

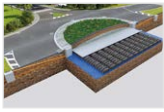
GEOCYCLE



**SEDUM ROUNDABOUTS WITH
ZERO HYDROGEOLOGICAL IMPACT
AND LOW MAINTENANCE**



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Sedum roundabout with rainwater collection and reuse system.



THE CONCEPT

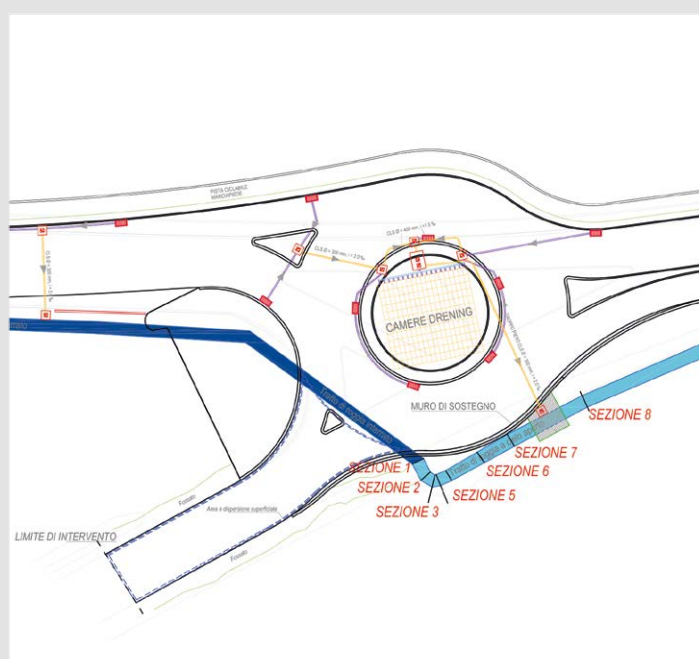
Planning the urban landscape has to be today increasingly a common goal oriented to improve, upgrade and enhance the public space and not a mere aesthetic issue, linked to subjective and individual preferences.

The spaces of our cities must become the heart of public policies, oriented to urban design choices capable of protecting structures and people from the irreversible risks linked to the progressive anthropization and waterproofing of the territory and the climate changes taking places in recent years.

In this context, the construction and the restoration of green infrastructures, from large parks to roundabouts, and the increase in the permeability of urban soils represents a virtuous choice that can be pursued to prevent and contain the huge damage caused by increasingly frequent catastrophic phenomena and to give back safe and usable cities to the community.

PROJECT AND REALISATION OF THE GEOCYCLE ROUNDABOUT IN THE CITY OF ARZIGNANO (VI)

System used: rainwater collection and reuse for the roundabout's green areas.



THE SOLUTION

GEOCYCLE is the solution for the realization of green roundabouts with zero hydrogeological impact that guarantees the management and restoration of the territory in all urban areas which are subject to soil erosion and alluvial events.

It is characterised by sedum vegetation, which is able to withstand prolonged days of summer heat and long periods of drought. Geocycle can be also customized with seasonal blooms, shrubs and ornamental elements.

It is designed to ensure permeability and hydrogeological balance in all road areas previously sealed with asphalt or concrete. The underground part can also be equipped with a rainwater infiltration or retention ponds that increases the resilience of the road infrastructure, allowing the rainwater reuse.



Every Euro invested in the planning and redevelopment of green areas is equivalent to savings in terms of emergency management and restoration of damage caused by catastrophic events.

| | TRADITIONAL GEOCYCLE | GEOCYCLE STANDARD |
|--|--|---|
| Vegetation | Grass and seasonal flowering plants | Sedum vegetation |
| Maintenance and care of the vegetation | High maintenance | No maintenance |
| Irrigation system | Daily, connected to the water supply | Unnecessary* |
| Management costs | High management costs | Zero |
| Reuse of rainwater | No | No |
| Hydrogeological equilibrium | Limited: it is linked to the absorption capacity of the substrate | Total: to the absorption of the substrate is added the accumulation of drainage and rainwater collection/disposal elements |

*In a Mediterranean climate, in order to make up for any seasonal deficiencies, it is advisable to provide an irrigation system to maintain a flourishing appearance, even in the event of prolonged drought.

THE SYSTEM

SEDUM

Rustic vegetation that needs a minimum nutritional need.



Low maintenance

DRAINROOF

Drainage panel that accumulates and retains rainwater.



