



Product Catalogue 2020

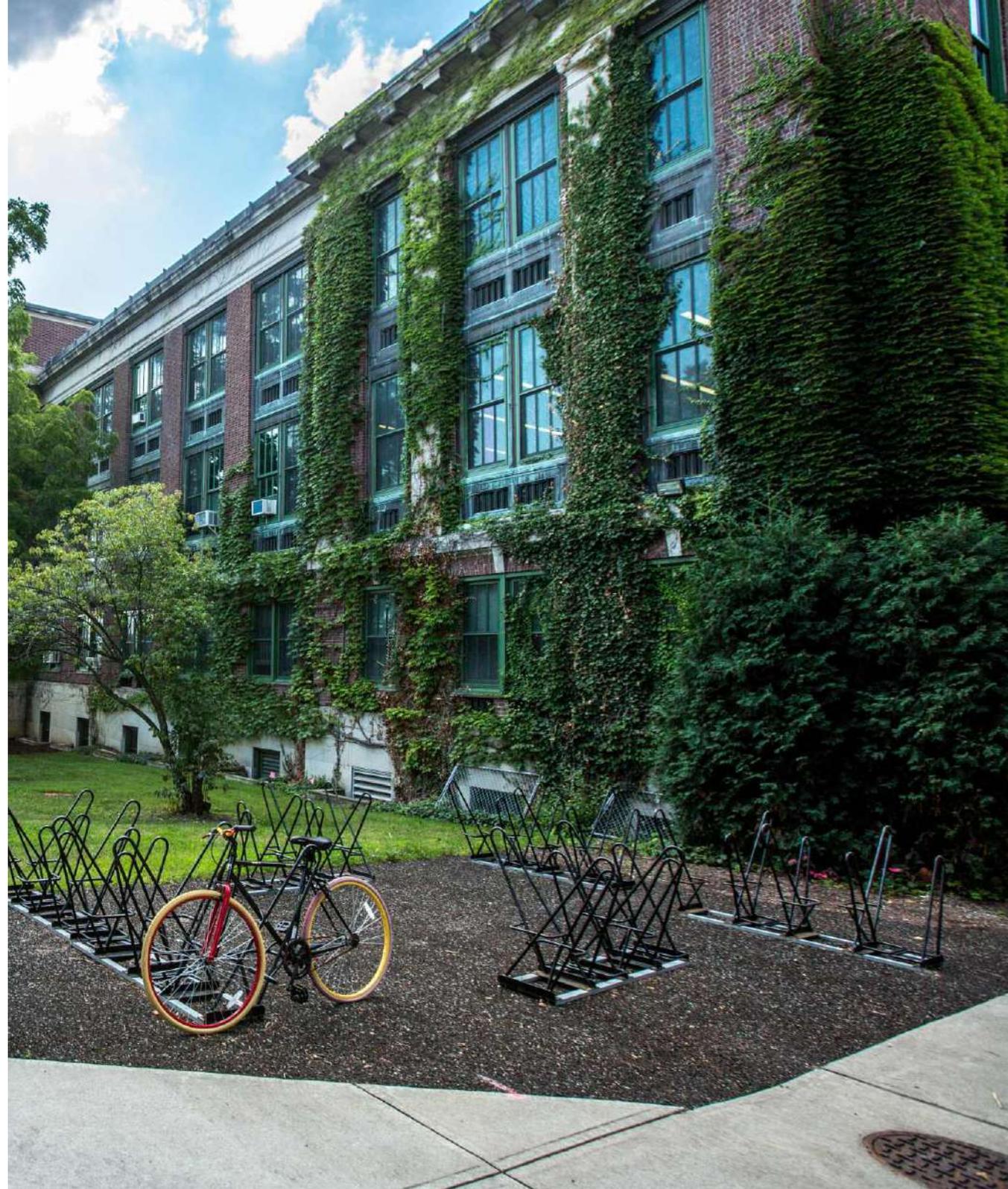
At Gardarica Ltd., we bring to life the aim of installing green, practical and sustainable infrastructure in all types of areas, using a variety of methods. We are a company who offer state of the art products to solve modern world challenges, in a sustainable and environmentally friendly manner.

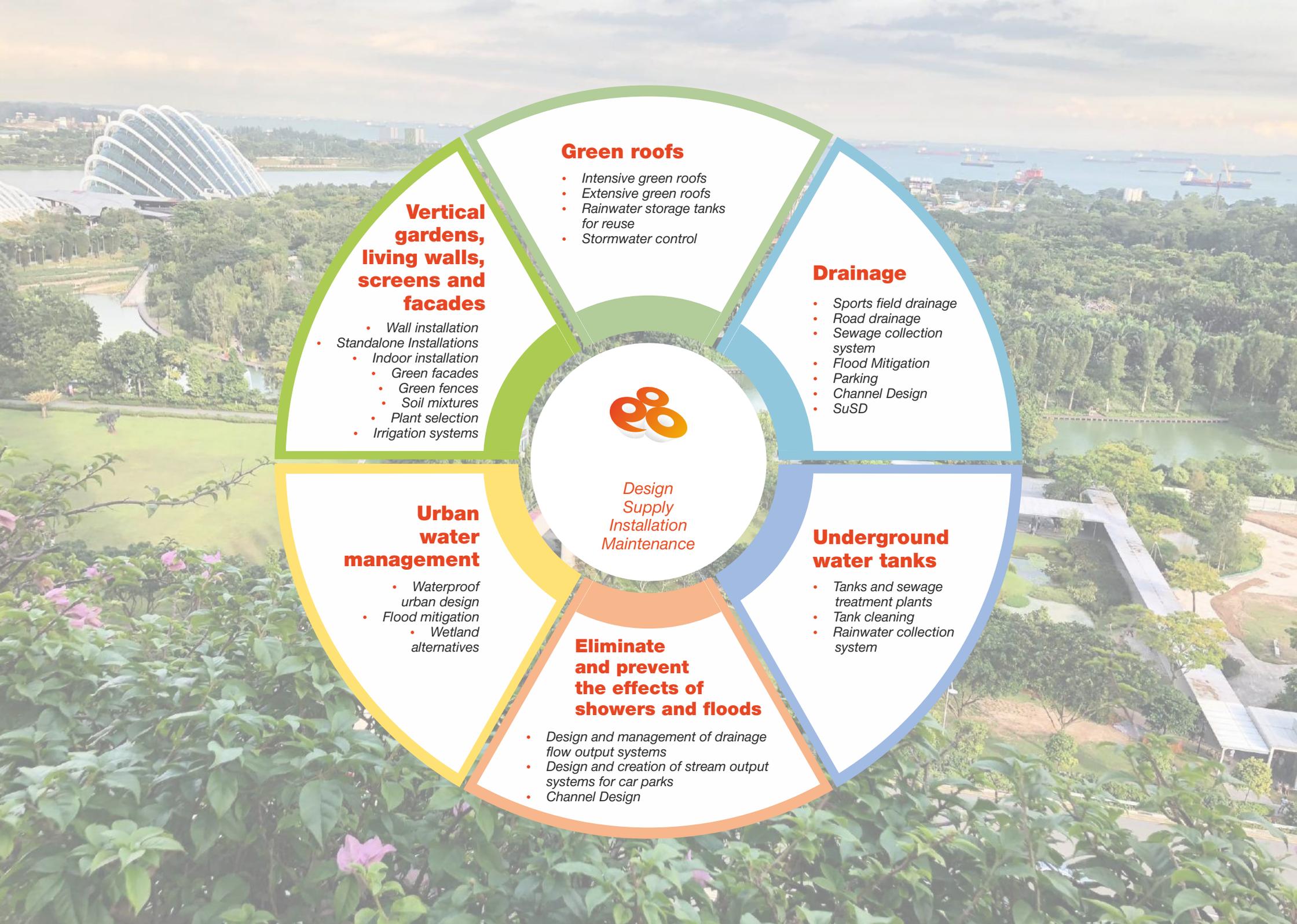
We work directly with clients to develop unique solutions, anticipating and meeting their development needs, while providing economic, environmental and social benefits.

