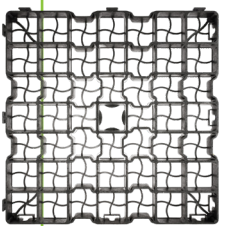
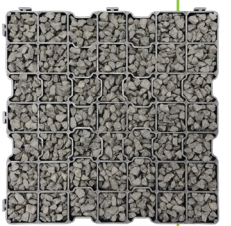
INSTALLATION INSTRUCTIONS

geoSYSTEM ECO GRID





geoBORDER PLASTIC EDGES

geoSYSTEM applications

		FILLING			
		STONE		GRASS	
		SUGGESTED	ALTERNATIVE	SUGGESTED	ALTERNATIVE
	• forest runways • airstrips • runway side reinforcement • aprons • RESA			G4	G5 max G4 max S60 F40
	• fire lanes • internal roads • storage and maneuvering yards • residential area parking spaces • mines • temporary access roads	G4 max	G3 max HD45 G40 S60 G4	G5 max	G4 max S60 G4
	• camping sites • parks • golf courses and picnic fields • yachting centres • recreational spaces • forest paths	G40	G4 max HD45 S60 F40 G4	F40	G5 max G4 max G40 S60 G4
	• car parks • roadsides • waterpermeable driveways • garage driveways • temporary car parks	G25	S60 G40 F40 G4 G3	G4	G5 max G40 S60 F40
	• stud farms • riding halls • animal enclosures • paddocks	G40	G4 max HD45 F40 G4	G5 max	G4 max S60 F40 G4
	• temporary parking spaces • walking and cycling paths • house surroundings • gravel banding • garden paths • lawn reinforcement • recreational lawn without substructure	G25	HD45 G40 F40 G3	G4	G5 max G25* S60 F40
	• escarpments, embankments • ditches • pond bottom and banks • reservoirs	G4	S60s G40 S60	S60s	S60 G4

*without substructure, only for pedestrians

Important

The thickness of the substructure depends on the purpose of the surface, usage and local conditions. It guarantees stability of grid and load resistance. It also prevents surface deformation. On less permeable soils (e.g. clay), substructure should be approx. 20 cm thicker.

Recommended substructure thickness:

 40-50 cm  20-30 cm  10 cm

Eco grids are made of plastic that due to its properties stretches in high temperatures and shrinks in low temperatures - 5 cm gap should be maintained between the grid and other surfaces or objects fixed to the substructure, e.g. parking post (dimension stability +/- 3%). The gap must be filled with sand.

Considering possible dimension instability, problems may occur while joining individual grids. To avoid it, we recommend using items from several pallets at a time. Large-size grids should be joined with medium-size grids. Medium-size grids should be joined with small grids.

Cell walls must be completely filled with gravel or grass. Protruding grid structure could be damaged mechanically.

While setting out surfaces with varied shape, trench banks may be reinforced with geoBORDER rims, installed with a 3 cm gap from other elements.

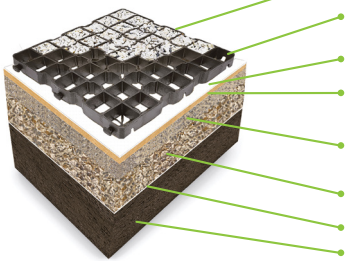
CONSTRUCTION PRODUCT

- **Declared parameters:** according to the National Declaration of Performance
- **National Technical Certification Body:** Road and Bridge Research Institute
- **Certification grounds:** National Technical Certification (KOT) - Road and Bridge Research Institute KOT-2019/0318 rev. 1 and Internal Production Quality Control

This manual is based on own experience, recommendations are general, they refer to stable ground. Proper foundation should be selected according to local geological conditions, its height should be adapted to the purpose of the surface and traffic. The manufacturer do not take responsibility for damage, caused by installation on an improperly made foundation.