Continuous drainage

DRENING

Modular element for the construction of high capacity dispersion and accumulation chambers.



310 L Water storage

GEOCYCLE PREMIUM



Sedum vegetation and seasonal flowering plants

Low maintenance

Independently thanks to Drainroof and Dreining

Low management costs

Possible

Complete: in addition to substrate absorption, there is the accumulation of drainage rainwater collection/disposal elements

GEOCYCLE GOLD



Sedum vegetation, shrubs and ornamental elements

Low maintenance

Independently thanks to Drainroof and Dreining

Average management cost

Possible

Complete: in addition to substrate absorption, there is also the accumulation of drainage and rainwater collection/disposal elements

ADVANTAGES

1

RAINWATER REUSE



The collection and reuse of rainwater represents an excellent solution to protect and save this important resource.

The GEOCYCLE system, by appropriate waterproofing of the excavation, allows the realization of chambers for storing and reusing water in the roundabout for the irrigation of adjacent green areas in order to avoid intensive use of drinking water.



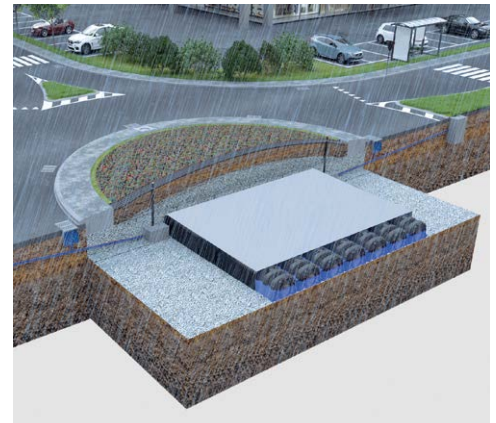
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HYDROGEOLOGICAL EQUILIBRIUM



The intensive exploitation of the territory, due to the progressive urbanization and cementification of the last few years, has altered the urban landscape, causing an increasing soil sealing and an alteration of the natural water cycle.

GEOCYCLE not only increases the percentage of permeable surface area, but also favours the infiltration of water into the subsoil, contributing to the recharge of aquifers, one of the most exploited sources of water supply by man. In this way the natural water balance, which would be disturbed by soil sealing, is kept unaltered.



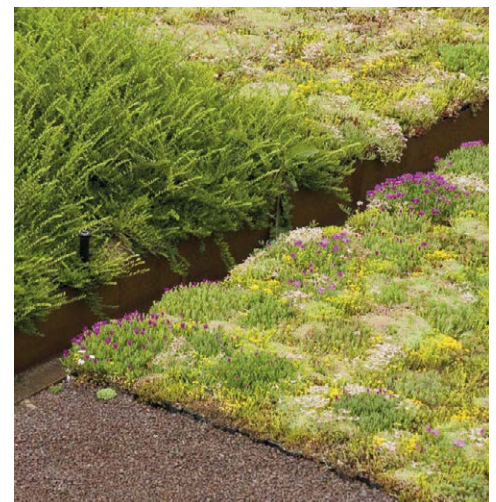
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PERENNIAL VEGETATION



