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Low Impact Development **Rainwater Utilization** Facility Professionals

# EARTH GREEN KOREA

## Procurement Item List

Rainwater Permeation Deep Pipe Irrigation / Composite Tree Grating / Trench Grating / Grass Protection Mat



## Low Impact Development **Rainwater Utilization** Facility Professionals

### EARTH GREEN KOREA

Earth Green Korea was established to protect and preserve the earth's environment from environmental pollution that has caused devastation that is recorded in history and the rapid changes caused by human advancement. We are founded on the philosophy that the heavenly gift of rainwater can transform cities in lush greeneries and make a greener earth, thus we strive for construction methods and systems to utilize rainwater.

We have created over 40 specialized rainwater utilization products with numerous certification obtained such as Excellent Product, Performance Authentication, Korea Eco-Label, Excellent New Material by LH.

First in Korea, to create a combined ecological walking path and natural cycle rainwater system to allow large amounts to rainwater to penetrate the soil. Currently, we are having demonstrably good outcomes with our maintenance free Green Rooftop Rainwater Storage System.

Further, we have successfully created a plastic waste recycling system which turns waste plastic into raw materials for rainwater utilization systems, therefore city environmental problems are taken care of at the same time leading to positive business effects.

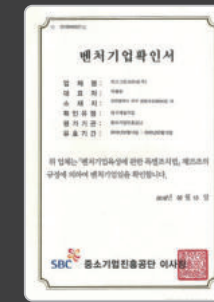
The rainwater utilization systems of Earth Green Korea are not limited to walking paths or rooftops but are also applicable to parks, kindergartens, school sports fields, apartment complexes and so forth, regardless of the place, various spaces can be used to create eco-friendly green spaces.



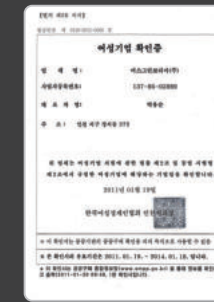
Business License



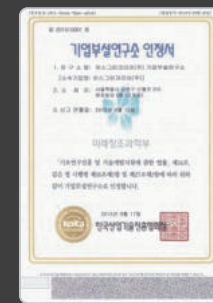
Factory License



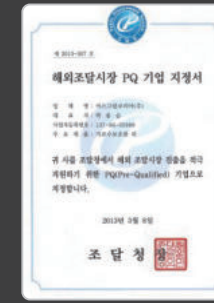
Venture business confirmation



Female business confirmation



Company Affiliated Laboratory Accreditation Certificate



PQ Company Designation for Overseas Procurement Market



Environmental Management System Certification



Quality Management System Certification



Excellent Invention Certification



Performance Authentication



Korea Eco-Label



Excellent Product

## Pioneering New Technology for the Green New Deal





### MODEL CLASSIFICATION



\* Dome Cap : Direct tube irrigation  
Efficient moisture control  
Reduces labor needed in orchards



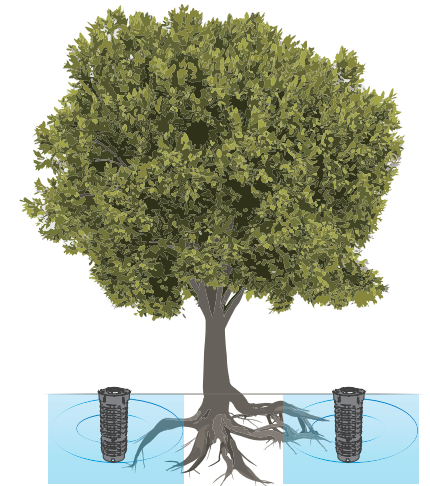
\* Ying-Yang Cap : Open and shut lid type  
Easy to fertilize  
Prevents pollution from spilt fertilizer

It has become the Ministry of Land, Infrastructure and Transport's standard specification for planting.

KCS 34 40 10, SMCS 34 40 10

The lid of the aeration and rainwater collection system is sued to prevent entry of rubbish and other unwanted items.

Scope of Use: For use in planting all species of plants excluding grasses.



### Standard Type

- ① Installed in the vicinity of trees
- ② Dimensions :  $\varnothing 100 \times 300$  /  $\varnothing 120 \times 350$  (mm)
- ③ Installation : According to the recommended quantity of trees
- ④ Standard Colors : CAP    ■ Charcoal Gray    ■ Gray  
   BODY    ■ Black



### Street Tree Type

- ① Street Tree protection plate is installed at base of trees
- ② Dimensions :  $\varnothing 100 \times 300$  /  $\varnothing 120 \times 350$  (mm)
- ③ Installation : Set of 4 Street Tree protection plates
- ④ Standard Colors : CAP    ■ Charcoal Gray    ■ Gray  
   BODY    ■ Black



### Parking Strip Type

- ① Parking Strip protection plate is installed at the base
- ② Dimensions :  $\varnothing 100 \times 300$  /  $\varnothing 120 \times 350$  (mm)
- ③ Installation : One per M of protection plates
- ④ Standard Colors : CAP    ■ Charcoal Gray    ■ Gray  
   BODY    ■ Black



# Rainwater Permeation Deep Pipe Irrigation

## Product Specifications

- **Installation :** Inserted vertically around the circumference of the tree
- **Material :** H.D.P.E, an eco-friendly material from which baby bottles are made
- **Aim :** To effectively provide trees with rainwater, nutrients and air
- **Effect :** Improves the environment for growth & development  
Control moisture in waterlogged soil  
Creates excellent environment for the development of feeder roots

## Construction Comparison

### • Another Company



**Without Upper Cap**

Functionality is lost due to the entry of foreign matter due to lack of cap. These pipes can become a dangerous hindrance to pedestrians in the city.