Filling: stone

SUBSTRUCTURE LAYERS

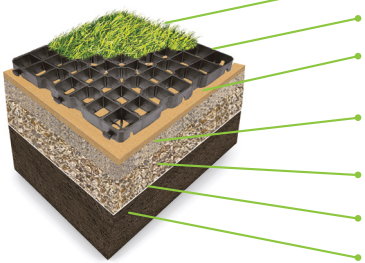


- filling: self-binding gravel, fraction 8 to 20 mm
- eco-grid geoSYSTEM G25 | G3 | G4 | G40 | S60 | G4 max | F40
- anti-weed geotextile
- levelling layer: ballast sand, 3 cm
- drainage layer: crushed stone, fraction 0 to 32 mm, 10 to 20 cm
- load-bearing layer: crushed stone, fraction 32 to 63 mm, 15 to 30 cm
- separating geotextile min. 100 g/sqm
- subgrade soil with a 1.5% slope

PRACTICAL INSTRUCTIONS

- ✔ To prevent weed growth, place geotextile just under the grid
- ✔ Grids should be filled with crushed, washed, self-binding stone with the size of 8 to 20 mm (smaller fraction may get under the grid)
- ✔ Grids must be completely filled with aggregate. Protruding grid walls could be damaged in use
- ✔ To achieve uniform aggregate distribution, filled grids may be re-compacted using a vibrating plate compactor with a rubber pad
- ✔ If the filling material falls below the edge of the grid, spread more aggregate so that the cell walls are fully covered
- ✔ Expansion gaps between the grid and other surface should be filled with sand
- ✔ For private use, on hard ground, it is allowed to make the foundation without the load-bearing layer. In this case, the drainage layer should be 20-30 cm high.

Filling: grass



SUBSTRUCTURE LAYERS

filling: soil, pH 5.5 to 6.5 or grass substrate + geoGRASS seeds

eco-grid geoSYSTEM G5 max | G4 | G40 | S60 | F40

levelling layer: mix of quartz sand, aggregate and humus, 4 cm compacted to 3 cm

load-bearing layer - fertile: 70% crushed stone, fraction 0 to 32 mm + 30% humus or substrate, 15 to 20 cm

load-bearing layer - drainage: crushed stone, fraction 32 to 63 mm, 15 to 30 cm

separating geotextile min. 100 g/sqm

subgrade soil with a 1.5% slope

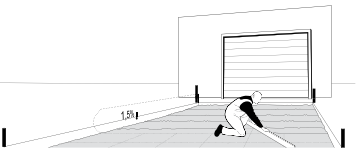
PRACTICAL INSTRUCTIONS

- Fill the grids with good, organic garden soil, with high humus content and pH of 5.5 to 6.5, or use standard substrate. The soil should not be too clayey, as it would form shell rapidly. It should not be to light (sandy) either, as it would quickly lose water
- After filling with soil, spray the grid with plenty of water to get proper compaction. The soil should reach approx. 0.5 cm below the edge of the cell wall
- We suggest choosing the geoGRASS mix, containing grass varieties particularly resistant to difficult soil and nutrition conditions, characterised by low nutrient requirements and resistance to drought
- Grass should be sown crosswise - with half of the seeds distributed along and half across the surface. Then, seeds must be covered with a several millimeter layer of sand (fraction 0.6 to 1.2 mm)
- During germination, it is particularly important to maintain proper soil moisture - water slightly in the morning. Grass sprouts will appear after approx. 3 weeks, if soil moisture is stable during that period
- Do not use the surface for the following 8 to 12 weeks, until grass roots become strong enough. Do not park cars on the grass surface for longer times
- First mowing is possible when grass is approx. 10 to 12 cm long. During the first year after sowing, keep the grass longer (4 to 5 cm) to let it spread over the surface quickly. When the lawn is dense enough, grass may be cut to 1 or 2 cm
- The geoSYSTEM G25 grid may be filled with recreational grass or used as lawn reinforcement against animals. In that case no substructure is required
- Cars should not be parked on the grass for more than 4 hours a day

Grass | gravel grid installation

1 Set out the shape of the surface using a cord, remove soil to a proper depth.

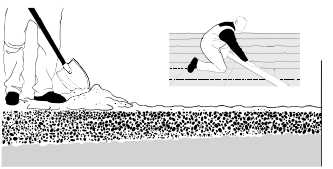
2 Level the ground maintaining a 1.5% slope.



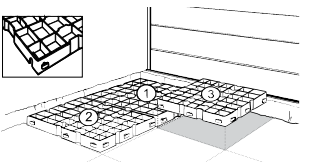
3 Place a geotextile that will prevent mixing of layers and reinforce the substructure.