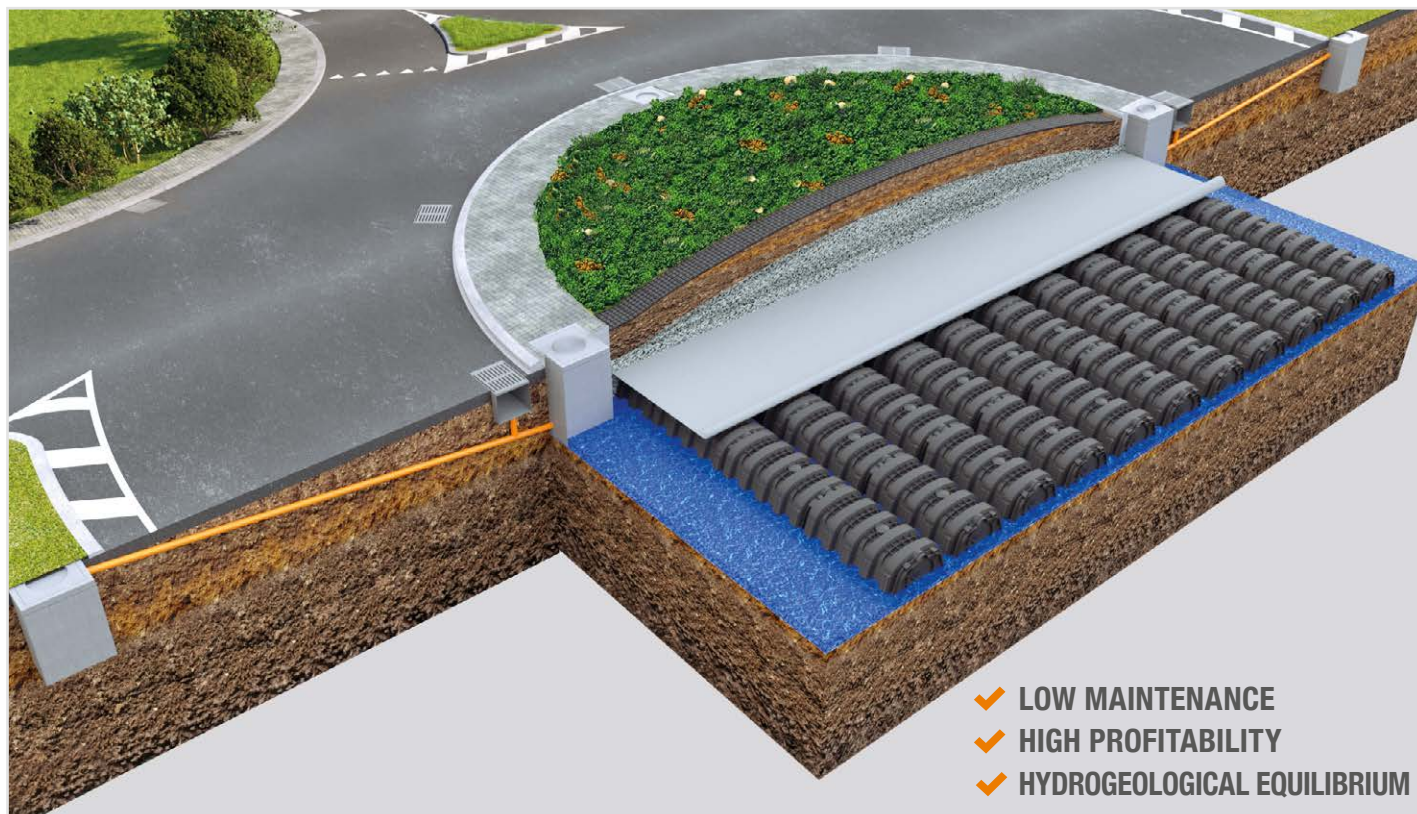
Also the vegetation must ensure economic efficiency and maximise investment in the medium and long term. Minimum nutritional intake, resilience to thermal stress and self-regeneration are the 3 key factors of sedum vegetation.

A large number of species of the family Crassulaceae belong to the genus Sedum. Grown in greenhouses and then planted in the area subject to intervention, sedum prefers draining and not very humid soils and requires a small amount of water. It also makes it possible to avoid the periodic cutting that occurs in classic grass or turf planting.



GEOCYCLE STANDARD

GEOCYCLE STANDARD is characterized by a total coverage of the green area with sedum, which requires very little maintenance and a very limited energy supply from the outside. The system is proposed without the irrigation system, helping to eliminate water costs, in addition to maintenance costs.



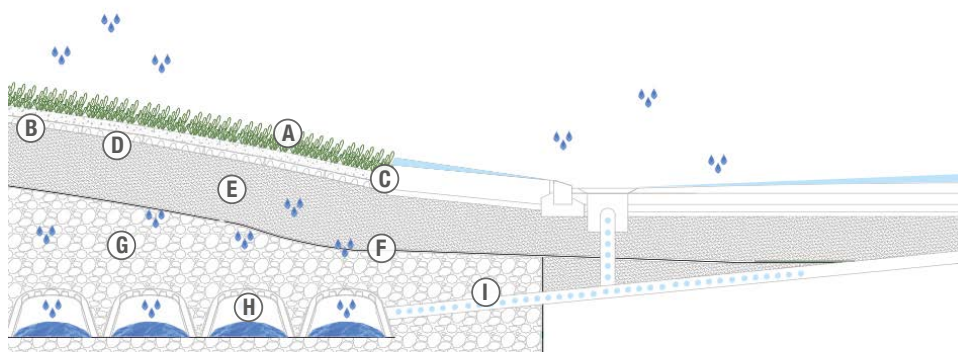
NO MAINTENANCE COSTS

Elimination of mowing, transport and disposal of green waste

The modular Draining tunnel element, wrapped in a geotextile and installed below the green area of the roundabout, favours the underground drainage of rainwater from the road surface.