Our group of companies consist of a multi-skilled team of environmental engineers, landscape architects and biologists who work together to solve these problems.

We provide revolutionary green water-management technologies for all parts of Great Britain including Scotland, Wales and Northern Ireland.

Our aim is to reduce the urban character of an environment and make it a greener, cleaner place for us to live in.





Green roofs

- Intensive green roofs
- Extensive green roofs
- Rainwater storage tanks for reuse
- Stormwater control

Vertical gardens, living walls, screens and facades

- Wall installation
- Standalone Installations
 - Indoor installation
 - Green facades
 - Green fences
 - Soil mixtures
 - Plant selection
- Irrigation systems

Drainage

- Sports field drainage
- Road drainage
- Sewage collection system
- Flood Mitigation
- Parking
- Channel Design
- SuSD

Design
Supply
Installation
Maintenance

Underground water tanks

- Tanks and sewage treatment plants
- Tank cleaning
- Rainwater collection system

Eliminate and prevent the effects of showers and floods

- Design and management of drainage flow output systems
- Design and creation of stream output systems for car parks
- Channel Design

Urban water management

- Waterproof urban design
- Flood mitigation
 - Wetland alternatives

Gro-Wall vertical gardens

Vertical gardens and living walls can be the best design solution in the interior of the house, as well as its facade. The Gro-Wall series is ideal for both public areas and private homes.

It includes:

- Gro-Wall 4.5
- Gro-Wall PRO
- Gro-Wall Slim Line
- Gro-Wall Slim Pro
- Gro-Wall Facade

Universal vertical gardens and green walls

Vertical garden and green wall systems are suitable for any space, applicable to any project and able to satisfy the most demanding taste. The unique aesthetics of the facade of your home or office will become a marketing tool and a living business card. Parts of this product line can be modified according to your wishes and budget

Environmental benefits

The Gro-Wall vertical garden system is modular and with individual access to each plant. This system provides both vertical and horizontal expansion. You can easily assemble, install and maintain a Gro-Wall; access different parts of the system at any time and change plants quickly if needed.



Gro-Wall PRO

Number:	80043
Size (mm):	270 x 487 x 265
Weight (g)	1820
Maximum load:	25 kg per module
Chemical resistance:	Excellent resistance to alkalis, acids, alcohols, bases and mineral oils. Good resistance to aldehydes, ethers, aliphatic hydrocarbons, ketones and vegetable oils

Biological effects: Does not affect biological activity

Material: 85% recycled polypropylene, 15% patented materials

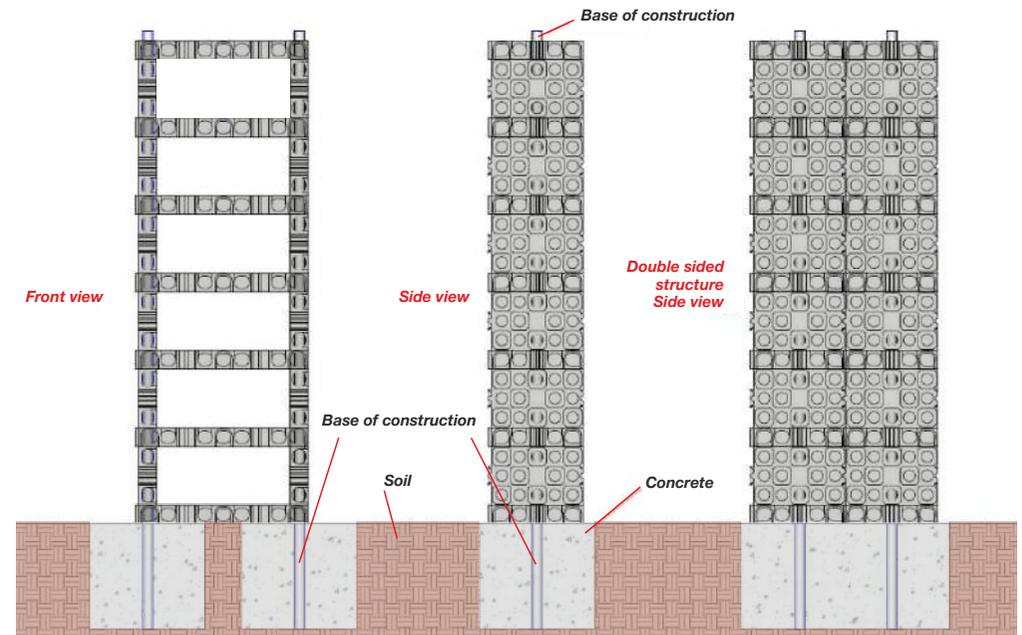
Recommended operating temperature: -30°C to 70°C

Benefits:

- Durable design
- Fast construction and installation
- Simple vertical and horizontal expansion
- Rigid 4-way locking system
- UV resistant

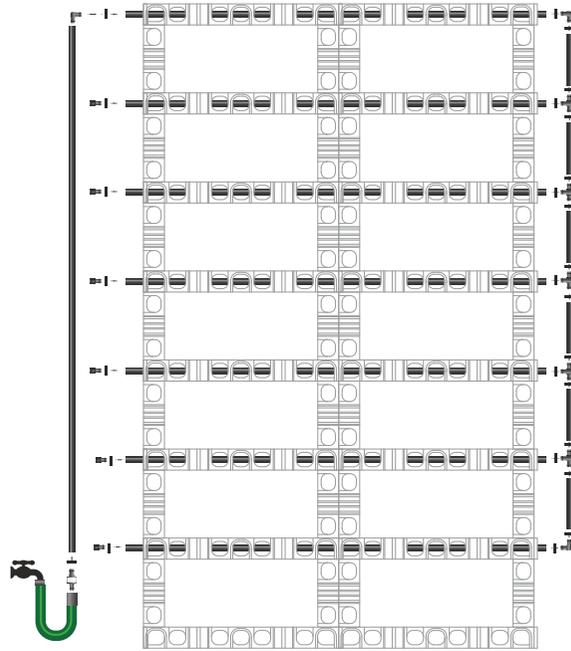


▲ Module dimensions



Irrigation system overview

The Gro-Wall PRO system allows a caretaker to adapt irrigation requirements according to different environmental conditions, seasonal changes and plant species.