VS

### • Our Company



**With Upper Cap Functionality**

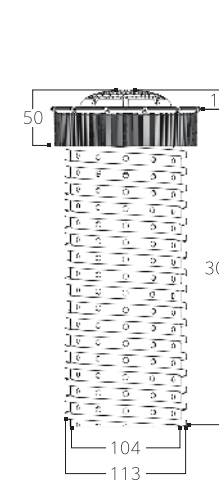
The cap function perfectly prevents entry of foreign matter. Increased the convenience of cities as the inside of pipes can be cleaned, and maintenance can continually take place.

## Product Purchase

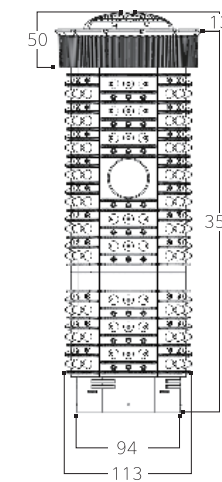
Type	Model Name	Dimensions	Price	Product Number
Complete	EGK-PC-100S3	Ø100x300	5.5\$	22766994
Complete	EGK-PC-100S4	Ø100x400	6.2\$	22766995
Complete	EGK-PC-100S5	Ø100x500	7.0\$	22766996

Type	Model Name	Dimensions	Price	Product Number
Assembly	EGK-PC-100S35	Ø120x350	6.7\$	23167605
Assembly	EGK-PC-100S65	Ø120x650	8.6\$	23167606
Assembly	EGK-PC-100S95	Ø120x950	10.5\$	-

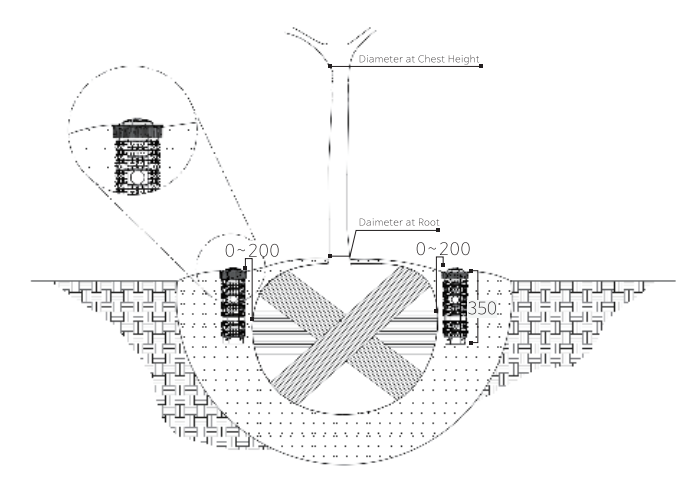
## Product Blueprints



**Dome Cap Solid Type**  
[EGK-PC100S3]



**Dome Cap Assembly Type**  
[EGK-PC100S35]



**Working Diagram**

## Growth & Development Comparison

### • Without Construction



**Fruit Trees where Deep Pipe Irrigation is not installed.**

Frequent cases of failure and trees dropping their fruit.

VS

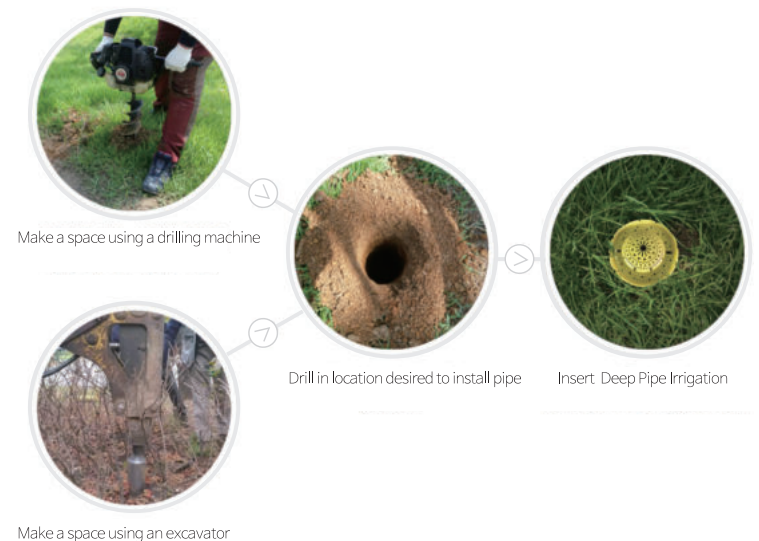
### • With Construction



**Fruit Trees where Deep Pipe Irrigation is installed**

Effect of being able to harvest early, increased yield and fruit quality.

## Construction Process





## Construction Case

### Tree Planting Event for Climate Change Week

When planting trees Rainwater Permeation Deep Pipe Irrigation is not a choice, it's a must!



### Green Zone Improvement Business

Rainwater permeation Deep Pipe Irrigation has received nation-wide recognition from local governments as having the effect of improving growth and development of plants.



Green Zone Improvement Business

### Increase in Foreign Exports

Rainwater permeation Deep Pipe Irrigation has been recognized globally by countries such as China, Japan, Vietnam, the United Arab Emirates, and business agreements have been made with them.



