Slope Reinforcement & Soil Retention

The Terra-Lock™ System

- Lightweight & Durable
- Time & Labour Saving
- Eco-friendly
Gripple

G ripple is a market leading manufacturer delivering time-saving simplicity and problem-solving innovation in Building Services, Seismic and Force Protection, Agriculture and Civil Construction. With partners around the world, Gripple is a globally recognised brand, synonymous with time, labour and CO₂ saving solutions, outstanding technical support and innovation driven by employee ownership.

Gripple offers a comprehensive solution for slope stability and erosion control, characterised by high quality products, designed and manufactured in-house, alongside on-site training and support delivered by a team of dedicated technical experts.

Terra-Lock™ System

Gripple’s Terra-Lock™ System, in-use on sites around the world, is an innovative method of geotechnical engineering for heavy erosion and slope stability, delivering significant time and labour savings, immediate security and aiding vegetation growth.

The system is well suited but not limited to:

- Cuts
- Shallow Slope Stability
- Embankments
- Channels
- Riverbanks
- Lakes and Spillways

Creating sustainable and durable green structures by reinforcing nature, the Terra-Lock™ System is the innovative, next generation solution, designed to replace or work in conjunction with traditional methods of soil retention and slope stabilisation.

How It Works

The Terra-Lock™ System gains its stability by coupling key engineering principles with specifically designed products to successfully utilise the natural properties of on-site materials. Gripple’s innovative “grip” and “pull” technology is complemented by anchor systems and TRM (Turf Reinforcement Matting) to deliver a comprehensive, trusted solution.

Cuts
Shallow Slope Stability
Embankments
Channels
Riverbanks
Lakes and Spillways

Water Management

Gripple’s hydraulic design service ensures the correct TRM can be installed. The TRM reduces surface erosion from water and air, while its permeability prevents undermining of the structure. The Earth–Vegetation–TRM composite allows for a large increase in the allowable shear stresses from erosion which prevents excessive soil loss. The anchors then transfer shear forces deep into the ground to ensure a secure and stable system.

Installation

Drive:
- Insert Drive Tool through the anchor and place against surface.
- Use GPD to install the anchor at the required depth.

Tip:
- For a neat and professional finish, use Gripple Wire Cutters to cut wire below grade if required.

Lock:
- Use JackJaw™ to remove Drive Tool and load lock system.
Heavy Machinery & plant

Hard armour installs require regular heavy machinery movements during the installation process. The lightweight nature of the Terra-Lock™ System not only reduces install costs but also significantly reduces heavy traffic on site, vastly improving safety. This also delivers significant benefits on sites where access is limited.

Labour

Hard Armour installation is cumbersome and often requires heavy tools. The Terra-Lock™ System is installed quickly with hand tools, vastly reducing install times and delivering significant labour cost savings.

Groundworks

Over-excavating is necessary when installing hard armour, to create the correct hydraulic shapes to facilitate flow. This is then backfilled with riprap or concrete. The Terra-Lock™ System does not add thickness to a channel lining, thus minimising the necessary groundworks and delivering environmental, wastage and labour benefits.

Transport

Heavy transportation such as concrete mixers is a characteristic of traditional hard armour installs. The Terra-Lock™ System’s use and enhancement of on-site materials, coupled with its lightweight nature, significantly reduces vehicle movements and simplifies handling on-site. Over 4000 m² of the Gripple System can be delivered in one load.

Greener With Griple

Hard armour solutions are still needed in some applications. Gripple has engineered the Terra-Lock™ System as a comprehensive solution but also an effective complement to hard armour, to ensure the best on-site solution is always delivered based on the geotechnical conditions. The use of the lightweight but durable Terra-Lock™ System leads to a significant saving in time & money, and a ‘greener’ solution.

A clear benefit over traditional systems is the green finish achieved by the Terra-Lock™ System. A natural, vegetated finish delivers enhanced aesthetics when compared to concrete which is often susceptible to graffiti damage.

The Terra-Lock™ System promotes and enhances vegetation growth, making it a sustainable option which allows nature to create its own protection. It’s long lasting, environmentally friendly and can actually capture sedimentation.

CO₂ & Other Pollutants

The Terra-Lock System ensures large reductions in carbon footprint and emissions when compared to traditional hard armours. Concrete is responsible for 5% of worldwide synthetic CO₂ emissions, whereas the vegetation promoted in the Terra-Lock™ System actively absorbs CO₂.

Vegetation

Aesthetics

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The Terra-Lock™ System complements heavier solutions by utilising anchors; the gabion’s weight and capacity can be increased without the need for extra heavy materials.

Gabion

Traditional Methods

Hard armour is effective but associated with high costs and emissions; it is also susceptible to undermining and structural failure. The Gripple Terra-Lock™ System reduces the amount of hard armour used on site while also significantly reducing failure risks.

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**System Benefits**

Gripple’s Terra-Lock™ System ensures considerable time, labour and consequently, cost savings, while delivering ‘greener’ structures. The solution offers many construction, engineering and environmental benefits when used near water or on slopes alone.

The system reduces failure and importantly, flood risk by maintaining the engineered size and shape of water assets so they continue to function correctly.

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**Slopes Flows**

The use of vegetation in the Terra-Lock™ System can help control hydraulic flows, minimising scour and damage to other parts of the system.

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**Sediment Control**

Intimate contact with substrates retains soil particles, minimising erosion and downstream sedimentation.

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**Steepened Slopes**

Allows slopes and embankments to be sharply angled, reducing groundworks and maximising use of space.

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**Resilient**

Reinforcing elements of the solution alongside the promotion of vegetation means the Terra-Lock™ System is essentially “self-healing”, delivery longevity to the install.

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**Durable**

Manufactured using corrosion resistant materials to ensure longevity.

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**Increased Factor of Safety**

The installation depth of anchors is calculated based on engineering principles to guarantee the System locks into structurally sound soil.

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**Lightweight**

Easy to handle on site and adds minimal excess loads to the structure. Minimises settlement and subsidence, especially in poor soils.

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**Failure Prevention**

The system actively holds the surface, locking it deep into the structure while catching and retaining surface failures.

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**Technical Services**

Gripple is committed to delivering the best value-engineered solution to site. Our team of dedicated engineers ensure all systems are fit for purpose and delivering immediate security. Our services include but are not limited to:

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**Concept Generation**

Site surveys and geotechnical report interpretation ensures Gripple is able to provide engineering concepts to solve geotechnical issues. Full drawings with justification can be provided for a value engineered solution.

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**Installation Design Service**

Gripple offers a design service of site submittals including technical recommendations, calculations and drawings. Solutions are site specific and tailor-engineered to ensure input from Gripple engineers at all stages of the project.

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**Training**

Engineering and on-site installation training ensures the system is performing to its full potential and peace of mind for the installers.

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**Product providers**

Gripple is a world class product manufacturer with a wealth of expertise – should the requirement be bespoke, we will work with our in-house product design engineers to deliver the right solution.

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**Technical Submittal**

All Gripple products are supplied with best practice and installation instructions – should further advice be needed, our technical team are available to provide support.

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For more information visit [www.gripple.com](http://www.gripple.com)

For any technical services, including site visits, please call us on: +44 (0) 114 2288 716