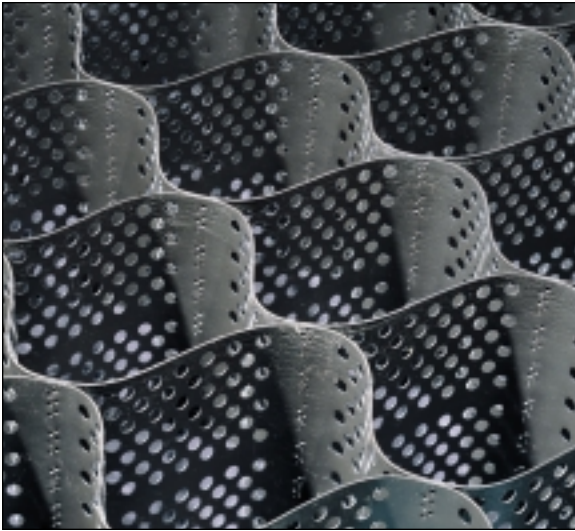


Leaders
In
Advanced
Geo-
technology™



Perforated Geoweb®
Cellular Confinement System

For the most advanced soil stabilization technology today, nothing is more reliable than Presto's Perforated Geoweb® Cellular Confinement System.



Presto's Perforated Geoweb System Leading with Advanced Geotechnology

Developed through knowledge, insight and experience. Proven through extensive research and testing. Presto's **Perforated Geoweb® cellular confinement system** is a result of innovation designed to provide superior overall system performance. Presto's products and technology lead the industry with reliable, cost-effective soil stabilization solutions.

The **Perforated Geoweb system** is an engineered, multi-component system that includes:

- the *Perforated Geoweb* section
- the specific infill material
- other critical components that add value to the solution

The **Perforated Geoweb system** contains holes specific in size, quantity and spacing. The hole design creates increased frictional interlock with aggregates and concrete, increased root lock-up with vegetated systems and better lateral drainage.*



ISO Certified Quality



Presto's quality management system is certified to ISO 9002 and all phases of manufacturing are monitored through statistical process control. Manufactured from polyethylene, *perforated Geoweb* sections meet certified quality standards before shipping to the job site. Each Geoweb section is specifically engineered in accordance with established geosynthetic industry guidelines and is backed by warranty for materials and workmanship.

Advantages of Perforations

Developed with the end user in mind, the system increases performance in Slope and Channel Protection, Earth Retention and Load Support applications.

- **Improved lateral drainage through cell walls results in better performance in saturated soils** - 16% cell wall open area allows lateral drainage of excessive ground and surface water.
- **Greater cell wall/infill lock-up with coarse materials such as aggregate and concrete** - increases frictional interlock up to 30%.
- **Increased root lock-up in vegetated systems** - as roots grow from cell-to-cell creating a more stable vegetated mass.
- **Healthy soil environment** - allows the passage of water, nutrients and soil-organisms from cell-to-cell, and thus system wide.
- **Reduced installation and long-term maintenance costs** - results from reduced material weight and greater infill lock-up.



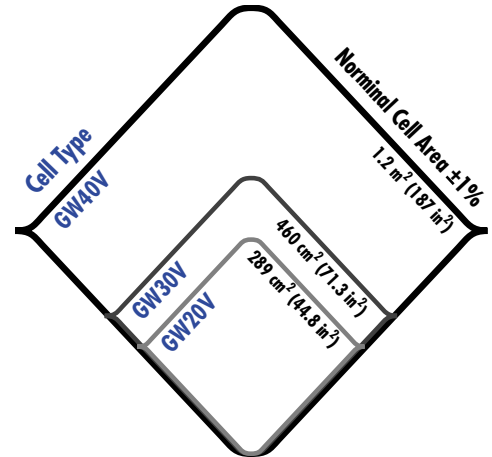
Perforated System Standard Sizes

Perforated Geoweb® sections are available in various lengths and cell types and depths.

