 1) **Cost Savings:** J-Hooks require 20%-25% more stake material for the bend (the 'J' end) plus bending expense. This cost can be substantial when larger quantities of stakes are required.
- 2) **Easier & Faster to Drive:** J-Hook anchors are very difficult to drive in harder soils. Driving against the bend of the J-Hook, which is off the major axis of the stake, will result in bending of the stake. The ATRA anchor's flat top is an ideal surface for driving over the center of gravity.
- 3) **Makes a More Secure Connection with the GEOWEB Cell Wall:** The "arm" of the ATRA Anchor fits securely over the GEOWEB cell wall. The J-Hook bend does not make a secure connection with the GEOWEB cell wall.
- 4) **Allows Use of a Pneumatic ATRA® Driver:** The ATRA Driver can drive anchors in a fraction of the time of hand hammering, reducing worker fatigue, stress, and injury. This is especially beneficial when driving a large quantity of anchors. Options for driving the ATRA Anchors are either by hand (hammer) or with electric driving tools as illustrated in Figures 3 and 4.



**Figure 3** Driving the ATRA Anchor with a Hammer



**Figure 4** Driving the ATRA Anchor with an Electric Driver

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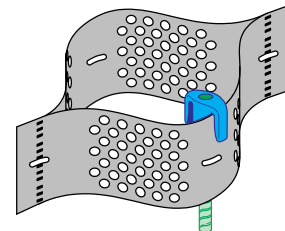
### The ATRA® Anchor Installation

#### Making the ATRA® Anchor

The ATRA Stake Clip installs easily on the end of a stake to form the ATRA Anchor. The stake can be a #4 metal rebar or 10-12 mm diameter rod that is cut-to-length to meet the needs of the application. The ATRA Anchor is made by simply tapping the ATRA Stake Clip onto the stake. When properly seated, the end of the stake should be flush with, to within 3 mm (1/8 in) of the top of the ATRA Stake Clip.

#### Using the ATRA® Anchor with GEOWEB sections

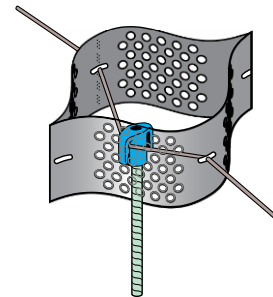
The ATRA Anchor can directly hold GEOWEB sections down as illustrated in Figures 5. The ATRA Anchor is driven so the arm of the ATRA Stake Clip passes over the GEOWEB cell wall providing direct anchorage as well as resistance to sliding and uplift forces.



**Figure 5** ATRA Anchor Connected Over the Cell Wall

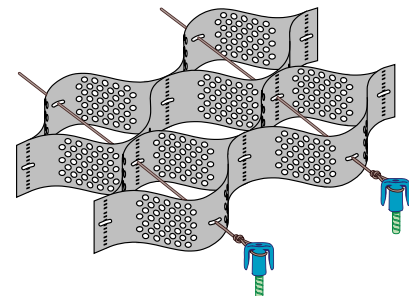
#### Using the ATRA® Anchor with tendoned GEOWEB sections

When used in load support applications, the ATRA Anchor can hold GEOWEB sections in place when the arm of the clip passes over a tendon as illustrated in Figure 6.



**Figure 6** ATRA Anchor and Tendon Anchoring

The ATRA Anchor is also used at the end of the tendons as shown in Figure 7 to provide crest and toe anchorage for GEOWEB sections used in slope and channel protection applications.



**Figure 7** ATRA Anchor for Crest and Toe Anchorage

### *The ATRA® Tendon Clip for Load Transfer*

**ATRA® Tendon Clips** are load transfer devices that transfer slope gravity forces from the GEOWEB cell wall to the tendon. See Figure 8 and 9.

Specify ATRA Tendon Clips to gain the advantages:

- ATRA Tendon Clips connect and “lock” securely through the GEOWEB cell wall slots allowing for preassembly at the top of slope, reducing worker strain and speeding installation.
- The tendon loop is much easier to complete with the ATRA Tendon Clip, ensuring the tendon remains tightly wrapped.
- The ATRA Tendon Clip’s strong design **reduces by half** the number of clips or load transfer devices required per GEOWEB section, saving time and money for the contractor.
- The ATRA Tendon Clip is Presto Geosystems’ **preferred** device for load transfer when tendons are required.



**Figure 8** ATRA Tendon Clip with wrapped tendon.



**Figure 9** ATRA Tendon Clip secured with the GEOWEB cell.

### *Preassembling ATRA Tendon Clips*

The secure connection ATRA Tendon Clips make with the GEOWEB cell wall allows for **easier preassembling** of the clips before moving and expanding the GEOWEB sections on slopes—a huge time saver. See Figure 10.



**Figure 10** Preassembling ATRA Tendon Clips