



POLYMERIC | LAND DRAIN

# GEOSYNTHETICS

**Pursuit the Best**

We GECO, promise not only to satisfy our customer's needs and wants but also to keep our products and services in utmost quality.

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**GECO INDUSTRIAL CO., LTD.**

[WWW.GECOIND.COM](http://WWW.GECOIND.COM)

## ABOUT US



### CEO Message

I welcome to all customers visiting our website. Since its establishment in 1992, we consistently and sincerely satisfied our customers. Our management philosophy trust, communication, and cooperation are the root of the company which corresponds to act for the benefit of society at large. We are a company specialized in the research, development, and production of civil engineering construction materials. Through continues research and technology development, we promise to offer utmost products and services to all of our customers in domestic and overseas markets.

On behalf of the company and my colleagues, I wish you good luck and full success in future endeavors.

Thank you.

GECO Industrial CO., LTD.  
President & CEO

## HISTORY

- 1992**  
GECO was founded in Wonju City, South Korea
- 1995**  
Company into a new area in Hwaseong-Si, South Korea
- 2000**  
- GECO acquired ISO 9001  
- GECO acquired Prospective Business Company from Gyeonggi-do
- 2003**  
Registered Republic of Korea - Patent No.0378079.
- 2004**  
Registered Republic of Korea - Industrial Utility Model Right Patent No. 0369477.
- 2005**  
GECO Industry become GECO INDUSTRIAL CO., LTD, registered as a corporation.
- 2006**  
- FASTEN Registered Republic of Korea - Industrial Utility Model Right Patent No. 20-0428822.  
- FASTEN acquired Certification of Reliability from Ministry of Trade, Industry and Energy.
- 2008**  
Registered Republic of Korea - Patent No.0811749.
- 2009**  
GECO acquired ISO 9001:2008 certification for its quality management system.
- 2011**  
Land Drain acquired Certification of Reliability Test from FITI Testing & Research Institute.
- 2012**  
GECO acquired CE
- 2013**  
- Registered Republic of Korea - Patent No.1152553.  
- Established the Research and Development Department (KOITA)
- 2015**  
GECO certified as INNO-BIZ Company from Small and Medium Business Administration (SMBA).
- 2017**  
Registered Republic of Korea - Industrial Utility Model Right Patent No. 20-0483211.



### Trust

Reliable product's quality and service.



### Communication

We value our employees and customers.



### Cooperation

We cooperate on the basis of social responsibility.

### Economic Competitiveness



FASTEN is a cost competitive materials, especially for higher MSE walls construction. By using FASTEN, constructors can decide either use higher strength grade strips or more amount of strips for higher MSE walls.

### Superior Workability



FASTEN has lighter weight than steel strips, and also vertical concrete panels for FASTEN, can easily designed for any kinds of projects.

### Excellent Mechanical Stability



FASTEN has high resistance to chemical and installation damage due to polyethylene (LDPE) sheath coating. It has a 120-years certified design life, the durability of the FASTEN is well documented.

Construction View Map

POLYMERIC STRIPS

Loop

You can see more detailed video information by visiting the website.  
[www.gecoind.com](http://www.gecoind.com)

# POLYMERIC STRIPS

## FASTEN<sup>®</sup> Geo-strip

GECO FASTEN is a polymeric reinforcing strip which used in MSE walls in civil engineering works such as road, harbor, and bridges. FASTEN's components are high tenacity polyester fiber tendons encased in a polyethylene (LDPE) sheath coating which increases the durability of fiber tendons from physical and chemical damages. FASTEN reinforces frictional force and stability in soil, the connection strength between facing panel and back panel. Easy installation, 120 years of durability and cost matters ensure FASTEN competitiveness.