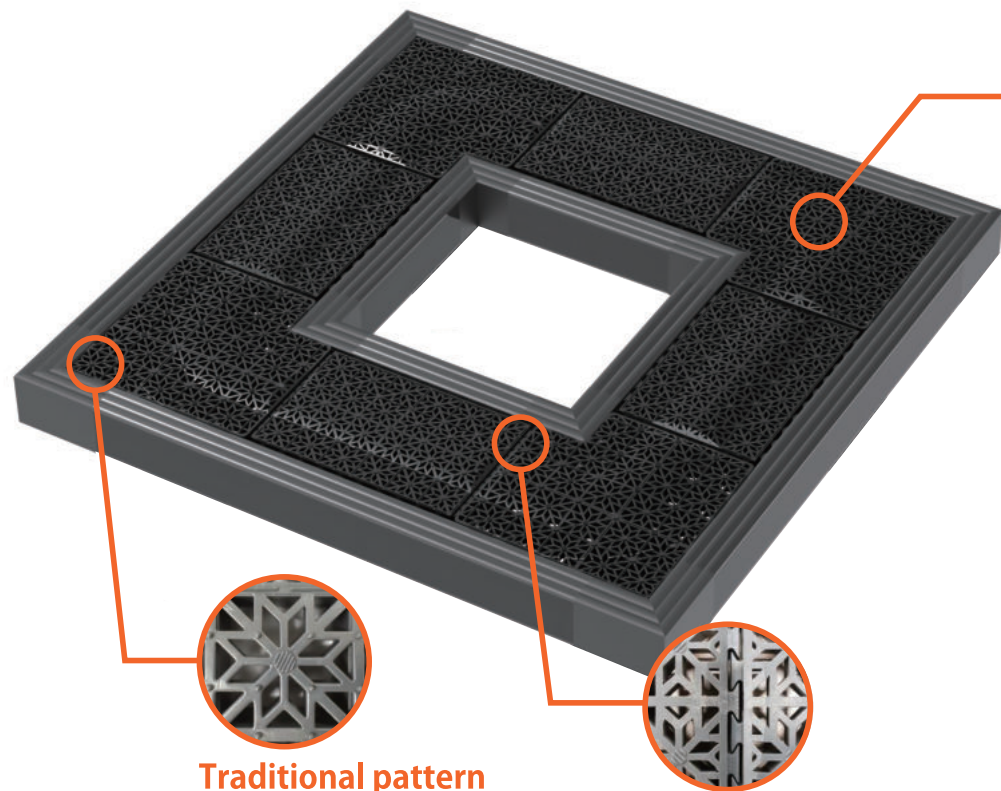
Each Emirate in the UAE (United Arab Emirates)





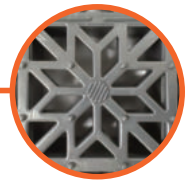
Improves Tree growth & development environment

# Rainwater Permeation Non-Slip Composite Tree Grating



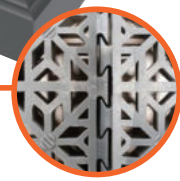
### Non-Slip

Tiny diagonal lines and dotted lines in all directions prevent slipping in on rain drenched paths.  
Slip Resistance : 76BPN  
•The slip resistance safety standard of Seoul : 40 BPN



### Traditional pattern

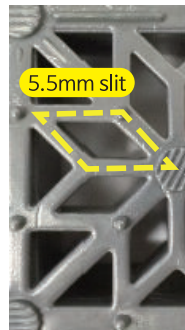
Shapes that do not deform in any direction can be customized according to the size of the trees and the terrain around them.  
•Easy to make partial replacements in case of breakage



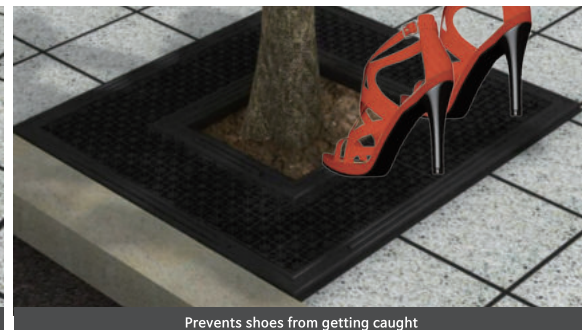
### Connective structure

so forth are safe and deformation-free structures that retain their assembly shape.

Creates an environment that is safe for walking by making the gap of the cover grid hole smaller (5.5 mm)



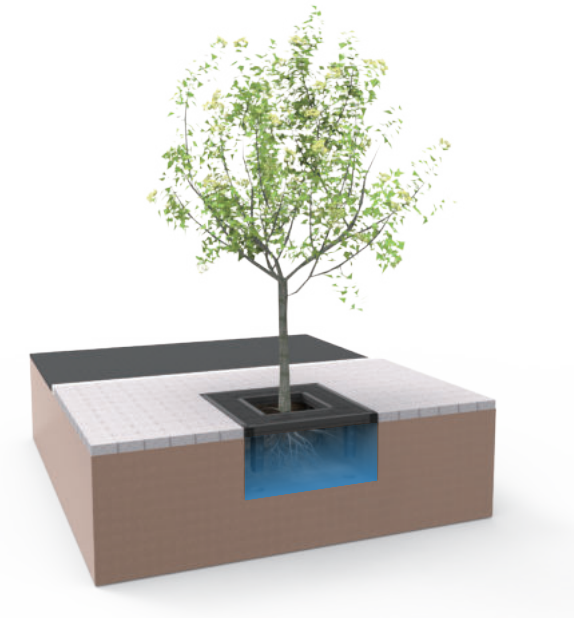
Prevent entry of rubbish



Prevents shoes from getting caught

Regardless of the location of the planting, manufacture&installation according to the site conditions is possible.

- The only perfectly customized Composite Tree Grating.
- The first, rainwater permeation Composite Tree Grating to promote tree health and growth.



### Standard Type

- Tree in central position : Square Shape Construct
- Dimensions : 100mm, 200mm
- Installation: 4 sets in lower part of protection plate
- Standard Colors : ■ Charcoal Gray ■ Gray  
\* Additional colors are available via order



### Support Type

- Construct with Perforations for Wooden posts
- Dimensions : 200mm
- Installation: 4 sets in lower part of protection plate
- Standard Colors : ■ Charcoal Gray ■ Gray  
\* Additional colors are available via order



### Eccentric Type

- Position of Tree Tilt : □ - Shape Construct
- Dimensions : 100mm, 200mm
- Installation: 4 sets in lower part of protection plate
- Standard Colors : ■ Charcoal Gray ■ Gray  
\* Additional colors are available via order



# Rainwater Permeation Non-Slip Composite Tree Grating

## Product Specifications

- **Installation :** After installation of Rainwater Permeation Deep Pipe Irrigation, 1:1 Customized Protection Plate installation for each tree
- **Material :** Frame [Aluminum] Protection Plate, Connector Elbow [H.D.P.E]
- **Aim :** To effectively provide trees with rainwater, nutrients and air
- **Effect :** Improve Pedestrian Environment- increased pedestrian space, increase city aesthetics, prevent tree roots from lifting the pavement  
Improve Socio Environment- Mitigate urban flooding, Mitigate the phenomenon of Urban Heat Islands

## Construction Comparison

### • Another Company



#### Reduces City Aesthetics

Rubbish enters the large spaces in the grid, and the breaking away of the boundary stone and the ironwork can cause hindrance and danger to pedestrians.

