

Hy-Tex **Soil Saver**™ Jute Erosion Control Meshes



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Hy-Tex (UK) Limited

Committed to Quality, Value & Service

Hy-Tex Soil Saver™ Jute Erosion Control Meshes



Soil Saver™, and *Soil Saver-Fine™*, open weave, pure jute meshes protect seed and soil on bare surfaces vulnerable to erosion by rain, run-off and wind.

The fabrics mould easily to the surface contours, effectively control erosion, create a micro-climate which boosts plant development and fully decompose once vegetation has established.

Used extensively on a diverse range of projects, *Soil Saver™* meshes are widely regarded as the best, and most economic, solution where effective vegetation will establish within one to two years.

EROSION CONTROL FEATURES

Best General Erosion Control Performers *Soil Saver™* jute meshes are consistently ranked among the best general erosion control performers under independent trials (See table below).

Immediately Effective *Soil Saver™* meshes can be laid on a surface directly after grading, with seed being sown before or after application.

Surface Protection Like a vegetation canopy, the meshes offer effective cover to the exposed soil, reducing rainsplash erosion by absorbing the impact of raindrops, and sheltering the surface from wind scour.

Disrupt Run-Off The significant increase in surface roughness created by jute meshes reduces run-off velocity and consequently the energy available to detach and transport sediments.

Reduce Washout The grid structure of *Soil Saver™* provides a series of mini check dams, that retain water, trap seed and restrict the movement of intermediate soil particles (Retaining a surface cover of these coarser grains reduces soil erodibility by limiting the scope rainsplash detachment).

In addition, water trapped within the mesh openings acts as a barrier between impacting raindrops and the soil mantle - dissipating the energy required for rainsplash damage.

Adaptable to Poor Site Preparation Practical observations have shown that the superior drapability of jute meshes results in close integration with the surface, which prevents run-off from undermining the fabric. Therefore they cope better with the common problems of settlement or poorly graded terrain.

Absorb Water The ability to absorb large volumes of water lessens initial run-off, and provides a moisture reserve which can be gradually absorbed into the ground through capillary action. Infiltration also takes place within the yarns which act as a wick.

Resist Dislodgement The mesh weights, and water holding capacity, resist displacement by strong winds, flowing water and vegetation growth.

Enhance Soil Resistance During decomposition the natural fibres rapidly incorporate into the soil - enhancing it's long term resistance to erosion.

Comparative Erosion Control Performance by Rank

(Trials Conducted by Jane Rickson, Silsoe College 1988/92)

Erosion Force	Intensity	Soil Type
Rainsplash	35mm/hr	Clay Loam
Rainsplash	35mm/hr	Sandy Loam
Rainsplash	115mm/hr	Clay Loam
Rainsplash	115mm/hr	Sandy Loam
Rainsplash	95mm/hr	Sandy Loam
Runoff	2.4 l/min	Sandy Loam
Rainsplash & Runoff	95mm/hr & 2.4 l/min	Sandy Loam

Cocomat = Coir fibre blanket encased in plastic net
Eromat = Coir/Straw fibre blanket encased in plastic net
Enviromat = Wood fibre blanket encased in plastic net

1 = Best Performer - = Not Tested

Control	Soil Saver-Fine	Soil Saver	Coir Mesh	Cocomat	Eromat	Enviromat	Tensar Mat	Enkammat (Surface)	Enkammat (Buried)
8	1	4	5	-	-	3	2	6	7
8	2	3	6	-	-	1	10	7	9
6	2	1	3	-	-	4	8	5	7
6	2	1	4	-	-	3	7	5	8
10	4	3	5	1	2	6	7	9	8
10	1	2	6	4	3	8	5	7	9
10	2	4	5	1	3	6	9	7	8

Relative Cost

Composition

LOW

HIGH

100% Natural

Natural/Synthetic

100% Synthetic

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Erosion Control Trial Examples

500g jute mesh sediment yield 22% of the control, best product. Synthetic products produced between 47-72% of the control losses

(Thomson and Ingold 1986)

The jute mesh gave best soil contact, and least soil movement despite not having greatest areal coverage

(Reynolds 1976)

Under high intensity jute meshes were the most effective, 500g jute mesh reduced losses to 14.1% and 300g mesh to 18.4%. Under low intensity, 500g mesh ranked 3rd with a 58.8% loss and the 300g was 2nd with 43.6%

(Fifield et al. 1988)

500g jute mesh produced very low sediment yields under all intensities

(Rustom & Weggel 1993)



Water Holding Capacity

% of Dry Weight

Jute Mesh	660
Fine Jute Mesh	600
Coir Mesh	300
Straw/Coir Fibre Blanket	na
Coir Fibre Blanket	700
3D Plastic Mat Type T	75
3D Plastic Mat Type E	90

Source: Based on Silsoe College trials

VEGETATION RESTORATION FEATURES

Temperature Control Soil Saver™ meshes provide shade and insulation, so sustain soil and local atmospheric humidity, mitigate temperature extremes, and protect against intense sunlight.

