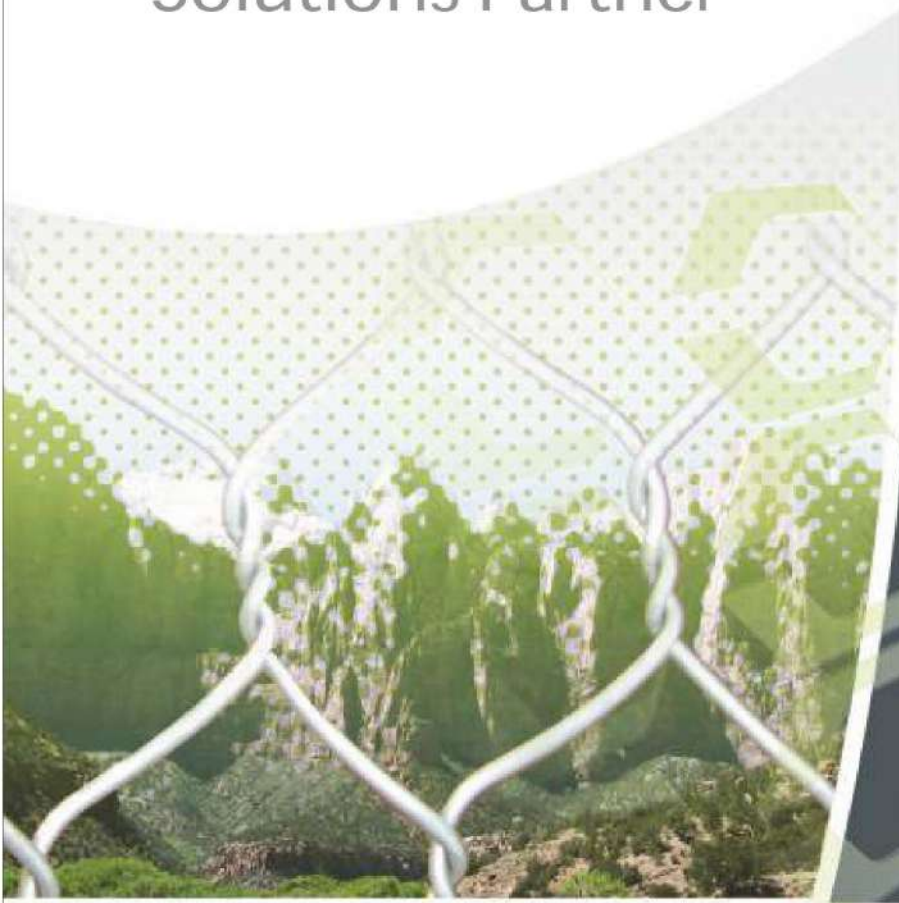




Your Geosynthetics
Solutions Partner



about us

We, at Gabion Technologies India Private Limited (GTI™) always strive to provide you the best suited solution for your Geotechnical, Road, Railways, Hydraulic & Geo environmental problems using our range of Geosynthetic product. The company is based in New Delhi, capital of the Indian sub continent with its production based in Paonta Sahib, Himachal Pradesh. GTI™ is a sister unit of M/S Pioneer Wires Pvt. Ltd. (PWP) based in Biratnagar, Nepal. Both companies have common directors & shareholders.



products & systems

- GTI™ Gabion Boxes, Mattresses, Sacks
- GTI™ Rock Fall Netting
- GTI™ GX™ Geotextile
- GTI™ GX™ Geomembrane
- GTI™ Gabion Wall
- GTI™ GX™ EarthWall™
- GTI™ PX™ EarthWall™

geotechnical services

- Soil Investigation
- Ground Improvement
- Soil Stabilization
- Pavement Design
- Pile Foundation Design
- Retaining Wall Design
- Erection and Supervision