Requirements for one set of irrigation system Gro-Wall:

- 6 m irrigation hose (13 mm or 19 mm)
- 18 irrigation drippers
- 6 connectors
- 5 3-way connectors
- 1 water tap
- 26 hose clips (stainless steel)
- 3 - 90° corner connectors

Mount for Gro-Wall PRO



The clamps can be attached to the module and bolted to the structure.



Clips can be placed inside or outside the module.



Gro-Wall 4.5

Number:	80040
Size (mm):	200 x 680 x 220
Weight (g)	2040
Maximum load:	30 kg per module
Chemical resistance:	Excellent resistance to alkalis, acids, alcohols, bases and mineral oils. Good resistance to aldehydes, ethers, aliphatic hydrocarbons, ketones and vegetable oils

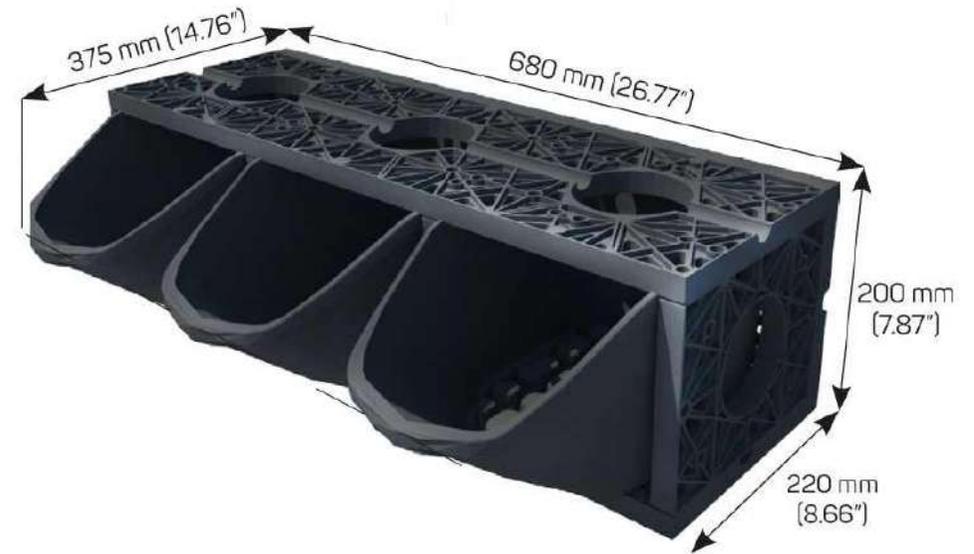
Biological effects: Does not affect biological activity

Material: 85% recycled polypropylene, 15% patented materials

Recommended operating temperature: -30°C to 70°C

Benefits:

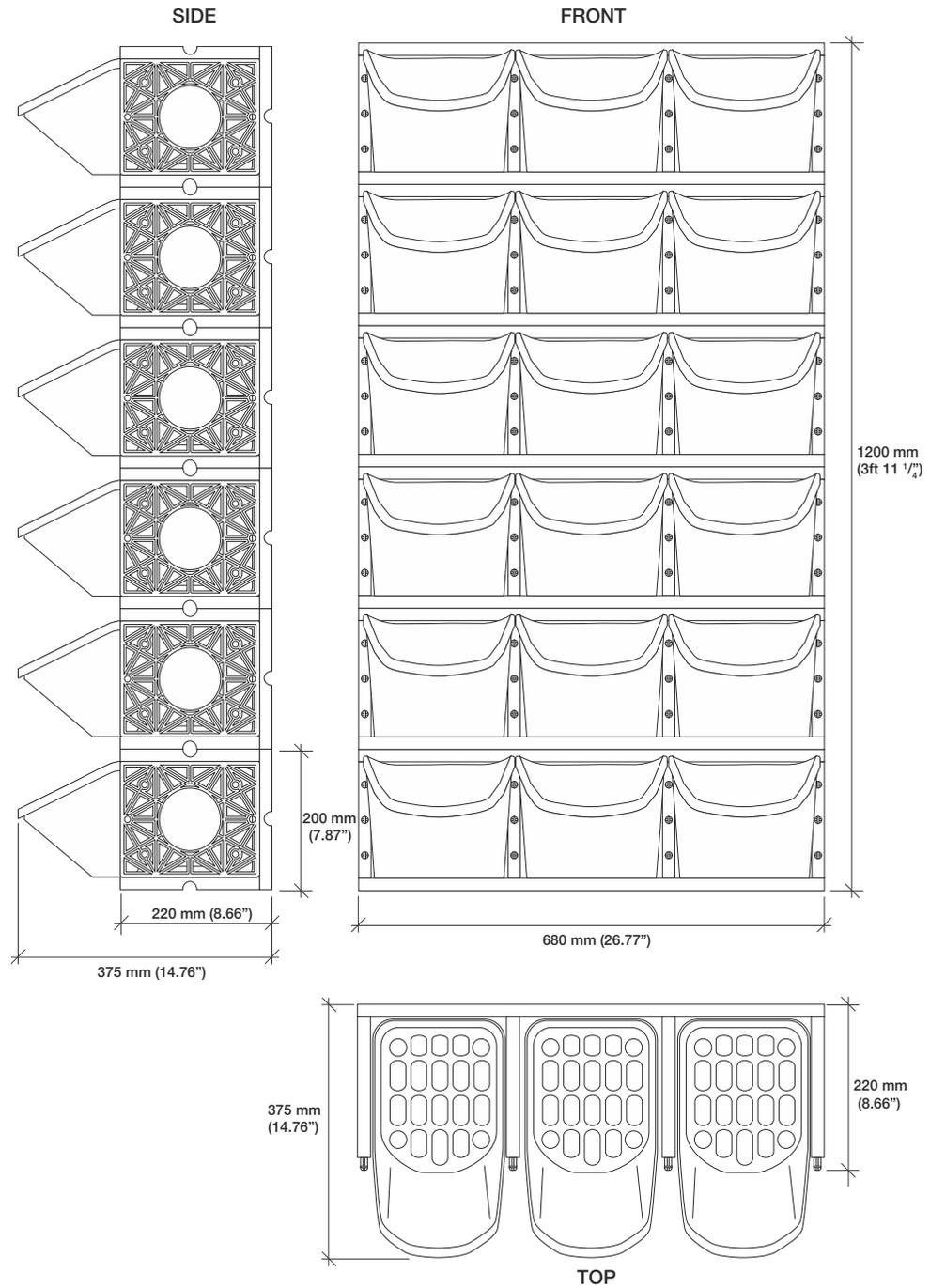
- Quick install
- Vertical and horizontal expansion
- Optimum moisture retention for plants
- No additional hardware required
- Easy to maintain