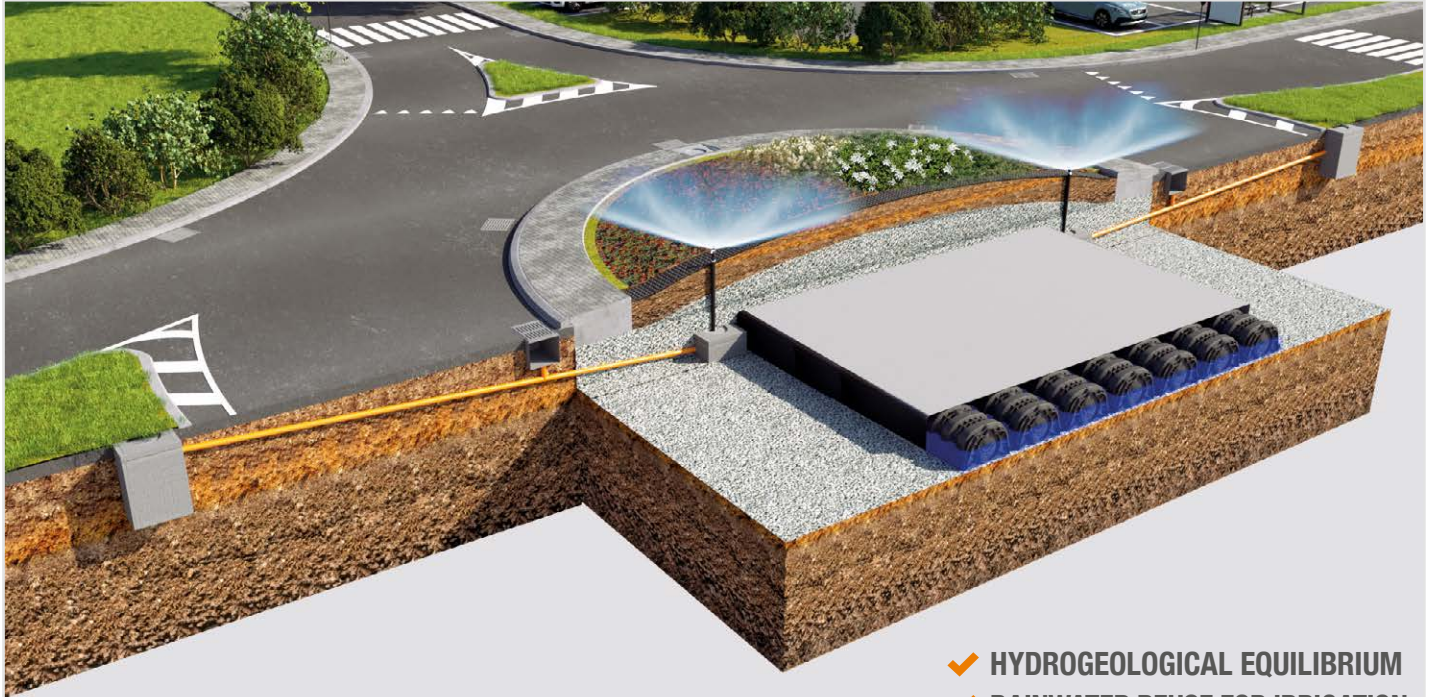
The underground retention ponds will be sized and designed ad hoc according to the volume of rainwater to be disposed of, preventing flooding due to heavy rainfall.

- (A) SEDUM VEGETATION
- (B) SUB-LAYER
- (C) DRAINROOF
- (D) GEO TEXTILE
- (E) SOIL OVER
- (F) NON WOVEN FABRIC
- (G) WASHED GRAVEL 20/40 MM
- (H) DRENING
- (I) DRENING CHANNELS



GEOCYCLE PREMIUM

GEOCYCLE PREMIUM allows the collection of rainwater in the underground retention ponds and to reuse it for irrigation of the roundabout, urban green areas, to clean the streets and to supply fire-fighting networks. Thanks to the presence of the irrigation system in the green area of the roundabout, it is possible to include not only the sedum vegetation, but also the many types of seasonal blooms, also satisfying an aesthetic function of the infrastructure.