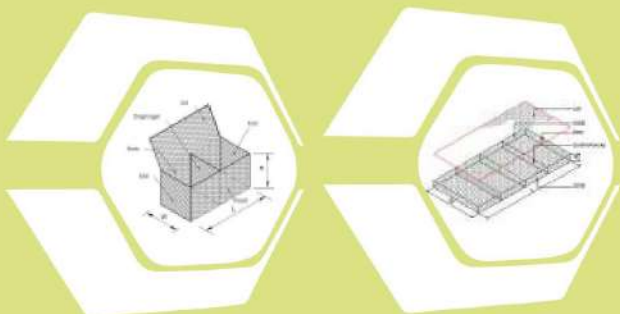


Fig: GTI™ Steel Wire Gabion Fig: GTI™ Steel Wire Mattress

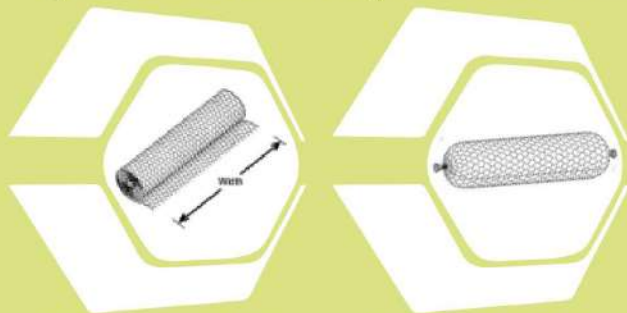


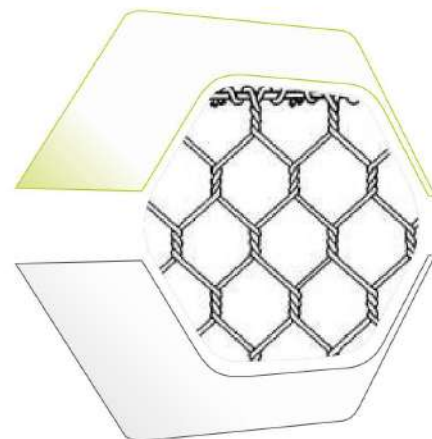
Fig: GTI™ Rock Fall Netting Fig: GTI™ Sack Gabion

Double Twisted Hexagonal Steel Wire Mesh

The above products are manufactured using Mechanically Woven Double Twisted Steel Wire Meshes. These are non raveling meshes manufactured by twisting continuous pairs of wire through three one-half turns (commonly called double twisted) to form hexagonal shaped mesh openings which are then interconnected with adjacent wires to form hexagonal meshes. The edges of the mesh are reinforced with a thicker wire called the selvedge/edge wire.

Mesh Sizes available

- 100mm X 120mm
- 80mm X 100mm
- 60mm X 80mm

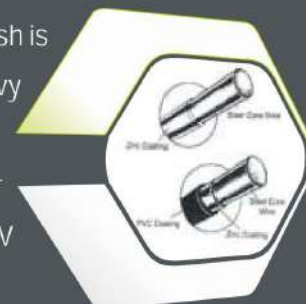




Features of Double Twisted Hexagonal Steel Wire Mesh

- ☞ Uniform Opening size and a tight mesh.
- ☞ Excellent distribution of stresses due to Hexagonal shape of the wire mesh.
- ☞ The twist doesn't unravel even in case the wire gets cut accidentally, thereby maintaining the structural integrity.
- ☞ The mesh Panels are provided with a thicker wire at the edges of the mesh by wrapping mesh wire 2 and 1/2 times. Selvedge /Edge wire provide greater rigidity and shape to the gabion/ mattresses / netting / sacks.
- ☞ 100% Quality assurance as per International Standards.

The wire used to manufacture the Double Twisted Hexagonal wire mesh is soft annealed, low carbon content mild steel wire provided with heavy coating galvanization as per EN 10244/ASTM A 641 to prevent corrosion. In case of use in aggressive environments, it is further extruded with 0.5 mm thick PVC Coating. The PVC coating is UV stabilized as per ASTM A 975.

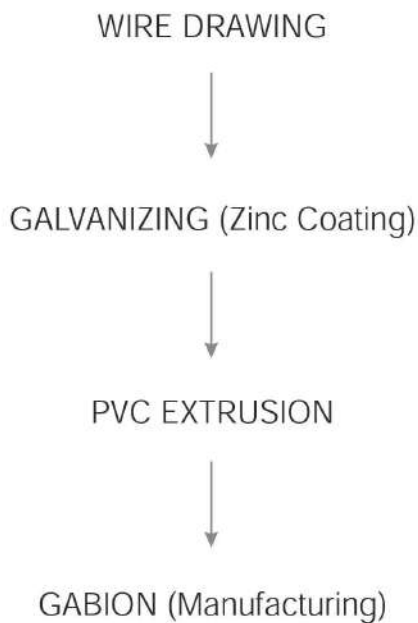


To ensure the quality of G.I. Wire (Raw Material) we use our self manufactured GI Wire in our sister unit at Nepal (PWP) where we have full control over the quality of our raw materials and intermediate products as well as all the processes.

Manufacturing Process

We Do Everything Inhouse

Right from chemical analysis of incoming Steel Wire Rod, Zinc Ingots and PVC granules, we assure quality at each and every step of the lengthy process of



Quality Assurance & Testing Facility:

GTI™ ensures 100% Quality assured products by means of a well laid out Quality Assurance Plan complying with ISO 9001:2000 norms and meeting the quality standards as per International norms such as ASTM and EN. To ensure the quality, regular in house tests are conducted on the raw materials such as wire as well as the finished products. GTI™ is well equipped with the necessary test equipments to carry out the Tests.