▲ Module dimensions



Gro-Wall 4.5 specification

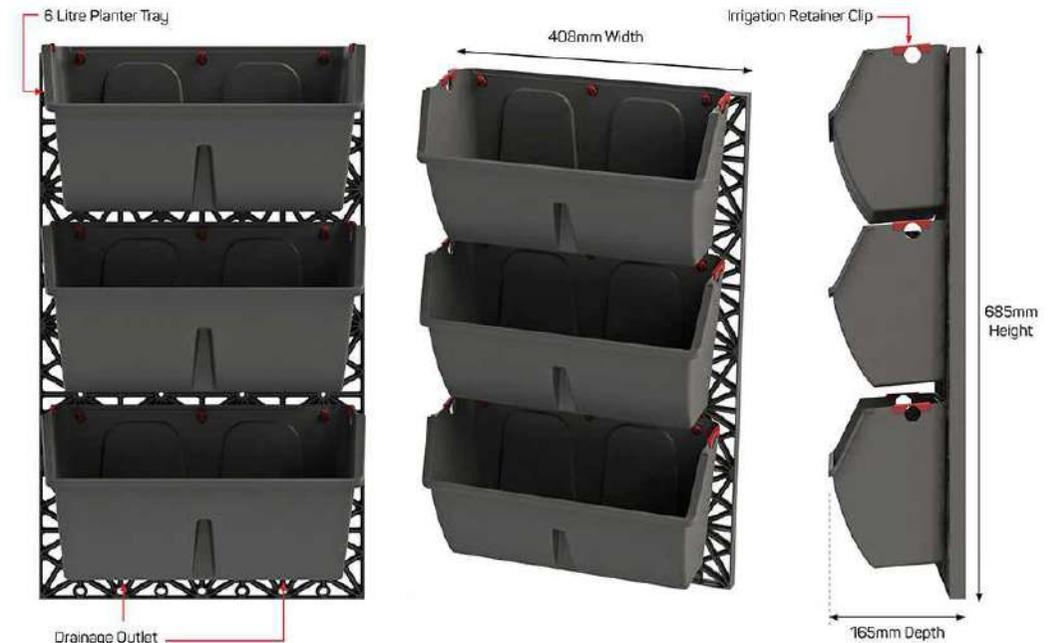


Gro-Wall Slim Line

Number:	80081
Size (mm):	410 x 682 x 165
Weight (g)	2800
Maximum load:	up to 30 kg per module
Chemical resistance:	Excellent resistance to alkalis, acids, alcohols, bases and mineral oils. Good resistance to aldehydes, ethers, aliphatic hydrocarbons, ketones and vegetable oils
Biological effects:	Does not affect biological activity
Material:	High Strength Polypropylene (PP)
Recommended operating temperature:	-30°C to 55°C

Gro-Wall Slim Line is a new vertical garden system with green walls that provides a thinner profile, making the system ideal for applications where space is limited. New features include integrated drainage sockets and irrigation clips.

The new tray is thinner and allows you to use 6 litres of soil media, ensuring the healthy growth of plants and moisture retention. The irrigation plant is beautifully balanced, providing evenly distributed irrigation of the plants below. The tray has drainage sockets that can be connected to standard irrigation pipes for connection to drainage points in place. This feature is ideal for indoor use where drainage holes are not available near a vertical garden installation with a green wall.