POLYMERIC STRIPS

# FASTEN® FS

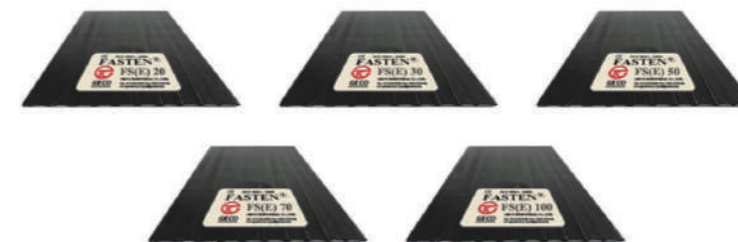
FASTEN FS is the basic type of strip which is suitable for most of the site conditions.



POLYMERIC STRIPS

# FASTEN® FS(E)

FASTEN FS(E) has about 30% thinner thickness compare to normal FS type. FS(E) type is suitable under softer soil conditions such as sand, due to less polyethylene coating.



### Physical Properties

Type	kN	20	30	50	70	100	
Width	ASTM D3774/ EN ISO 9863	mm	85 ± 3	90 ± 3	90 ± 3	90 ± 3	90 ± 3
Thickness	ASTM D5199 /EN ISO 9863	mm	1.8 ± 0.3	2.0 ± 0.3	2.5 ± 0.3	3.0 ± 0.3	4.0 ± 0.3
Core Material			PET				
Body Material			PE				

### Mechanical Properties

Tensile Strength	ASTM D4595 /EN ISO 10319	kN	>20	>30	>50	>70	>100
Elongation	ASTM D4595 /EN ISO 10319	%	<12				

- Test methods and results are also available for KSK test methods.
- The values given are indicators and are set against the mean. Results are based on research institutes and accredited testing institutions.
- Standard deviations can result in 10% change in physical properties. Products can be developed and improved continuously, and these values can change over time.
- If you have any questions about technical consultants, please contact the technical department by e-mail at techsupport@gecoind.com

### Physical Properties

Type	kN	20	30	50	70	100	
Width	ASTM D3774/ EN ISO 9863	mm	85 ± 3	85 ± 3	90 ± 3	90 ± 3	90 ± 3
Thickness	ASTM D5199 /EN ISO 9863	mm	1.2 ± 0.3	1.5 ± 0.3	1.8 ± 0.3	2.2 ± 0.3	3.0 ± 0.3
Core Material			PET				
Body Material			PE				

### Mechanical Properties

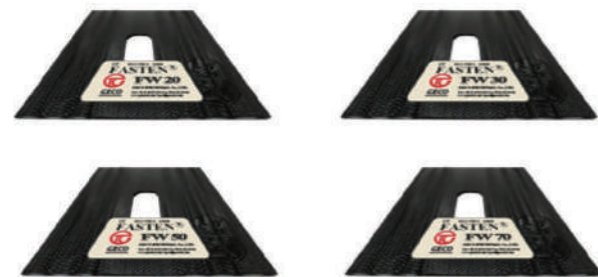
Tensile Strength	ASTM D4595 /EN ISO 10319	kN	>20	>30	>50	>70	>100
Elongation	ASTM D4595 /EN ISO 10319	%	<12				

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POLYMERIC STRIPS

# FASTEN® FW

FASTEN FW has constant punching in the center of strips which reinforces frictional force and stability in soil compare to normal FS type.



### Physical Properties

Type	kN	20	30	50	70	
Width	ASTM D3774/ EN ISO 9863	mm	90 ± 3	90 ± 3	90 ± 3	90 ± 3
Thickness	ASTM D5199 /EN ISO 9863	mm	1.8 ± 0.3	2.2 ± 0.3	3.0 ± 0.3	3.8 ± 0.3
Core Material		PET				
Body Material		PE				

### Mechanical Properties

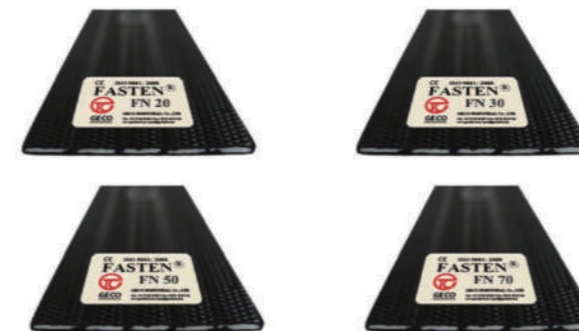
Tensile Strength	ASTM D4595 /EN ISO 10319	kN	>20	>30	>50	>70
Elongation	ASTM D4595 /EN ISO 10319	%	<12			

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POLYMERIC STRIPS

# FASTEN® FN

FASTEN FN has half length width compare to FS which is suitable for smaller wall panel hooks and specially designed panels.