4 Spread the self-binding aggregate and compact mechanically.

5 Spread a layer of ballast sand and level out with a traversing rule*.

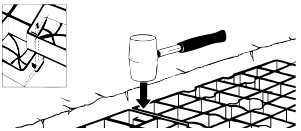


6 Start in the corner and install grids in rows. The interlocking notches point the installation direction**.

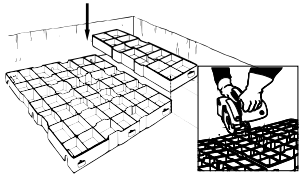


*If you fill the plates with stones, lay geotextile directly under the plates
**Installation of the geoSYSTEM F40 grids should start with the notches facing you

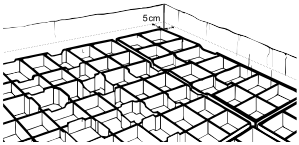
7 Join the grids with the notches, press down by foot or tap with a rubber mallet.



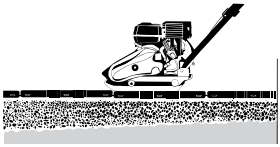
8 If necessary, cut the grids with an angle grinder or a blade to fit.



9 Maintain a minimum 5 cm gap between the edging and grid surface.

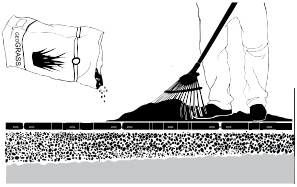


10 Level out the grid surface using a compactor or a garden roller.



FILLING: GRASS

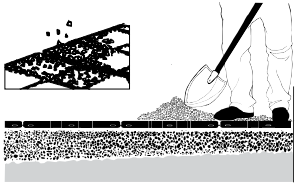
Fill the grids with soil and sow geoGRASS seeds.



Check how to do it!

FILLING: GRAVEL

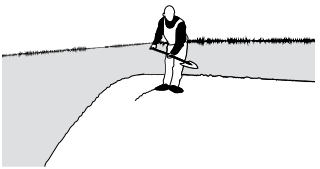
Fill the grids with gravel - spread the aggregate using a shovel and a brush.



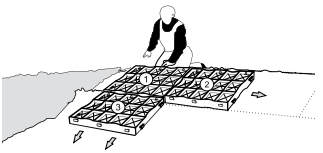
Check how to do it!

Installing eco grid on a slope

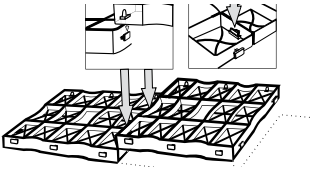
1 Remove plants and level out the slope.



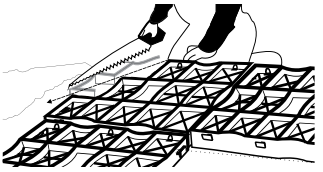
2 Start in the corner and install grids in rows, with notches in downward direction.



3 Join the grids by the notches.



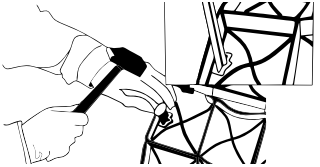
4 Grids can be cut as needed to fit the shape of the terrain.



Grid mounting

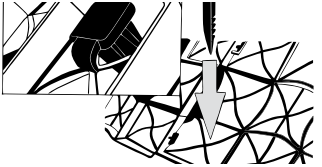
NATIVE SOIL

On standard substructures, use 24 cm geoPIN anchors. Place them in the slots.



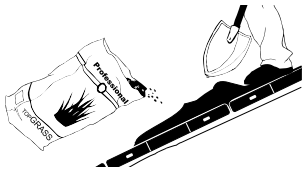
SANDY SOIL

With sandy soil, use 38 cm or 50 cm geoPEG anchors. Install the anchor adjacent to the grid wall and tap with a rubber mallet.



FILLING: GRASS

Fill the finished surface with humus and sow grass seeds. We recommend geoSANDY grass for slopes.

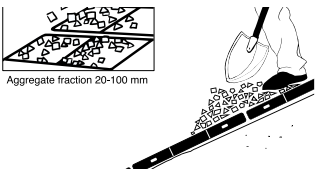


FILLING: PLANTS

Fill the finished surface with humus and plant flowers or bushes in grid holes.

FILLING: STONE

Distribute stone on the grid using a shovel. Minimum fraction: 8 mm. Aggregate fraction 20 to 100 mm.



Check how to do it!