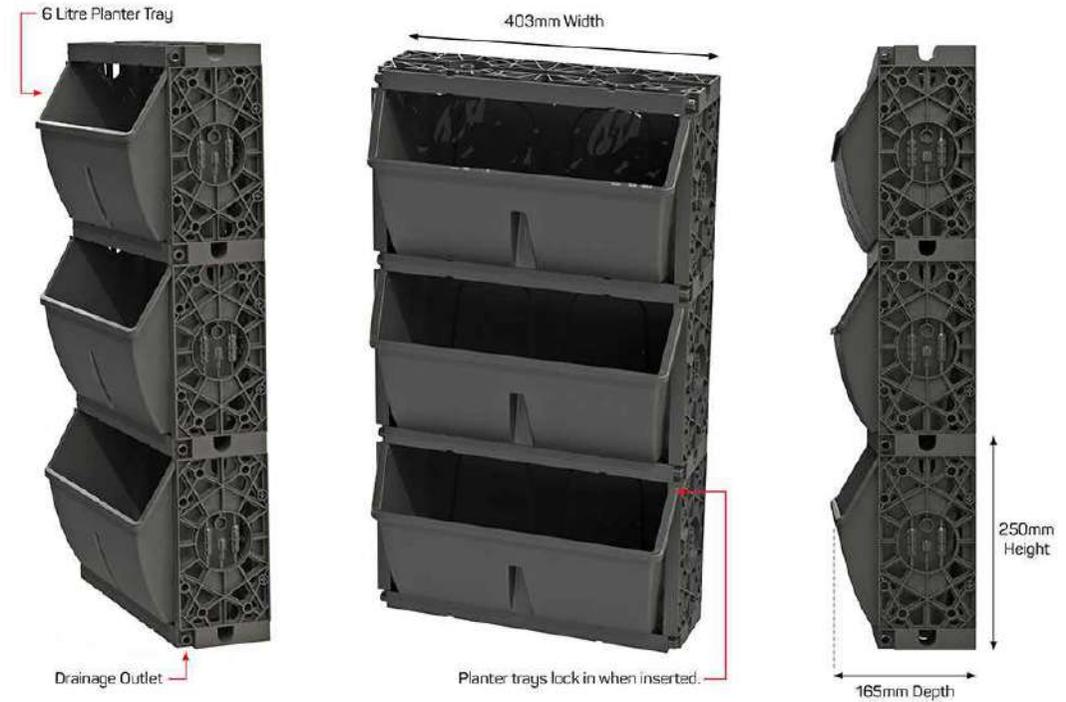
▲ Module dimensions



Gro-Wall Slim Pro

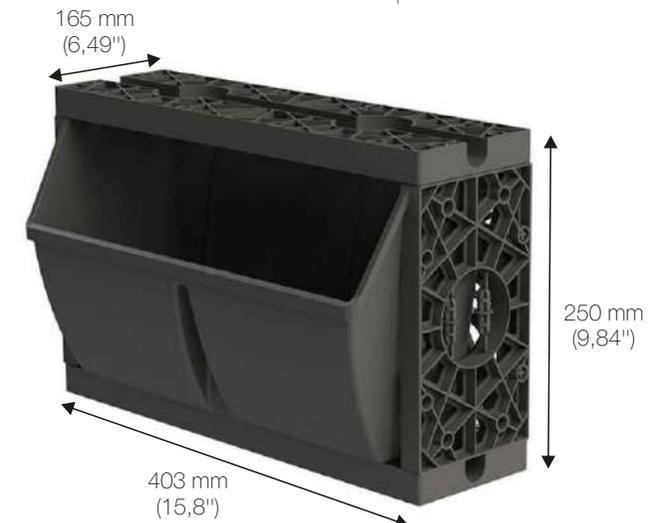
Number:	80080
Size (mm):	404 x 704 x 165
Weight (g)	3500
Maximum load:	up to 10 kg per module
Chemical resistance:	Excellent resistance to alkalis, acids, alcohols, bases and mineral oils. Good resistance to aldehydes, ethers, aliphatic hydrocarbons, ketones and vegetable oils
Biological effects:	Does not affect biological activity
Material:	High Strength Polypropylene (PP)
Recommended operating temperature:	-30°C to 55°C

Gro-Wall Slim Pro is a new vertical garden system with green walls with a thinner profile, making it ideal for applications where space is limited. New features include built-in drainage, the tray is automatically installed upon insertion, and irrigation can now be installed both in front and in the centre of the device. The new tray is thinner and allows you to use 6 litres of soil media, ensuring healthy plant growth and moisture retention. The irrigation system is improved and balanced, providing uniform distributed irrigation of plants. It is now also optional and can be blocked so that water can flow into the drain outlet using irrigation pipes.



▲ Assembled kit dimensions

▼ Module dimensions



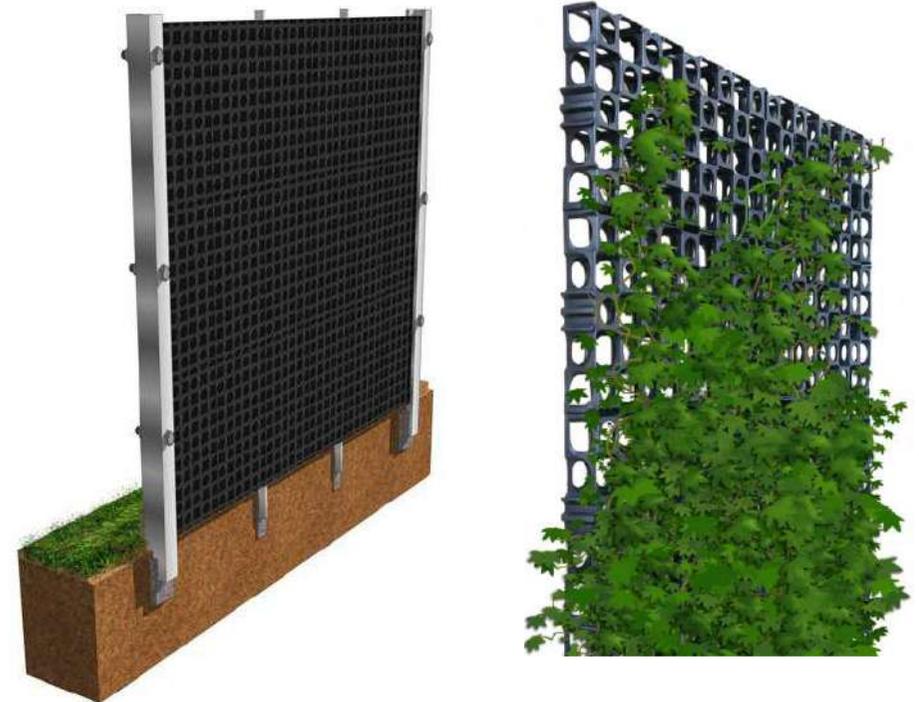
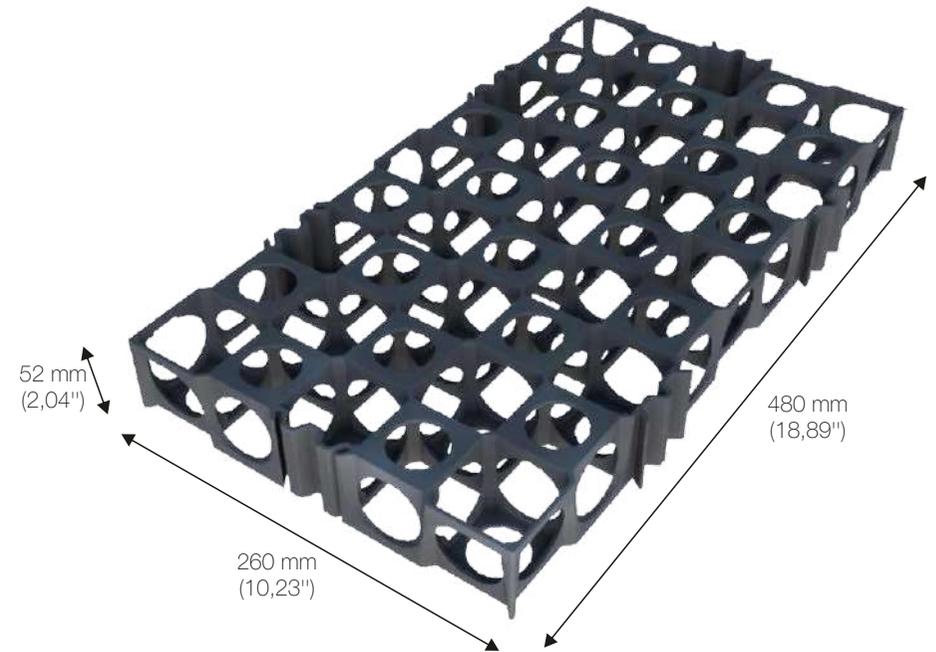