Jute fibre resembles the capacity of soil to absorb solar radiation, so, unlike synthetic materials, there is no risk of overheating or scorching.

Micro-Climate Creation During hot or dry periods, moisture absorbed by the natural fibres is slowly released; maintaining a humid condition in the soil below and the immediate surrounding air (Such humid conditions are beneficial to the germination and growth of plants).

Seed Protection Soil Saver™ reduces seed deprivation by birds, and offers general protection to newly sown slopes from animals and man.

Enhance Plant Growth The open weave construction encourages vegetation establishment, providing room for plants to develop whilst protecting against wind rock damage.

The open weaves give you freedom to select any variety of grass, or ground cover, that best suits local soil and climatic conditions. While saplings and bushes can be planted through by spreading, or cutting the mesh to accommodate them. The meshes also provide an ideal key for hydroseeding.

Minimal Hindrance to Plant Penetration Effective clearance of persistent weeds is a common problem, and if any begin growing before installation then erosion protection can be seriously compromised.

Large weeds have difficulty penetrating the small apertures in synthetic 3D mats, natural fibre blankets and close woven meshes. Therefore any broad leaved vegetation beneath such geotextiles will often push the material off the soil surface, even forcing pegs out of the ground.

However, field trials on a new highway construction in Bedfordshire demonstrated that jute meshes do not suffer this problem, as the loose, open weave, structure enabled establishing vegetation to penetrate the geotextile unhindered.

ENVIRONMENTAL FEATURES

Renewable Material Soil Saver™ satisfies the important global need for environmentally acceptable solutions. The meshes are made from jute which is an abundant, renewable, natural fibre, extracted from a the stalks of a bamboo like crop.

Biodegradable The meshes fully decompose over time so post installation remedial works are not required.

Likewise, there are no problems for future land use (such as grazing, mowing or wildlife habitats).

Environmentally Friendly Soil Saver™ fabrics are unbleached and chemical free - containing no toxins, plastics or pollutants that may disturb the ecological system or run-off into groundwater. Jute is also harmless if accidentally ingested by animals.

Neat Appearance Soil Saver™ jute meshes have a neat and aesthetically pleasing appearance upon installation, giving the works a finished look which will satisfy both the customer and general public.

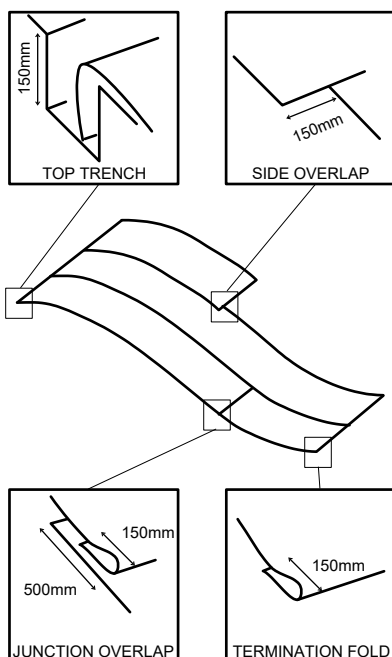
ADDITIONAL BENEFITS

Easy to Install Jute meshes are quick and simple to install, not requiring skilled labour or specialist machinery. Typically, over 100m² of Soil Saver™ can be applied in a little as one man hour!

Extremely Cost Effective Soil Saver™ jute meshes cost far less than other natural, and synthetic, erosion control products, yet provide far better general performance.

Hy-Tex Soil Saver™ Jute Erosion Control Meshes

General Installation Guidelines



Preparation

- Work subgrade and topsoil free of clods, rubbish and large stones to a depth of at least 75mm, and fertilised (if necessary).
- Smoothly grade (but do not compact) soil surface, to eliminate ruts, footprints and other depressions as far as possible.
- Broadcast seed (and binder if required) uniformly on the uncompacted seedbed at the recommended rate.

Opening bales

- Open jute bales by cutting the steel bands with bolt-croppers (apply caution when cutting, the bands may have a minimal spring), then remove the outer wrapping of jute sacking by carefully cutting the side stitches.
- The bale consists of eight separate flat pack cuts of jute mesh tightly compressed together. Each cut has three loose strings around them to make separation easier.

Installation

- Bury the top end of the jute cut in a narrow trench 150mm deep. Use 5 staples at 300mm centres to secure edge. Fill the trench and tamp firmly closed.
- Un-fold the material down the slope, or parallel to the contours (only on short slopes), ensuring the material lies smoothly but loosely on the surface without tension.
- Fix longitudinally with staples at maximum 1.00m centres - fastening rows down the extreme edges of the jute covered area, down each overlap, and down the centre of each strip.
- Where more than one length is required down the slope, the top piece should overlap the second cut by at least 500mm. Secure the lap with 5 staples at 300mm centres.
- Bring the material down to a level area before terminating. Turn the end under 150mm and fasten with 5 staples across fold at 300mm centres.
- Where two or more widths are applied side by side, an overlap of at least 100mm must be made.
- On soft or sandy soil, or windy areas apply staples in alternate, slanting positions and at closer intervals. For extremely arduous

situations double pin for extra hold.