Section Dimension	Section Width	Section Length Range Cells Long: 18, 21, 25, 29, 34, 40	
		Minimum	Maximum
GW20V	2.3 m (7.7 ft) to 2.8 m (9.2 ft)	3.7 m (12.0 ft)	9.8 m (32.2 ft)
GW30V		4.7 m (15.4 ft)	12.6 m (41.4 ft)
GW40V		7.7 m (25.4 ft)	20.9 m (68.5 ft)

The available *Perforated Geoweb* nominal cell depths are 75 mm (3 in), 100 mm (4 in), 150 mm (6 in) and 200 mm (8 in).

Cell size and depth is determined by the details of the application, problem and solution. For greater product detail, refer to Presto's *Geoweb*® material specification.



Easy Installation

Sections collapse into lightweight, compact bundles for ease in shipping. During installation at the job site, the *Perforated Geoweb* sections are lighter and easier to handle than solid wall systems.



Other System Components

Other components used with the *Perforated Geoweb* section are often times critical to the successful outcome of the solution. Many projects include the application of polymeric tendons and/or Presto's ATRA® Clips in the design to ensure optimum system performance.*



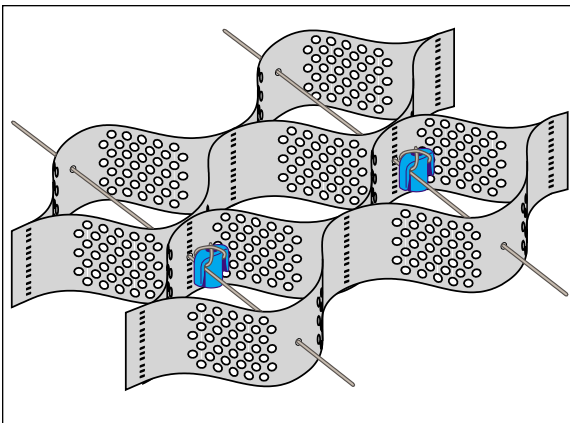
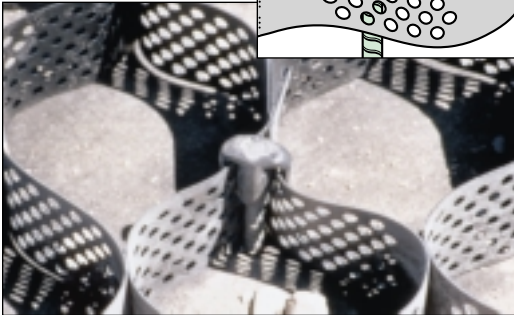
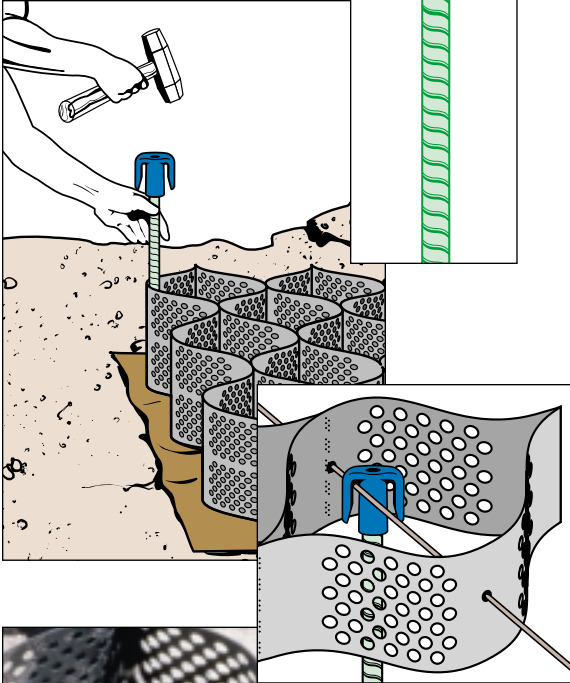
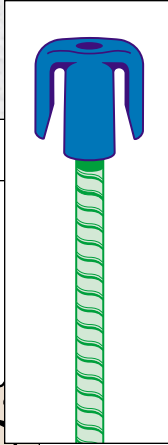
Polymeric Tendons

Integral, high strength polymeric tendons, incorporated into the perforated system through pre-drilled holes, are used to anchor *Geoweb* sections. The tensioned *Geoweb* system provides additional stability against gravitational and hydrodynamic forces, especially in channel and slope applications.