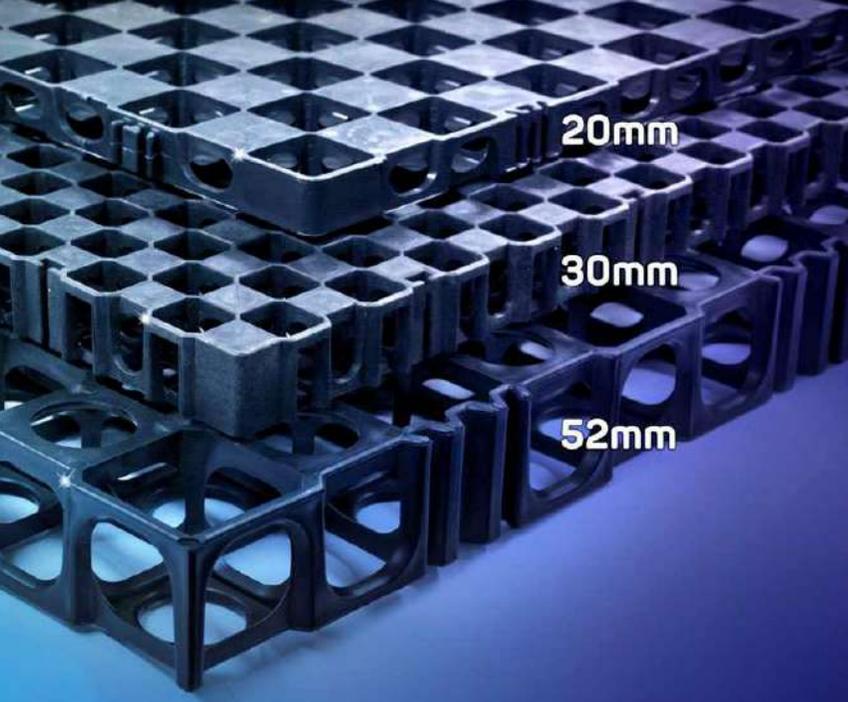
Gro-Wall Facade

Number:	80052F
Size (mm):	52 x 260 x 480
Weight (g)	750
Maximum load:	100 kg
Chemical resistance:	Excellent alkali resistance to acids, alcohols, bases and mineral oils. Good resistance to aldehydes, ethers, aliphatic hydrocarbons, ketones and vegetable oils
Biological effects:	Does not affect biological activity
Material:	High Strength Polypropylene (PP)
Recommended operating temperature:	-30°C to 55°C

The Gro-Wall Facade system is the ideal product for creating beautiful architectural design elements for creative facade applications. Gro-Wall Facade has many applications that include privacy screening, such as a trellis for climbing plants or creating shaded areas.

The Gro-Wall Facade system facilitates installation and integration with existing buildings and new architectural designs. Robust construction and ease of installation make Gro-Wall Facade the ideal choice for architects, landscape designers and landscape contractors.





Flo-Cell drainage systems

Originally developed in 1986 to lighten the load of drainage in roof gardens, the Flo-Cell range is a versatile product suitable for many applications including the drainage of sports fields, civil works, retaining walls and landscaping applications. The Flo-Cell is also ideally suited for WSUD (Water Sensitive Urban Design) applications.

A great example of a sustainable drainage system (SuDS), its structure is ideal for creating permeability in ground areas, reducing overland flow.

Flo-Cell provides optimal growth conditions for vegetation under ideal moisture and aeration conditions. Only excess water is removed, and the soil profile retains a high moisture content. In the structural voids, the empty space allows aeration of the soil and stimulates the growth of root systems.

Flo-Cell will also function as a protective membrane for waterproofing concrete slabs, walls and providing ventilation to concrete slabs, mitigating thermal stress and cracking.

The Flo-Cell Drainage Cell available in the following sizes:

- 20 mm 
- 30 mm 
- 52 mm 

Some of benefits:

- Rapid Drainage
- Lightweight - no cranes or lifting equipment required
- Strong Structural Design
- Versatile Design - can be installed horizontally or vertically
- Quick Installation
- High Infiltration
- Biologically Resistant

Flo-Cell Drainage Cell

Porosity Factor:

Void volume 90%
Surface vacuum 70%

Material:

85% recycled polypropylene,
15% patented material

Biochemical resistance:

Resistant to mold, algae, chemicals and hydrocarbons.

Temperature range:

-30 ° C to 70 ° C (subject to the rules of operation)

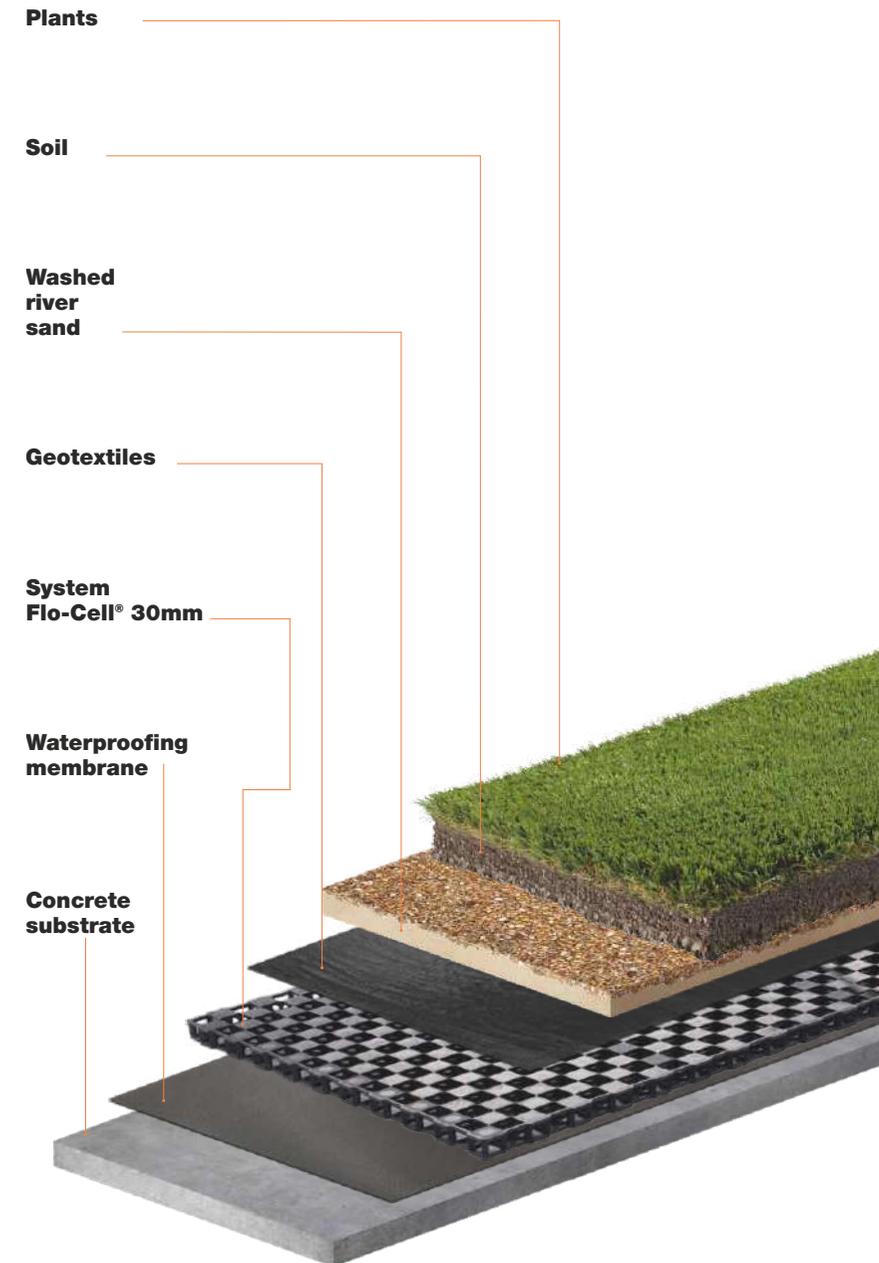
Endurance:

100+ years (underground installation)

Benefits:

- *High-tech drainage - effectively removes excess water while maintaining optimal moisture levels - ideal for stimulating plant growth in flowerbeds and roof gardens.*
- *Lightness - no need for lifting equipment. Installation is carried out manually.*
- *Durability - designed for use in drainage systems under heavy load.*
- *Versatility - can be easily installed horizontally or vertically depending on the specifics of the project.*
- *Installation speed - faster installation than traditional drainage systems, collection and purification of rainwater.*
- *High infiltration rate - 90% of the void volume.*
- *Biologically stable product.*

Example of application



Landscape drainage

The Flo-Cell drainage system is the most advanced underground geocomposite and has high strength, easy construction, ease of installation and low cost compared to traditional methods.

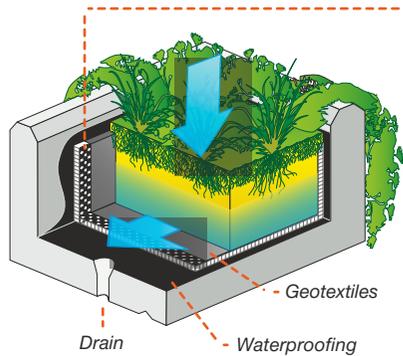
Efficient water management

The Flo-Cell drainage system removes only excess water, retaining the ideal amount of moisture in the soil. The unique design of the Flo-Cell drain chamber is also equipped with water retention cells that provide optimal moisture conditions for growing media.

Durability

Flo-Cell drainage system has excellent durability and is resistant to all terrestrial chemicals. Drainage system is made from selected high-quality recycled materials and under strict quality control, ensuring high product quality that will not deteriorate or be distorted when used properly.

Installation of a plantation box



Drainage cell removes only excess water, keeping water in unique storage vessels.

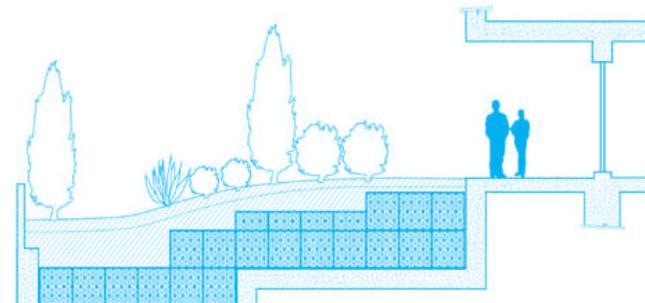


Protects building structures

The Flo-Cell drainage drainage cell, used in combination with geotextile, functions as a protective membrane for waterproofing and provides ventilation for concrete slabs, which prevents stress and cracks from heat.

Easy structural voids

Ideal for creating landscaped mounds, structural fill for drawers, podiums and roof gardens.

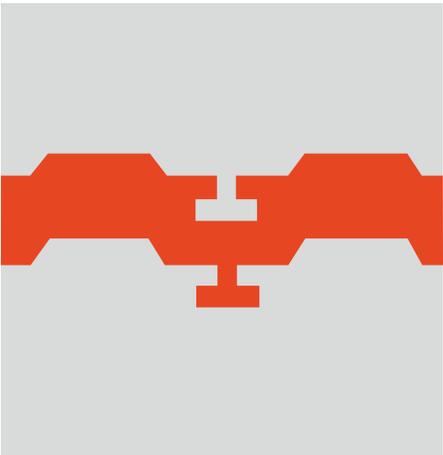


Flo-Cell 20 mm

Number:	80020
Size (mm):	20 x 406 x 620
Fluid retention (ml):	453
Weight (g)	550
Maximum load:	90 t/m ²
Flow rate (gradient 1%):	4,65 l/s/m