### Physical Properties

Type	kN	20	30	50	70	
Width	ASTM D3774/ EN ISO 9863	mm	50 ± 3	50 ± 3	50 ± 3	50 ± 3
Thickness	ASTM D5199 /EN ISO 9863	mm	2.5 ± 0.3	3.0 ± 0.3	3.5 ± 0.3	4.0 ± 0.3
Core Material		PET				
Body Material		PE				

### Mechanical Properties

Tensile Strength	ASTM D4595 /EN ISO 10319	kN	>20	>30	>50	>70
Elongation	ASTM D4595 /EN ISO 10319	%	<12			

- Test methods and results are also available for KSK test methods.
- The values given are indicators and are set against the mean. Results are based on research institutes and accredited testing institutions.
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ADDITIONAL CONSTRUCTION MATERIALS

# FASTEN LOOP & Toggle

## Fasten loop

It can be attached to the concrete panels to secure facing panels and FASTEN . It has high resistance to chemical and installation damage due to the special coating.



### Product Description

Physical Properties							
Strength Grade		kN	30	50	70	100	150
Core Material			Polyester				
Body Material			Polyethylene				
Width	ASTM D5199 /EN ISO 9863	mm	32 ± 2	32 ± 2	32 ± 2	32 ± 2	32 ± 2
Thickness	ASTM D5199 /EN ISO 9863	mm	7 ± 1	8 ± 1	10 ± 1	12 ± 1	16 ± 1
Inner Circle		mm	130	130	130	130	130
Outer Circle		mm	144 ± 0.5	146 ± 0.5	150 ± 0.5	154 ± 0.5	162 ± 0.5
Mechanical Properties							
Tensile Strength	ASTM D4595 /EN ISO 10319	kN	>30	>50	>70	>100	>150

## Toggle

It is designed for connecting section between loops and FASTEN . It has high resistance to chemical and installation damage due to the special coating.