Tendons are recommended for general anchoring with stakes or when a geomembrane underlayer or naturally hard soil/rock prevents anchoring with stakes. Tendons are available in tensile strengths from 3.1 kN (700 lbf) to 13.3 kN (3000 lbf). A full range of tendons are available, satisfying most types of environmental and site conditions.



*Patents pending and issued on Presto's perforated *Geoweb* system, ATRA® clip and other system components.



Presto's ATRA® Clip

Developed to improve performance and installation, Presto's injection molded, high-strength polyethylene ATRA® Clip provides time and material cost savings during Geoweb® system installation.

Offering as much as 25% material cost savings, the ATRA® Clip provides performance benefits when used with the Geoweb system in the following ways...

The ATRA™ Anchor System

The ATRA® Clip inserted on the end of a rebar stake forms the ATRA™ Anchor, providing an in-line, easier to drive anchoring system. The arm of the ATRA® Clip attaches either over the wall of the Geoweb cell or over the tendon, providing resistance to excessive sliding and/or uplift forces.

- Eliminates the task and cost of forming rebar J-pins.
- Provides an in-line, easier to drive anchor pin to assure superior anchoring.

When used with tendons, ATRA™ Anchors can also provide toe or crest anchoring for slope and channel protection systems.

The ATRA™ Anchor can also attach two Geoweb sections together. The ATRA™ Anchor is driven inside a side-seam cell between two Geoweb sections so each arm of the clip passes over a different cell wall on the two sections being joined. Using the ATRA™ Anchor to connect Geoweb sections together does not replace the need to staple when conditions require a more secure attachment method.

The ATRA® Clip Restraint Pin

The ATRA® Clip restraint pin is used to tie off tendons at specific load-transfer points in slope and channel applications. It replaces the need for dowels or other less secure tie-off mechanisms.

Perforated Slope & Channel Protection System

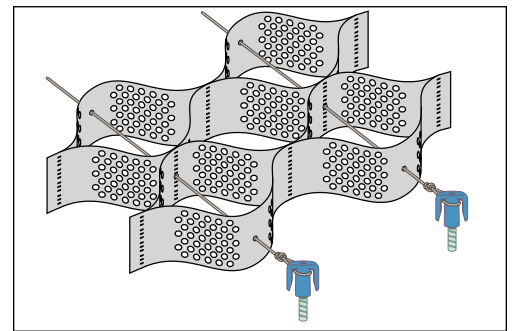
Perforated cell walls increase system stability on slopes and channels.

The *Perforated Geoweb*® slope and channel protection system confines, reinforces and restrains the vegetated topsoil or stone infill controlling downslope movement due to hydrodynamic and gravitational forces.

When cells are infilled with concrete, the system becomes a flexible concrete mat with built-in expansion joints. Single or multi-layer protection systems meet a wide range of structural and hydraulic requirements.

Tendons are incorporated to create additional stability on steeper slopes and channels or when a geomembrane or hard soil/rock surface prevents anchoring with stakes. ATRA™ Anchors with tendons provide toe or crest anchoring in slope and channel protection applications.

- The perforated system facilitates parallel slope drainage of the infilled cell. In saturated conditions, an overall weight reduction of the infill material reduces down slope sliding potential, resulting in a more stable system.
- Greater frictional resistance between infill materials and the perforated cell wall provides greater resistance to upward displacement caused by freeze/thaw cycles and hydraulic scour of aggregate infill.
- In vegetated systems, roots can grow from cell-to-cell creating greater vegetative mass lockup and stability against short-term hydraulic events.
- Perforations create a more natural habitat for plants and animals by allowing cell-to-cell movement of earthworms and nutrients.
- The perforations allow concrete infill to flow through the cells, increasing frictional resistance between the concrete and the cell walls which results in a superior armored slope or channel protection system.
- Ideal for embankments, slopes, shoreline revetments, containment dikes and levees, landfill linings and covers, dam faces and spillways, and abutment protection.