VS

### • Our Company



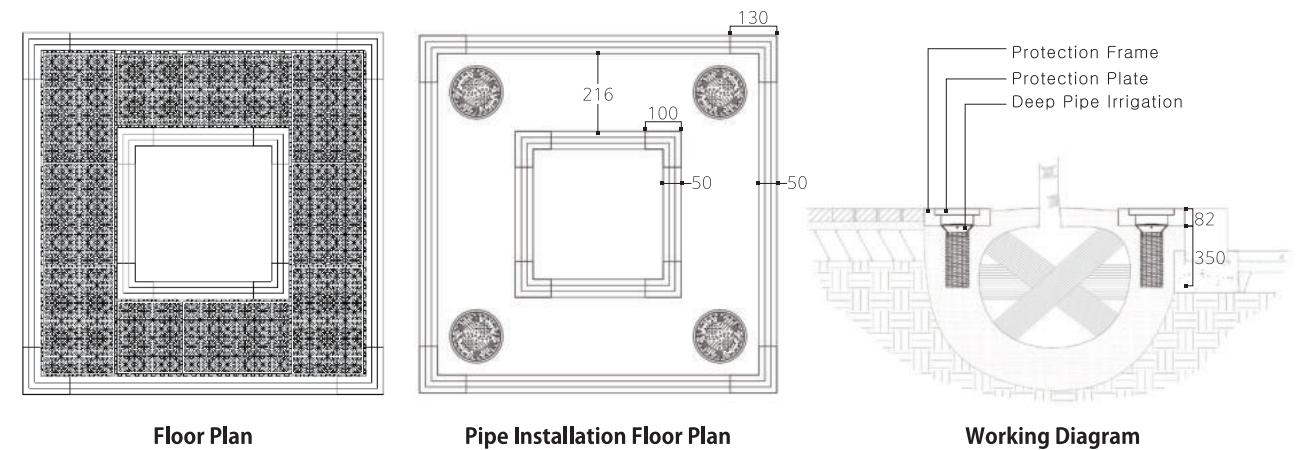
#### Increases City Aesthetics

The perforations in the protection plate are just 5mm in size thus preventing rubbish from entering, plants can also be planted inside of the protection plate to increase the aesthetics of the city scenery.

## Product Purchase

Model Name	Dimensions	Price	Product Number	Model Name	Dimensions	Price	Product Number
EGK-AL-1010SQ	1000x1000x82	289.9\$	23262343	EGK-AL-1616SQ	1600x1600x82	516.2\$	23262349
EGK-AL-1111SQ	1100x1100x82	318.5\$	23262344	EGK-AL-1717SQ	1700x1700x82	567.8\$	23262350
EGK-AL-1212SQ	1200x1200x82	377.5\$	23262345	EGK-AL-1818SQ	1800x1800x82	627.0\$	23262351
EGK-AL-1313SQ	1300x1300x82	387.7\$	23262346	EGK-AL-1919SQ	1900x1900x82	641.0\$	23262352
EGK-AL-1414SQ	1400x1400x82	419.8\$	23262347	EGK-AL-2020SQ	2000x2000x82	711.5\$	23262353
EGK-AL-1515SQ	1500x1500x82	499.1\$	23262348	EGK-AL-1512RT	1500x1200x82	429.7\$	23262356

## Product Blueprints



## Construction Process

### • STEP 1



After digging and soil preparation, outer protection frame is installed.

### • STEP 2



Next, inner protective frame and deep pipe irrigation is installed.

### • STEP 3



Protective plates are assembled and installed.

## Growth & Development Comparison

### • Before Installation



**Tree where Deep Pipe Irrigation is not installed**  
Permeating Water Storage Capability : None  
Time until Complete Water Exhaustion : 3.25 days

### • After Installation (1Year)



**Tree where Deep Pipe Irrigation is installed**  
Permeating Water Storage Capability : 18,42 liters  
Time until Complete Water Exhaustion : 13,65 days

### • After Installation (3Years)



KTI Product Impact Agency Inspection (Sep, 2016)



## Construction Case

### Ecological Water Cycle City Construction Project

The Rainwater Permeation Non-Slip Composite Tree Grating is the most practical countermeasure response to climate change in the city.



### Beautiful Walking Path Construction Project

Walking path was made more beautiful thanks to the only Rainwater Permeation Non-Slip Composite Tree Grating that can be customized and installed even on a slope