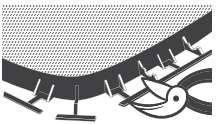
Important

- Grids must be installed on an even and clean native soil (no substructure required)
- When filling with stones, we recommend installing geotextile under the grid to prevent weed growth
- On small slopes modules can be fixed with 24 cm plastic anchors (38 cm or 50 cm on sandy soil). On hard or clayey terrain or larger slopes, anchoring with corrugated steel rods is recommended
- At the top of the slope, modules should be anchored every 0.5 m (4 anchors per 1 square metre). On lower parts of the slope, 2 anchors per 1 square metre are enough
- We recommend covering grass slopes with agrotextile (17 to 23 g/m2) for the time of seed germination to accelerate grass growth and ensure protection against birds
- To reinforce the slope, choose the geoSANDY grass mix with extended roots, suitable for sandy soils and flooded areas
- It is best to sow grass or fit plants in spring or early autumn

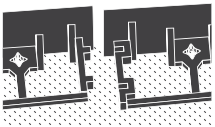
Installing geoBORDER edges in the garden

1 Set out the edge line using a cord. Use a garden hose for irregular sections.

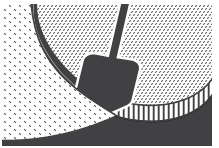
2 To get a non-linear shape, cut the base of the rim with a garden shears. After cutting all rim sections, you can form both inner and outer curves.



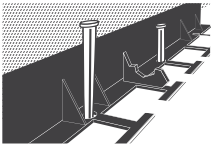
3 Join the edges by placing one section on another. Tap the joint with a rubber mallet.



4 Cut the lawn with a spade and remove grass to the depth of the edge or deeper.



5 Fix the edge to the ground by placing plastic anchors in every second slot - 3 anchors per 1 metre.



6 Cover the edges walls with soil, bark or decorative stones immediately after installation.

Check how to do it!

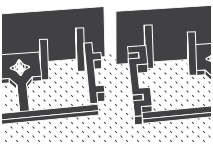
Check how to do it!

Important

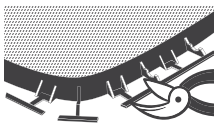
- ✔ geoBORDER rims are made of plastic that shrinks in low temperatures and stretches in high temperatures. Both sides of the edges must be covered immediately after installation. Exposure to sunlight can cause edge deformation. In such case, straight lines will not be preserved
- ✔ Minimum temperature during installation: +10°C

Installing geoBORDER edges with paving brick

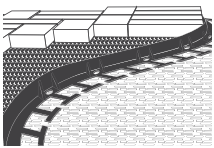
1 Join all edges in line, tap the joints with a rubber mallet.



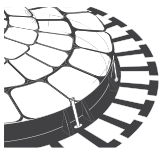
2 To get a non-linear shape, cut the base of the edge with a garden shears.



3 Install the pavement according to manufacturer's instructions. Place the plastic edge on the bearing layer, adjacent to the paver.



4 Fix the edges to the ground using 25 cm geoNAIL metal anchors (diameter 8 mm), installed in every second slot.



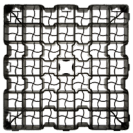
Check how to do it!

Important

- The substructure under the pavement should extend approx. 15 cm beyond the edge line
- Edges must be installed directly on the substructure, not on the subcrust
- Consider the difference of the paver height and the substructure. Edge should reach below the pavement surface-pavers will settle after compaction
- After cutting the base of all edge sections, you can form both inner and outer curves
- The edge can be installed after pavement construction, but only before surface compaction

geoSYSTEM grid

500x500 mm

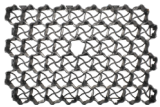


G5 max: height 5 cm
G4 max: height 4 cm
G3 max: height 3 cm

605x405 mm

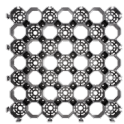
S60s: height 4 cm

600x400 mm



S60: height 4 cm

490x490 mm



F40: height 4 cm

500x500 mm

G4: height 4 cm
G3: height 3 cm

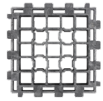
415x415 mm

G25: height 2,5 cm

385x385 mm

G40: height 4 cm

410x410 mm



HD45: height 4,5 cm

geoBORDER edge

100 cm

78: height 7,8 cm

100 cm

58: height 5,8 cm

100 cm

45: height 4,5 cm

Accessories

geoPIN **Anchors** **geoPEG**

24 cm | 18cm

38 cm | 50 cm

Grass

geoGRASS
for lawn grid

geoSANDY
for slopes