- ✓ HYDROGEOLOGICAL EQUILIBRIUM
- ✓ RAINWATER REUSE FOR IRRIGATION
- ✓ SEASONAL BLOOMS

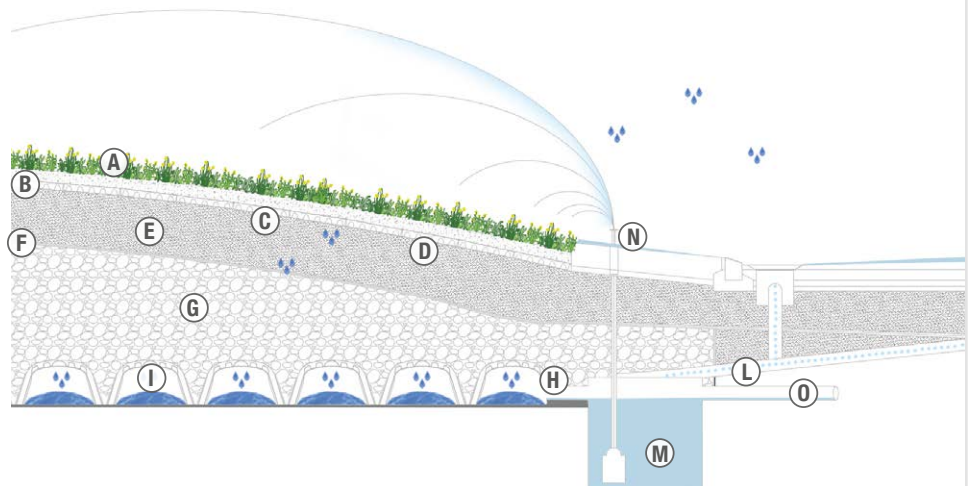


NO WATER COSTS

DRENING allows rainwater to accumulate and reuse

Drening, hermetically wrapped in a waterproof geomembrane, ensures the drainage of the road infrastructure and at the same time the accumulation for the reuse of rainwater from the road surface.

- (A) SEDUM VEGETATION AND SEASONAL BLOOMS
- (B) SUB-LAYER
- (C) DRAINROOF
- (D) GEO TEXTILE
- (E) SOIL OVER
- (F) NON WOVEN FABRIC
- (G) GHIAIA LAVATA 20/40 MM
- (H) WASHED GRAVEL 20/40 MM
- (I) DRENING
- (L) DRENING CHANNELS
- (M) WATER RETENTION POND
- (N) IRRIGATION SYSTEM
- (O) OVERFILL PREVENTION



GEOCYCLE GOLD

GEOCYCLE GOLD offers great design freedom and allows you to create green roundabouts, choosing from a wide variety of shrubs and ornamental elements.

Depending on the vegetative species chosen, the system requires specific irrigation and nutrient inputs, satisfied by the autonomous irrigation system, which reuses the rainwater collected in the storage basin.



- ✓ HYDROGEOLOGICAL EQUILIBRIUM
- ✓ RAINWATER REUSE FOR IRRIGATION
- ✓ DESIGN FREEDOM

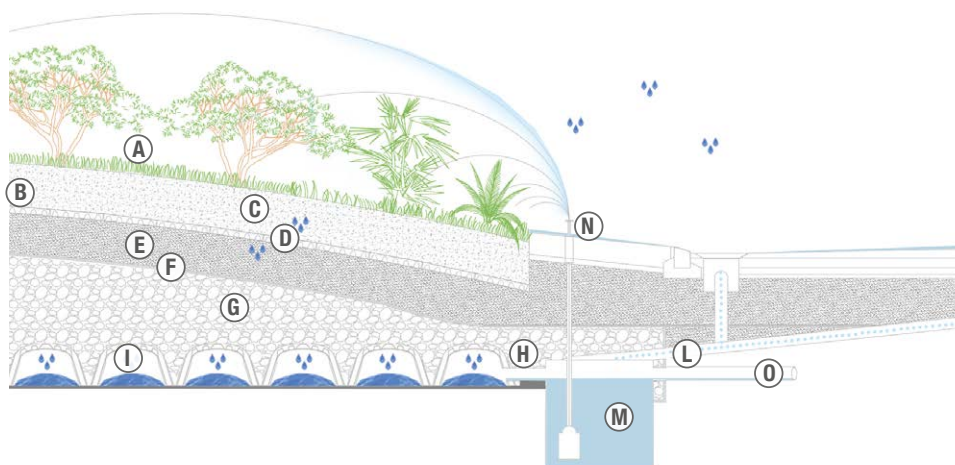


DESIGN FREEDOM

A team of professionals at your side from design to implementation.