The Republic of Korea, Street Garden

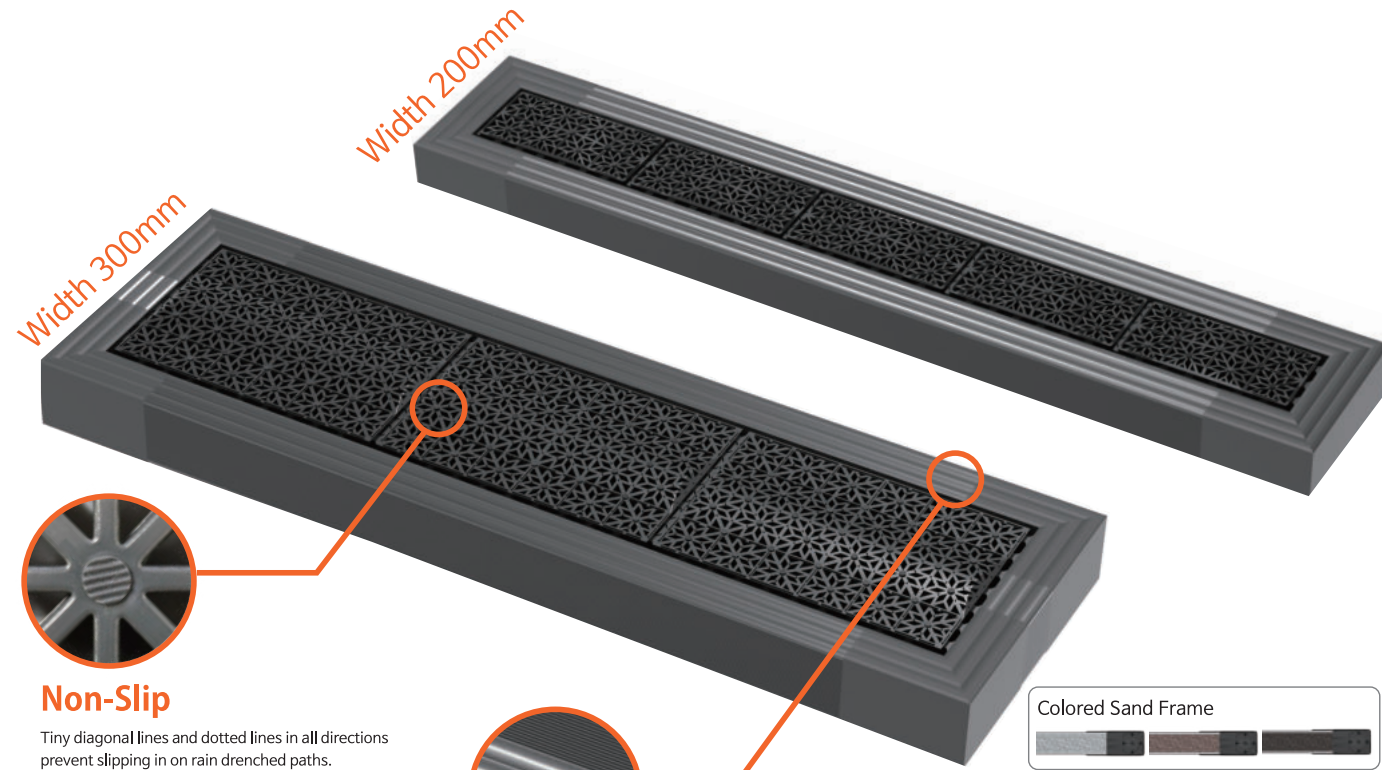
### Realization of Tree Specific Customization

It is our philosophy to create the best growth and development in trees via perfect tree specific customization regardless of onsite conditions.



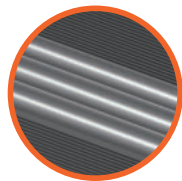
Unlimited Site specific customized designs





**Non-Slip**

Tiny diagonal lines and dotted lines in all directions prevent slipping in on rain drenched paths.  
Slip Resistance : 76BPN  
\*The slip resistance safety standard of Seoul : 40 BPN



**Rainwater Catchment Ditch**

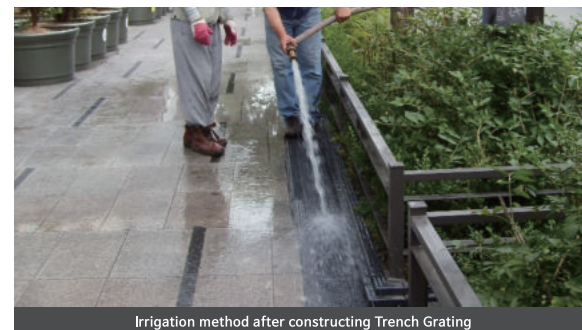
The installed arched frame protection frame of the protection plate is designed with 'waterways' that naturally direct captured rainwater. (Strengthening resistance of load distribution)



**Management efficiency through direct irrigation**



Irrigation method before constructing Trench Grating

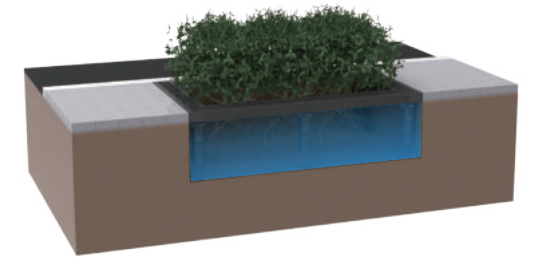


Irrigation method after constructing Trench Grating

**The only product that satisfies 'Street Parking Strip Development Plan' standard specifications.**

Details of all facilities for the installation of Street Parking Strip

After removing the standard tree protection frame, install the boundary and Parking Strip protection guard. As a rule, a rainwater inlet is installed if it is difficult to lower the boundary to allow easy rainwater inflow.



**Standard Type**

- ① Straight Parking Strip
- ② Dimensions : 100mm, 200mm
- ③ Installation : One per M of protection plate
- ④ Standard Colors : ■ Charcoal Gray ■ Gray  
\* Possible to change to Colored Sand Frame



**Protrusion Type**

- ① Protruding Tree Parking Strip
- ② Dimensions : 100mm, 200mm
- ③ Installation : One per M of protection plate
- ④ Standard Colors : ■ Charcoal Gray ■ Gray  
\* Possible to change to Colored Sand Frame



**Curve type**

- ① Curved Parking Strip
- ② Dimensions : 100mm, 200mm
- ③ Installation : One per M of protection plate
- ④ Standard Colors : ■ Charcoal Gray ■ Gray  
\* Possible to change to Colored Sand Frame



# Rainwater Permeation Parking Strip Trench Grating

## Product Specifications

- **Installation :** After installation of Rainwater Permeation Deep Pipe Irrigation, install Customized Protection Plate for Parking Strip
- **Material :** Frame [Aluminum] Protection Plate, Connector Elbow [H.D.P.E]
- **Aim :** To effectively provide trees with rainwater, nutrients and air
- **Effect :** Improve Pedestrian Environment- increased pedestrian space, increase city aesthetics, Helps create a pleasant  
Improve Socio Environment- Mitigate the phenomenon of Urban Heat Islands, Clean air of fine dust and yellow dust

## Construction Comparison

### • Another Company



#### Reduces City Aesthetics

There is a risk of spoiling city aesthetics due to soil erosion, and due to inefficient irrigation and lack of rainwater it is difficult to maintain Green Zones.