- Studies and experience have proved that a two-man team is the most efficient way to install staples. One man drives staples just below ground level, with a wooden mallet. The other walks ahead, carrying a supply of staples, pushing them into the soil as far as possible by hand at the correct intervals.
- Workers should avoid unnecessary walking directly on the seedbed both before and after the jute is applied.
- If required, jute can be easily cut using a sharp knife or scissors, taking care not to stretch or distort the material.

Finishing

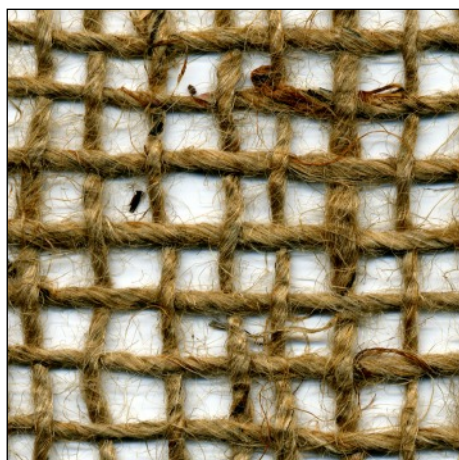
- The outside edges of the jute should have loose topsoil spread over them to allow for smooth water flow.
- If required, the entire jute covered area may be top dressed with a thin layer of topsoil. After the top dressing, the yarn should still be visible.
- If any areas have been disturbed during install they should be over seeded.
- Ground cover plants or saplings may be planted through the jute. However, if the jute is cut to accommodate them, sufficient staples must be fixed around the opening to prevent lift. To avoid disturbing the jute when planting ground covers, it is recommended that work be executed from a long lightweight plank or ladder.
- The entire jute area should be rolled with a smooth roller. of approximately 10 kg per metre length.

Inspection

- The jute cover area should undergo a final inspection. Any clods etc. which hold the material off the ground should be stamped into the soil. Push the jute mesh down into any depressions and secure with staples.
- Ensure the jute mesh completely covers all areas which are to be protected from erosion. Overlaps must be ample and well stapled so that no gapping can occur. The material should be in intimate contact with the soil surface at all points.



Hy-Tex Soil Saver™



Hy-Tex Soil Saver-Fine™

Conclusion Soil Saver™, and new Soil Saver-Fine™, jute meshes are the most cost effective, environmentally friendly answer to erosion control.

Independent trials have consistently shown that more expensive natural fibre blankets, or synthetic mats, fail to match the overall benefits of jute meshes. Therefore, unless the erosion forces are harsh, or vegetation slow to establish, Soil Saver™ jute meshes are the best solution for temporary surface protection and the promotion of re-vegetation.

Specifications	Hy-Tex	
	Soil Saver™	Soil Saver-Fine™
Weight	500g/m ²	300g/m ²
Yarn Thickness	5mm	3mm
Warp Threads	65/m	108/m
Weft Threads	45/m	120/m
Open Area	55%	45%
Material	Unbleached Jute	
Manufacturers	AI Champdany/Ludlow Jute Mills (Both ISO 9001 accredited)	
Source of Origin	India	
Cut size	Concertina flat packs (1.20 x 70.00m = 84m ²)	
Cuts per Bales	8 cuts per bale (672m ²)	12 cuts per bale (1,008m ²)

ALLOW ±10% TOLERANCE DUE TO THE CHARACTERISTICS OF NATURAL FIBRE PRODUCTS

Important Notes to Specifiers Unfortunately, due to their limited specification, and a very competitive market, there has been a noticeable rise in the availability of cheaper, sub-standard jute meshes.

Common faults include poor fibre processing, inferior weaving, incorrect storage and contamination. But, it is often difficult to distinguish the flaws until the mesh fails to perform in the manner it should.

This is a very worrying trend which will harm the reputation of genuine fabrics, because unsuspecting clients may assume that the product in general is the problem.

However, addition information, readily available to any reputable supplier, can be requested to avoid this risk:

- 1). INDIAN G.S.P. CERTIFICATE OF ORIGIN - A standard export document that confirms the country of manufacture and the original destination of the material. Although many countries now produce jute meshes, India is still widely respected for supplying the best quality.
- 2). PACKING LIST/SPECIFICATION OF GOODS - The packing list is an import export document which includes quality checks and specification of the goods, signed by the manufacturer.

DETAILED SPECIFICATION GUIDELINES, AND EXAMPLE DOCUMENTS, AVAILABLE ON REQUEST.

Hy-Tex place great emphasis on providing materials to the highest standard, and are the only British supplier to import jute meshes directly from **Quality Assured** Indian manufacturers