Drainroof avoids surface runoff, the phenomenon of rainwater running over the ground surface and the vegetation doesn't risk any root rotting.

- (A) VEGETAZIONE SEDUM E ARBUSTI
- (B) SUB-LAYER
- (C) DRAINROOF
- (D) GEO TEXTILE
- (E) SOIL OVER
- (F) NON WOVEN FABRIC
- (G) GHIAIA LAVATA 20/40 MM
- (H) WASHED GRAVEL 20/40 MM
- (I) DRENING
- (L) DRENING CHANNELS
- (M) WATER RETENTION POND
- (N) IRRIGATION SYSTEM
- (O) OVERFILL PREVENTION



PHASES OF IMPLEMENTATION



① Excavation and splatting works.



④ Roundabout covered with soil and suitable stratigraphy.



② Installation of gravel bed, geotextile and Draining modules.



⑤ Final work of kerb repositioning and planting of plants.



③ Covering of the drainage modules with gravel.



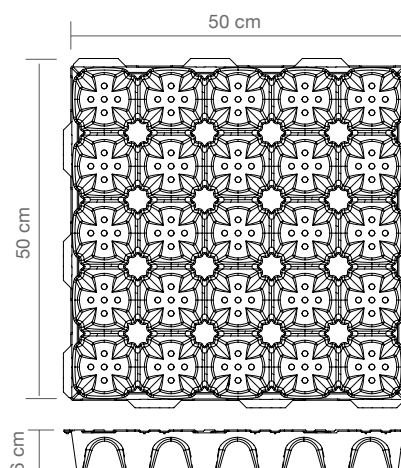
⑥ Completed roundabout.

TECHNICAL DATA



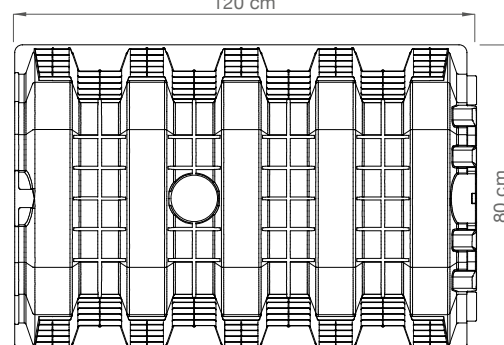
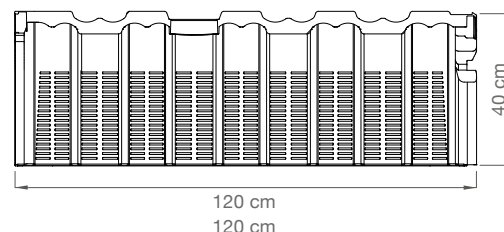
DRAINROOF H6

| | |
|--|---|
| Dimensions (cm) | 50 x 50 x 6 |
| Material | Graplene |
| Weight (kg) | 0.84 |
| Weight m ² (kg) | 3.36 |
| Dreninage surface (cm ² /m ²) | 318 |
| Water reserve (l/m ²) | 7 |
| Compression strength (kg/m ²) | 6000 |
| Solubility | Resistant to organic, acid, alkaline and alcoholic substances |
| Packaging dimensions (cm) | 105x 120 x 240 |
| Pcs per pallet | 720 |
| Product Code | FDRAINR5006 |



DRENING

| | |
|--|-----------------------------|
| Dimensions (cm) | 120 x 80 x 40 |
| Installed product's lenght (cm) | 117 |
| Material | Gralene HD Black / Graplene |
| Capacity (l) | 310 |
| Side infiltration surface (cm ²) | 2.800 |
| Packaging dimensions (cm) | 120 x 80 x 230 |
| Pcs per pallet | 40 |
| Product Code | EDRENIN0040 |



MAXIMUM LOAD WITH SUITABLE FINISHED STRATIGRAPHY: up to CLASS SLW60

SEDUM VEGETATION





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