VS

### • Our Company



#### Increases City Aesthetics

Blocking soil spillage in green zones helps to maintain a pleasant walking environment, and the smooth inflow of rainwater through the protection plates helps keep Green Zones healthy.

## Growth & Development Comparison

### • Without Construction



#### Parking Strip where Deep Pipe Irrigation is not installed

Permeating Water Storage Capability : None  
Time until Complete Water Exhaustion : 3 days

VS

### • With Construction



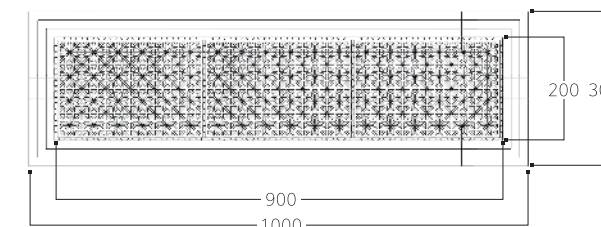
#### Parking Strip where Deep Pipe Irrigation is installed

Permeating Water Storage Capability : 70.18 liters  
Time until Complete Water Exhaustion : 13 days

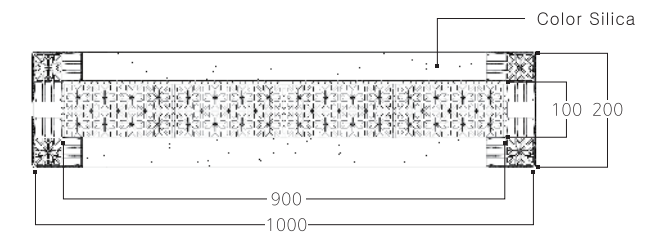
## Product Purchase

Model Name	Dimensions	Price	Product Number
EGK-AL-250-S	300x1000x82	109.9\$	23262357
EGK-AL-100-SAL	200x1000x82	99.2\$	23262358
EGK-AL-LT-80	80x1000x82	33.8\$	23261146

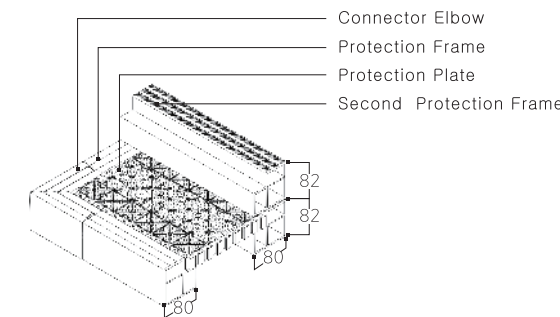
## Product Blueprints



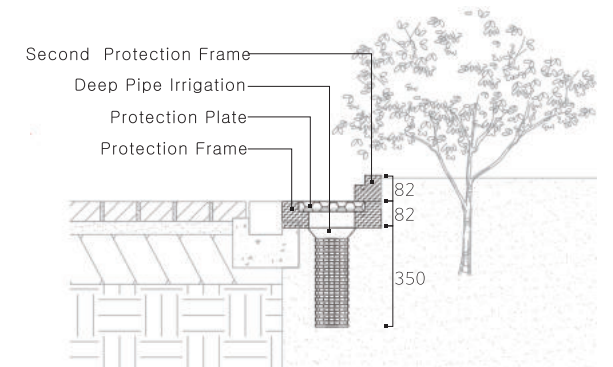
Floor Plan



Colored Sand Frame Floor Plan



Assembly Diagram



Working diagram

## Construction Process

### • STEP 1



After digging and soil preparation, outer protection frame of Parking Strip is installed.

### • STEP 2



Next, drilling for deep pipe irrigation installation is performed.

### • STEP 3



After deep pipe irrigation is installed, protective plates are assembled and installed.  
\*Option: Second Frame



## Construction Case

### Water Cycle Street Flowerbed Creation Project

We are the first in Korea to open the Rainwater Permeation Parking Strip Trench Grating market, which is an essential element in the construction of street flower beds.



### Curved flowerbed creation project

The only Rainwater Permeation Parking Strip Trench Grating in Korea that can be installed as curved flower beds to improve urban quality.



In front of the Osan Culture and Arts Center

### Implementation of Customized Street Parking Strip

Customized perfectly to fit the destination shape, application to any form of Street Parking Strip is possible.



Unlimited Site specific customized designs



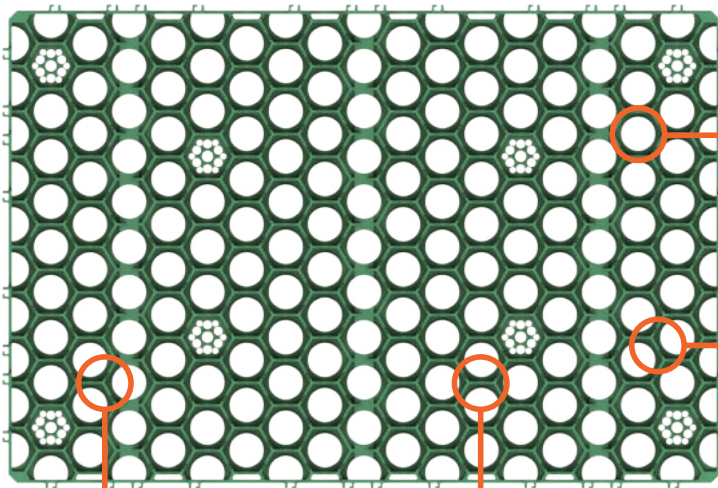


Ecological Environment Creation

# Rainwater Storage Natural Grass Protection Mat



Public Procurement Service- Excellent Product



### Rainwater Storage Furrow

Rainwater storage furrow structure promotes grass growth  
\*Rainwater storage 1.2 liters per 1m<sup>2</sup>