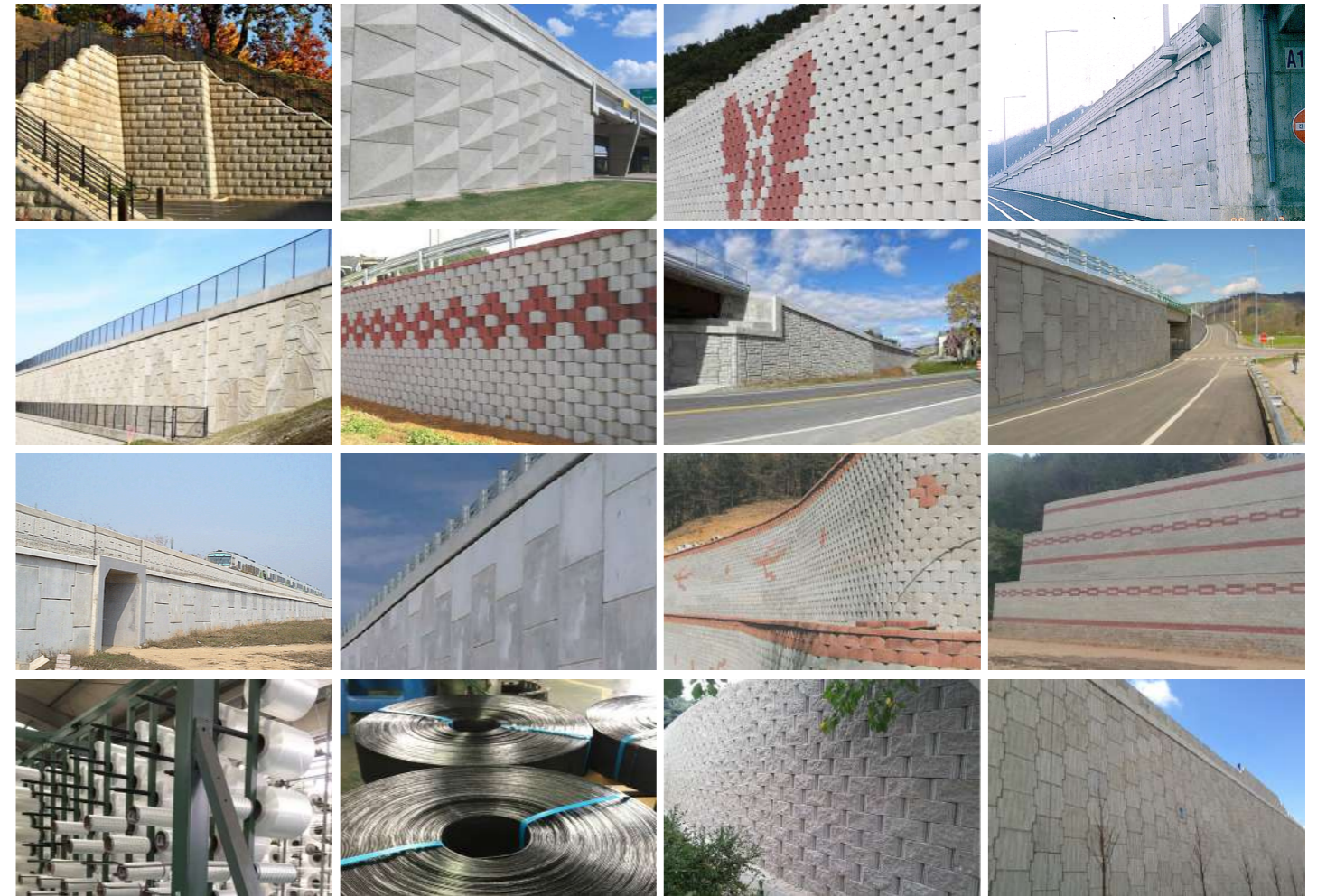
### Product Description

Physical Properties				
Diameter		mm	25	32
Length		mm	175 ± 5	175 ± 5
Weight		g/each	680 ± 20	1,150 ± 20
Core Material			Steel 1)	
Coating			Polyethylene 2)	
Mechanical Properties				
Tensile Strength	KS B 0802	mm	25	32
Yield Point	KS B 0802	mm	175 ± 5	175 ± 5
Weight	KS B 0802	g/each	680 ± 20	1,150 ± 20

1) Steel's specification sheet can be provided. 2) Chemical properties can be provided

## construction case

### POLYMERIC STRIPS Installation



### LAND DRAIN Installation



PRODUCT DESCRIPTIONS



**Economic Competitiveness**

LAND DRAIN can save projects cost up to 20 ~ 25%, compared to sand drain method.



**Decrease Overall Project Time**

LAND DRAIN decrease overall project time required for completion of primary consolidation due to preloading.



**High Physicochemical Stability**

Using the polyolefin materials, LAND DRAIN has strong resistance to acidity and alkalinity.



**Higher Permeability**

R&D based technology developed LAND DRAIN core design which maximizes the rate of permeability on the diverse environment.



**Consistent and Stable Soil Consolidation**

Uniquely designed core and geo textile will perform best in any soil condition and environmental circumstance.

# DRAIN

## Land Drain

### PVD, wick Drain

GECO Land Drain (Prefabricated Vertical Drain or Wick Drain) is designed for expediting consolidation of slow draining and accelerate the shear strength. Based on accumulated R&D, GECO Land Drain contributes development works with its low cost and stable work performance.