Perforated Earth Retention System

The Perforated Geoweb® system really stacks up in earth retention applications.

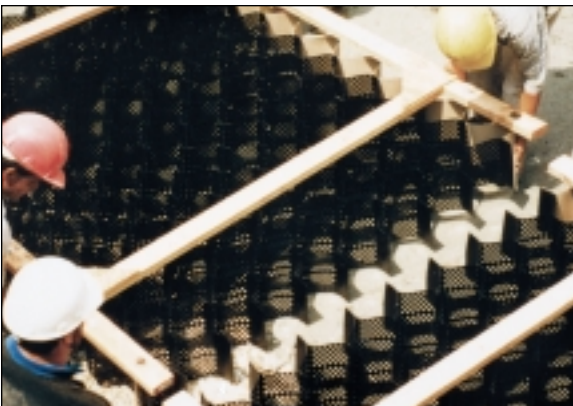


The *Perforated Geoweb* system, when layered, becomes an earth retention system meeting all structural requirements. The system provides construction flexibility and aesthetics through a completely vegetated face. Horizontal terraces are formed where vegetation can flourish in the exposed outer cells. The impervious outer open-celled system captures rainwater and controls groundwater evaporation, creating a more natural environment for vegetation.

The *Perforated Geoweb* earth retention system can form a very steep front-face surface while maintaining structural stability under its self-weight and known externally imposed loads. The system meets site challenges, particularly when subgrades are comprised of compressible, unstable soils.



- Improved frictional interaction between the perforated cell wall and soil results in greater back wall friction, potentially reducing horizontal destabilizing forces and increasing vertical stabilizing forces.
- Perforated cells with the appropriate infill material can meet drainage needs and eliminate the need for more complex drainage systems.
- Hydrostatic forces will be reduced in a better drained system, resulting in a potentially lower mass and more economical wall structure.
- Non-perforated tan, green or special-colored fascia panels are part of the design, creating better blending with any environment.
- Ideal for steepened slopes with construction right-of-way constraints, such as highway embankments, and conditions with unstable foundation soils.



Stretcher frames may be used in earth retention applications to assist in maintaining section shape and location during infilling operations.

Perforated Load Support System

Build on Presto's Perforated Geoweb® system for a reliable foundation.

The *Perforated Geoweb* system prevents shear failure and lateral movement of aggregate materials through confinement. The system stabilizes the infill, providing a load distribution system over weak soils, base stabilization for paved surfaces and surface stabilization for unpaved surfaces.

The system produces a stiff base with high flexural strength, acting like a semi-rigid slab by distributing loads laterally and reducing subgrade contact pressures. Material thickness may be reduced 50 percent or more with confined versus unconfined aggregate. On-site sands and poor quality granular fills may be used in place of more costly imported materials.

- Perforations increase the friction angle between aggregate infill and the cell wall, generating better aggregate lockup. This results in greater overall load distribution and system stability.
- The perforated system facilitates lateral drainage of excessive ground and surface water, resulting in a more stable load support system when soils become saturated.
- Perforations allow lateral cell-to-cell drainage beneath traffic areas, reducing negative effects of cell ponding when the system is over a low-permeable base.
- The perforations allow concrete infill to flow through the cells, increasing frictional resistance between the concrete and the cell walls which results in a superior modular pavement.
- Ideal for intermodal and storage yards, railroad ballast support, granular and soft access roads, pavement sub-bases and bases, boat ramps, trails, foundation mattresses, spread footings, pipe and culvert support and low level crossings.



Our Commitment

At Presto, we're dedicated to helping you apply the best solutions to your soil stabilization problems. Our commitment to quality begins with design assistance and continues through installation support. You get better results and greater peace of mind. Rely on the leaders in the industry when you need a solution that is right for your soil stabilization problems. Presto is the right solution!



Leaders In Advanced Geotechnology™



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