### Increases Root Growth

U-shaped creeping stem structure that helps grass actively send out runners



### Trampling Pressure Resistant Projections

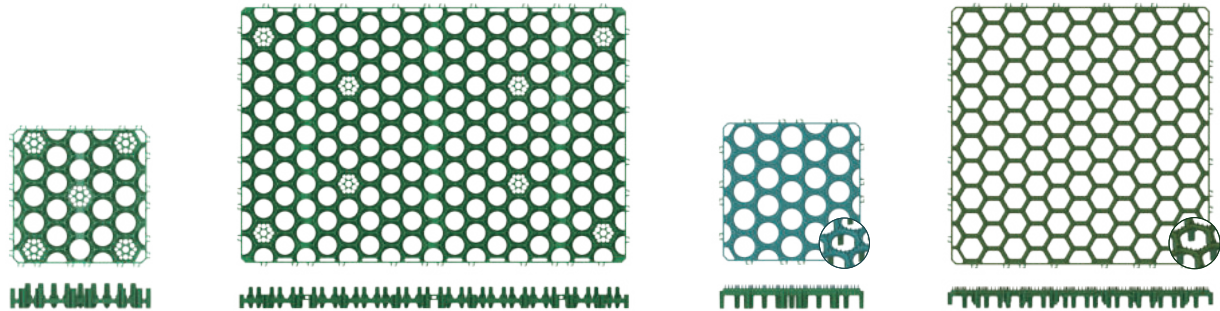
Protects grass growth and prevents defoliation by means of three-directional trampling pressure resistant projections.



### Anti-Push Mat

Reduce maintenance costs with ground extrusion structures that help prevent soil loss, pushing, and subsidence.

### Model Classification



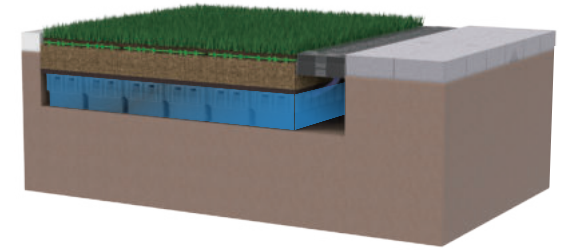
Lower part shape 200x200

Lower part shape 400x600

Upper part shape 200x200

Upper part shape 400x400

Many certifications have demonstrated the excellence of our natural grass protection mats.



- Procurement Service: Excellent Product Selection
- Ministry of SMEs and Startups(MSS): performance authentication
- LH Excellent New Technology: material selection
- Korea Invention Promotion Association: Excellent Invention, Preferred Purchase Selection



## PARK

- ① Parks, Arboretums, Sports fields, Jurisdictional Village Greens
- ② Dimensions : 200 x 200x 41/ 400 x 600 x 34 (mm)
- ③ Rainwater saving Tank : Site Option
- ④ Standard Colors : ■ Dark Green ■ Black



## ROOFTOP

- ① Building Rooftops and terraces
- ② Dimensions : 200 x 200x 41/ 400 x 600 x 34 (mm)
- ③ Rainwater saving Tank : Site Option
- ④ Standard Colors : ■ Dark Green ■ Black



## STREET

- ① Footpaths and walking paths
- ② Dimensions : 200 x 200x 41/ 400 x 600 x 34 (mm)
- ③ Rainwater saving Tank : Site Option
- ④ Standard Colors : ■ Dark Green ■ Black



# Rainwater Storage Natural Grass Protection Mat

## Product Specifications

- **Installation :** After leveling the surface, install grass and compress
- **Material :** H.D.P.E, an eco-friendly material from which baby bottles are made.
- **Aim :** Transform the lawn from something to be viewed, to something to be enjoyed in everyday life.
- **Effect :** Environmental Value- expansion of ecological area, Reduce fine dust, Mitigate the phenomenon of Urban Heat Islands  
Social Value- Resting place for regional society and utilization of community space

## Construction Comparison

### • Another Company



#### Low resistance to trampling pressure

Due to the nature of the structure, the adhesion between the natural grass and the protective mat is lacking. Access to the grass is restricted for a long time.

[ Trampling resistance : 4,344.1N ]

VS

### • Our Company



#### Excellent resistance to trampling pressure

There is perfect binding post-tensioning force and integration between natural grass and protective mats to create a seamless ecological space immediately after construction.

[ Trampling resistance : 25,541.4N ]

[ Korea Testing & Research Institute [2018.01]

## Growth & Development Comparison

### • Without Construction



#### Village Green where Natural Grass Protection Mats are not installed

Difficulty in managing grass due to trampling pressure and loss of rainwater.