LAND DRAIN (P.B.D) Working Environment ▼



Permeability

Economical

Speedy Driving

PVD, wick DRAIN

# Land Drain

## Land Drain

"Land Drain" is the water draining material for soft supporting soil. It has been applied in a variety of civil engineering sites such as earth filling for harbor, reclamation, road, railway and airport. Based on accumulated R&D, it will help many kinds of development works with its low cost and stable work performance.

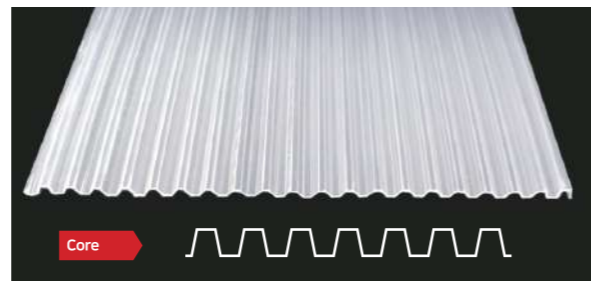


### LD60



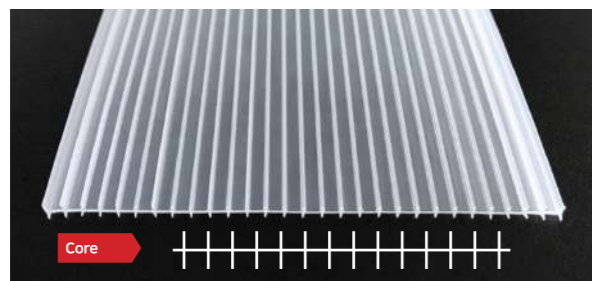
LD60 has unique continuous corrugated plastic core encased with durable geotextile.

### LD70



LD70 has unique continuous corrugated plastic core encased with durable geotextile.

### LD80



LD80 has unique continuous fish bone shaped plastic core encased with durable geo-textile.

### LD90



LD90 has unique continuous fish bone shaped plastic core encased with durable geo-textile.

PVD, wick DRAIN

# Land Drain

## Physical Properties

Width	ASTM D3774	mm	100 ± 5.0
Thickness	ASTM D5199	mm	3 ~ 5
Material			PP/PET (virgin, Recycle)

## Complete Product

Discharge Capacity $q_w$ (200,0.1)	ASTM 4716 (Straight)	cm <sup>3</sup> /s	>50 ~ 300
Discharge Capacity $q_w$ (200,0.1)	ASTM 4716 (Buckled)	cm <sup>3</sup> /s	>20 ~ 150
Tensile Strength	ASTM D4595	kN/Width	>2.0
Elongation at Break	ASTM D4595	%	>20
Elongation at Break at 1kN/ Full width	ASTM D4595	%	≤ 10
Ultra-Violet Stability	ASTM D4355	%	≥ 80% of Tensile Strength

## Mechanical Properties (Geo-textile Jacket)

Wide width Tensile Strength	ASTM D4595	kN/m	≥3 ~ 7
Grab Strength	ASTM D4632	N	≥300 ~ 800
Elongation	ASTM D4595	%	20 ~ 40
Trapezoidal Tear Strength	ASTM D4533	N	≥30 ~ 150
Permeability	ASTM D4491	m/s	≥0.0001
Opening Size $O_{90}$	ASTM D4751	μm	0.075 ~ 0.090

## Packing Details (40 ft HQ Container)

Roll Length		m	210 ~ 300
Rolls per Pallet		Roll	23
Pallets per Container		Pallet	22
Total Length		m	116,380 ~ 151,800

<sup>1)</sup>  $q_w = q$  is the flow rate at hydraulic gradient. Between two form Layers.

<sup>2)</sup> According to EN ISO 12958, there are wrapped and buckled in latex membrane (Data can be provided through request)

The given values are indicative and correspond to average results. The results are based on our laboratory and certified testing institutes. 10% of Mechanical properties and 20% of Hydraulic properties results can be vary, due to standard deviation. Products are subject to continuous development and improvement and these values may change over time.

For any inquiries regarding technical consultant please contact technical department by e-mail: techsupport@gecoind.com