Different tests carried out:

Wire:

- Wire dia.
- Tensile strength & elongation of wire
- Quantity of Zinc Coating
- Adhesion of Zinc Coating
- Thickness of PVC Coating (In PVC Coated wire)

Wire Mesh Panel:

- Tensile strength of wire mesh panel
(Parallel & Perpendicular to the twist direction)

Physical Tests on Finished Product:

- Mesh Opening size - 'D', horizontal opening
- Dimensions of Boxes or Netting rolls

All the Tests are carried out on calibrated equipments and carried out by well experienced Engineers.



Retaining wall at BRO Mahali Using GTI™ Gabions

Canal slope Protection at Pashulok Barrage, Rishikesh, Uttarakhand



Advantages of using GTI™ Steel wire Gabion Boxes/Mattresses

- 🔄 **Durability:** GTI™ Gabions, Mattresses and Rockfall Nettings are made from heavily galvanized wire which is woven into a hexagonal shaped wire mesh. In cases of aggressive environments, the heavily galvanized wire is further extruded with PVC Coating, which is UV stabilized.
- 🔄 **Flexibility:** The unique hexagonal shape of the mesh offers an inherent ability of the structure to be flexible. Gabion structures can withstand differential settlements with out affecting the stability of the structure.
- 🔄 **Permeability:** Gabions can help in dissipation of hydrostatic pore water pressure and reduce the Load on the Gabion structure.
- 🔄 **Eco-friendliness:** Gabions / Mattresses permit the growth of vegetation without harming the structure. This unique feature helps in blending with the environment and reduces the ecological impact due to the construction of the structure.
- 🔄 **Ease of Construction and Speedier Installation:** Gabions / Mattresses are constructed using the locally available materials such as stones. They often require lesser amount of excavation and minimal preparation of the foundation surface compared to other conventional alternatives such as RCC/ Random rubble masonry wall.

Different Applications of using GTI™ Steel wire Gabion Boxes/Mattresses

🔄 **Retaining Walls:** Gabion walls can be built with speed and economy and are particularly suitable for landslide control in mountainous region. In ground liable to subside, the capacity of gabions to deform makes them preferable to a concrete wall that would crack and collapse.



🔄 **River Bank Protection Walls:** Gabion walls are constructed to protect the seacoast or the river coast against the erosion due to water and waves. Gabions will withstand alternative tension and compression without losing structural passage of water throughout the structure. Also they are found to be more advantageous than other gabions in marine and river environment as they are inert to alkaline and acidic attack. They are much reliable and long lasting than marine structures constructed using the dumping of stones.



🔄 **Flexible Apron:** Designed to protect super-structures against the undermining action of river or sea water. Gabion aprons will closely follow the changing contours of the bed as scouring progresses, until eventually the erosion is completely sealed off.



GTI™ GX™ EarthWall™ For road over bridge on NH-59, Madhya Pradesh

Gabion wall on Mumbai - Solapur Highway, Maharashtra



➤ **Dikes and Groins:** These structures are built to protect a particular area from erosion as well as to silt up the previously eroded areas. The dykes are also used for protecting the harbours against the built across the front of an eroded area will collect silt left behind by floodwaters. The silt gradually builds up until the required reclamation is met without any financial outlay.



➤ **Drop Structures or Weirs:** Gabion weirs, check dams are constructed across watercourses as grade control structures, sediment collectors, as well as to form water reservoirs. Gabion weirs are normally provided with a Gabion scour protection apron both on their downstream side and at the upstream approach zone.



➤ **Protection of Scour around Bridge Piers and Structure:**

The Gabions can be used to protect scouring around the bridge piers and other important structures.



Energy Dissipaters: The pervious structure of Gabions gives two advantages over impervious structures. First, when pounded by heavy masses of water, the impact, instead of being taken instantaneously, is gradually absorbed. Again, flexibility offers distinct advantages in coastal defenses. Huge seawalls can be constructed with high speed using these gabions.



Landscape Architecture: Gabions can be used as landscaping walls, either retaining or part retaining / part free standing or totally free standing.

Various schemes have been undertaken:

- low walls to landscaped garden areas with seating
- as feature oboliques
- as enclosed planting areas
- as a maze
- feature landscaping gabions filled with various inert materials
- as street furniture
- as dometic garden gabions



The application for landscape structures is endless and is really in the domain of the landscape architects creativity in the use of the mesh or gabion.