VS

### • With Construction



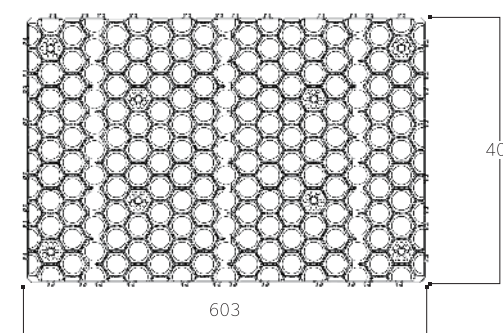
#### Village Green where Natural Grass Protection Mats are installed

Mat Technology both irrigates and increases effectiveness of management

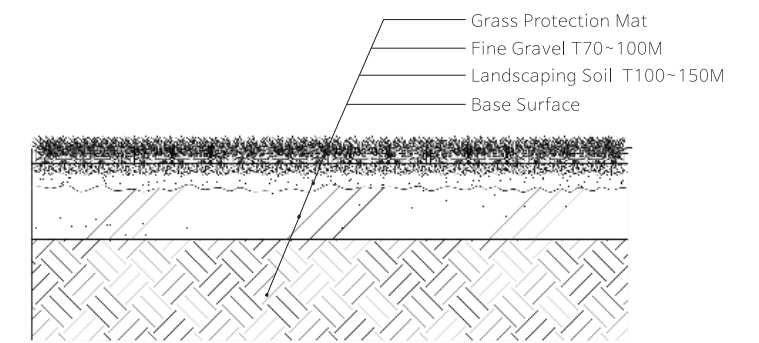
## Product Purchase

Delivery Conditions	Model Name	Dimensions	Price	Product Number
Mat	EGK-GR100	400x600x34	42.9\$	23390341
Mat + Grass	EGK-GR100	400x600x34	52.4\$	23390341
Mat+Grass+Construction	EGK-GR100	400x600x34	62.3\$	23390341

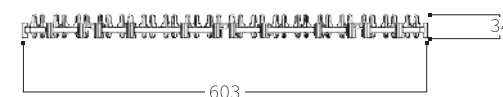
## Product Blueprints



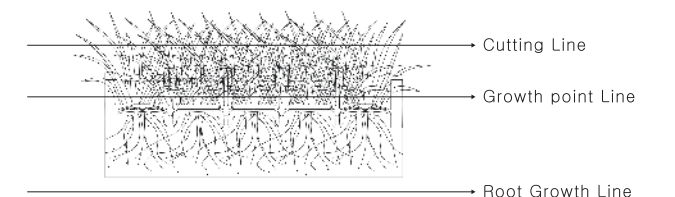
Floor Plan



Working diagram



cross-sectional diagram



Cross-sectional diagram of grass

## Construction Process

### • STEP 1



Levelling of the surface.

### • STEP 2



Construction of rainwater saving tank  
\*Option: Rainwater saving tank

### • STEP 3



Construction of thermal insulation cover

### • STEP 4



Installation of natural grass and grass protection mat

### • STEP 5



After grass compression, the grass is irrigated.



## Construction Case

### Environmentally Friendly Eco-Footpath



The Republic of Korea, Green Street

### Environmentally Friendly Eco-Charnel House



The Republic of Korea, Crematory

### Environmentally Friendly Eco-Park



The Republic of Korea, Garden Park

### Environmentally Friendly Eco-Arboretum



The Republic of Korea, Arboretum Park



**Environmentally Friendly Eco-Rooftop Garden**



The Republic of Korea, Seoul Agricultural Technology Center

**Natural Grass Parking Lot**



The Republic of Korea, Seoul, Han River Jamwon Area

**Environmentally Friendly Eco-School field**



The Republic of Korea, Seoul Elementary School

**Natural Grass Leasing Business**



The Republic of Korea, Seoul Yeouido Park Cultural Garden (Seoul Garden Expo Event)



## Procurement Item List

### Rainwater Permeation Deep Pipe Irrigation



Type	Model Name	Dimensions	Price	Product Number
Complete	EGK-PC-100S3	Ø100x300	5.5\$	22766994
Complete	EGK-PC-100S4	Ø100x400	6.2\$	22766995
Complete	EGK-PC-100S5	Ø100x500	7.0\$	22766996

Type	Model Name	Dimensions	Price	Product Number
Assembly	EGK-PC-100S35	Ø120x350	6.7\$	23167605
Assembly	EGK-PC-100S65	Ø120x650	8.6\$	23167606
Assembly	EGK-PC-100S95	Ø120x950	10.5\$	-

### Rainwater Permeation Non-Slip Parking Strip Trench Grating



Model Name	Dimensions	Price	Product Number
EGK-AL-250-S	300x1000x82	109.9\$	23262357
EGK-AL-100-SAL	200x1000x82	99.2\$	23262358
EGK-AL-LT-80	80x1000x82	33.8\$	23261146

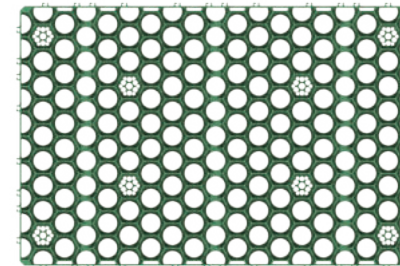
### Rainwater Permeation Non-Slip Composite Tree Grating



Model Name	Dimensions	Price	Product Number
EGK-AL-1010SQ	1000x1000x82	289.9\$	23262343
EGK-AL-1111SQ	1100x1100x82	318.5\$	23262344
EGK-AL-1212SQ	1200x1200x82	377.5\$	23262345
EGK-AL-1313SQ	1300x1300x82	387.7\$	23262346
EGK-AL-1414SQ	1400x1400x82	419.8\$	23262347
EGK-AL-1515SQ	1500x1500x82	499.1\$	23262348

Model Name	Dimensions	Price	Product Number
EGK-AL-1616SQ	1600x1600x82	516.2\$	23262349
EGK-AL-1717SQ	1700x1700x82	567.8\$	23262350
EGK-AL-1818SQ	1800x1800x82	627.0\$	23262351
EGK-AL-1919SQ	1900x1900x82	641.0\$	23262352
EGK-AL-2020SQ	2000x2000x82	711.5\$	23262353
EGK-AL-1512RT	1500x1200x82	429.7\$	23262356

### Rainwater Storage Natural Grass Protection Mat



Delivery Conditions	Model Name	Dimensions	Price	Product Number
Mat	EGK-GR100	400x600x34	42.9\$	23390341
Mat + Grass	EGK-GR100	400x600x34	52.4\$	23390341
Mat+Grass+Construction	EGK-GR100	400x600x34	62.3\$	23390341