Gabion Protection wall at AFNHB Project, Dehradun, Uttarakhand



Comparison Between Hand Made Wire Crates & GTI™ Gabions

Hand Knitted Wire Crates	GTI™ Gabion	Remarks
<p>Single-link: Mesh has single link, which results in two basic problems, viz. a) Easily breakable Because of the single link b) Unraveling (un-winding) As a direct consequence of cut in a single wire</p>	<p>Double-Twist (2-1/2) turn: Gabions are fabricated with a hexagonal double twist, which prevents the wire from unwinding (unraveling) as a direct consequence of a cut in a single wire.</p>	<p>By preventing unraveling action in the mesh, the double twist imparts greater stability & prevents any structural deformation.</p>
<p>Mesh Pattern: Crate has a square mesh pattern.</p>	<p>Mesh Pattern: GTI™ Gabions have a hexagonal mesh pattern</p>	<p>A hexagonal mesh pattern helps in a more uniform distribution of the internal stresses in the Gabion box.</p>
<p>Wire gauge: These hand made crate meshes are generally manufactured using single gauge wires.</p>	<p>Wire gauge: GTI™ Gabions are manufactured using a thicker gauge (diameter) of wire at the edges (termed as edge wire), as compared to the main mesh wire.</p>	<p>A thicker edge wire helps in a better absorption of stresses in the box (as the maximum stress is generated at the edges) and also acts as reinforcement for the Gabion box.</p>
<p>Selvedging: No selvedging (mechanical twisting of mesh wire round the edge wire) possible in case of hand made crates.</p>	<p>Selvedging: GTI™ Gabions have mesh wires mechanically selvedged to the edge wires for at least two and half twists (2 1/2) as per specifications</p>	<p>Selvedging imparts a greater degree of stability & uniformity to the gabion boxes.</p>
<p>Material used & Galvanization: The basic material used for hand made crates is galvanized iron. The galvanization done is generally of commercial type with a rate of galvanization equal to 25-g/sgm.</p>	<p>Material used & Galvanization: The basic material used for the fabrication of gabions is Mild steel, with Industrial galvanization of 275g/sqm is carried out.</p>	<p>GTI™ Gabions being heavily galvanized & with a base material as Mild steel, have a greater degree of strength, flexibility and resistance to corrosion, thereby increasing the life span of the gabion structure.</p>

<p>Strength:</p> <p>No available records, either of mesh tensile strength or long term tensile strength</p>	<p>Strength:</p> <p>Mesh has the following tensile strength</p> <p>a) Parallel to the twist: 43 kN/m, b) Perpendicular to the twist: 19kN/m. c) Long term strength: 90% of initial strength.</p>	<p>This parameter affects:</p> <ul style="list-style-type: none"> • The Shield's co-efficient for designing with Gabions, and hence the confining effect of the Gabion boxes. • The durability and overall life of the Gabion structure.
<p>Experience:</p> <p>Documented records on long term performance not available</p>	<p>Experience:</p> <p>Documented records for more than 15 years are available in India.</p>	<p>Hand made wire crates are generally used for temporary protection works, whereas Gabions have usage as a Permanent Structure</p>
<p>Cost:</p> <p>Total cost of hand made wire crates is high because of wastage/ more labor cost/ very less life.</p>	<p>Cost:</p> <p>Initial cost is higher but when we will see long term it is much cheaper than hand made.</p>	<p>By using mechanically woven Gabion we can save lot of steel and money for our country.</p>

**Specialist in the Design, Manufacture, Supply and Erection of
Double-Twisted Steel Wire Hexagonal Mesh Gabion
Retaining Walls & Reinforced Earthwalls**



Spur to break water using GTI™ Gabions, Kosi Bridge NHAI Project, Bihar

GABION TECHNOLOGIES INDIA PVT. LTD.

Corporate Office:

38, 2nd Floor, Mohammadpur,
Bhikaji Cama Place, New Delhi - 110066.
Phone: 011 - 46321074 | Fax: +91 11 39996656
Web: www.gabionindia.com | Email: info@gabionindia.com

DEHRADUN OFFICE

101, First Floor , Premier
Complex , Rajendra Nagar
Kaulagarh Road
M no: +91-9821795981 ,9411101235
Dehradun -248001

GUWAHATI OFFICE

Saharia Path Lab Near Nessa Petrol Pump
G.S.Road BhangagarhbDist: Kamrup Metro
Guwahati -7881005
M No: +91-9821795982 , 9435310627

Factory:

Village: Puruwala, Post: Gorkhuwala, Tehsil: Paonta Sahib,
District: Sirmour, Himachal Pradesh