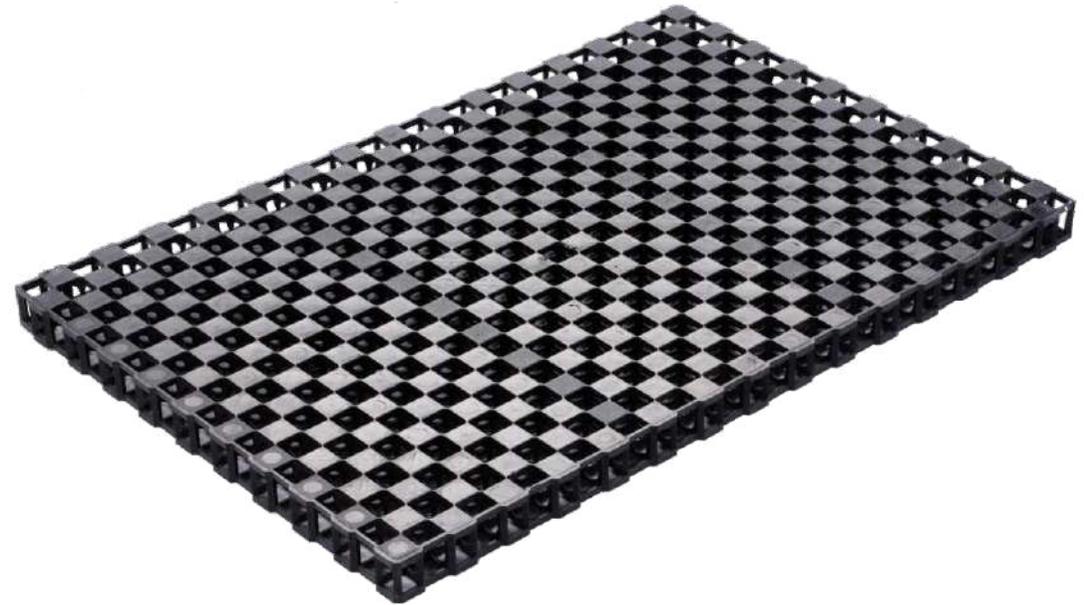


Coupling clips

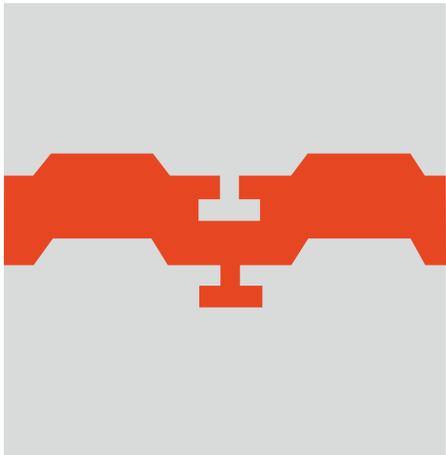


Flo-Cell 30 mm

Number:	80030
Size (mm):	30 x 406 x 620
Fluid retention (ml):	664
Weight (g)	670
Maximum load:	98.6 t/m ²
Flow rate (gradient 1%):	7,4 l/s/m



Coupling clips



Flo-Cell 52 mm

Number:	80052
Size (mm):	52 x 260 x 480
Fluid retention (ml):	496
Weight (g)	750
Maximum load:	155 t/m ²
Flow rate (gradient 1%):	17.1 l/s/m



Coupling clips



Road-Cell drainage system Road and site covers

Number:	80052HD
Size (mm):	52 x 260 x 480
Fluid retention (ml):	496
Weight (g)	1140
Maximum load:	255 t/m ²
Flow rate (gradient 1%):	2,65 l/s/m



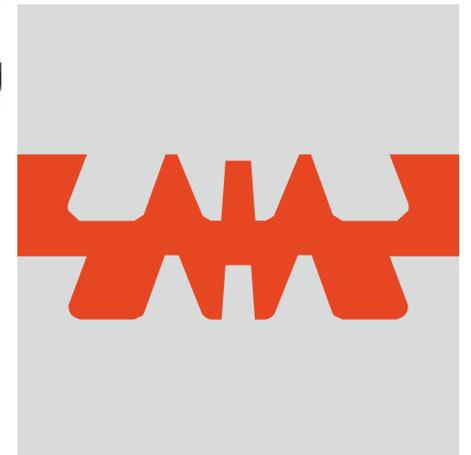
Road Cell

Road-Cell reinforced design, specially designed for use in road construction with increased loads on the surface, can withstand a load of 255 t/m².

Road-Cell can be used in any situation where there is a heavy load on the road bed and difficult conditions for the construction of access roads. This includes mountain roads, fire prevention roads, on-site access roads on construction sites. Road-Cell is ideal for access roads in mining areas.



Coupling clips



Flo-Tank

Underground tanks for underground water filtration, containment of storm water, accumulation or utilisation of water.

The Flo-Tank system provides storage of groundwater of unlimited capacity and can be installed in various volumes, shapes and depths to meet specific project requirements. The entire project area can be used as a catchment area, including storm, landscape and roofing areas, providing water capacity that meets your requirements.

Suitable for both residential and commercial installation projects, Flo-Tank system maximizes land use and minimises idle stormwater. Tanks can be installed underneath an **entire football pitch, whole farms or median strips**. Water can be gathered and stored during heavy rainfall and utilised for watering or drinking as required.

Replacement of clean water with rainwater for these applications has a beneficial effect on the environment.

The Flo-Tank system provides unlimited storage and flexible design to meet your water needs.



Flo-Tank

Technical characteristics of the module

	Mini	Single	Double	Triple	Quad	Penta
Height (mm)	240	450	880	1310	1740	2170
Water storage (L)	64,58	119,47	233,64	347,80	461,93	576,10
Water storage (Gal)	17,06	31,58	61,72	91,88	122,03	152,19

Recommended sand filling requirements around systems

	Pedestrian Traffic	Vehicle Traffic
Base Fill	100 mm	100 mm
Backfill Height*	300-500 mm	600-1600 mm
Side Backfill**	200-500 mm	200-500 mm

SIDE BACKFILL**

For installations that have limited footprint available, 100mm (4") can be applied if approved by specifying engineer. For installations into reactive soils or clay a minimum of 500mm (20") side backfill is required.

MAXIMUM BACKFILL: The maximum backfill allowed is 1600mm (5.3 ft). For further information please contact our technical department.

Flow Rate

- Maximum Flow Rate @ 1% gradient 11.5 L/s
- Maximum Flow Rate @ 5% gradient 27.4 L/s
- Maximum Flow Rate @ 10% gradient 39 L/s

Material Properties

- Void Ratio: 95% void (approximately)
- Material: 85% Recycled PP, 15% Propriety Materials

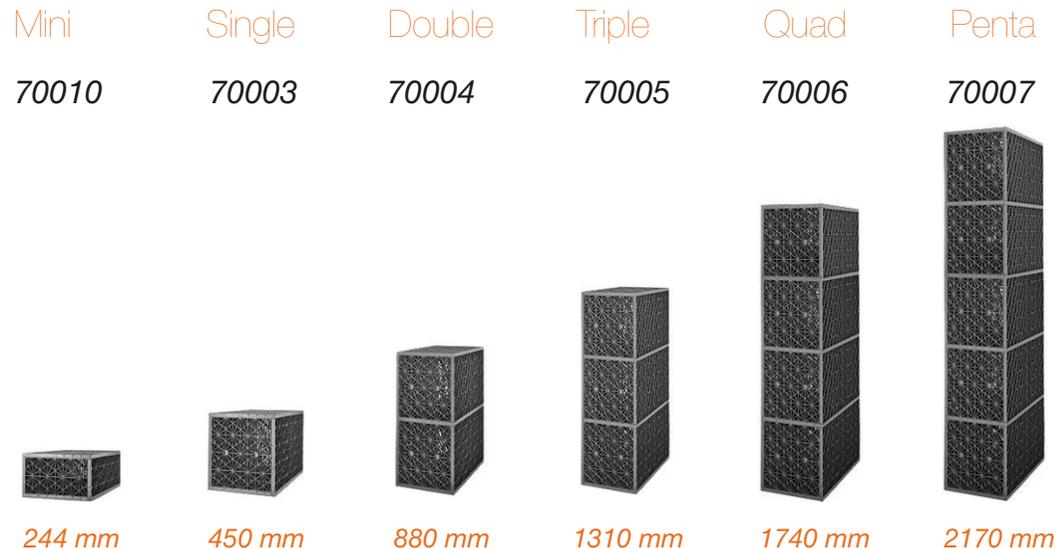
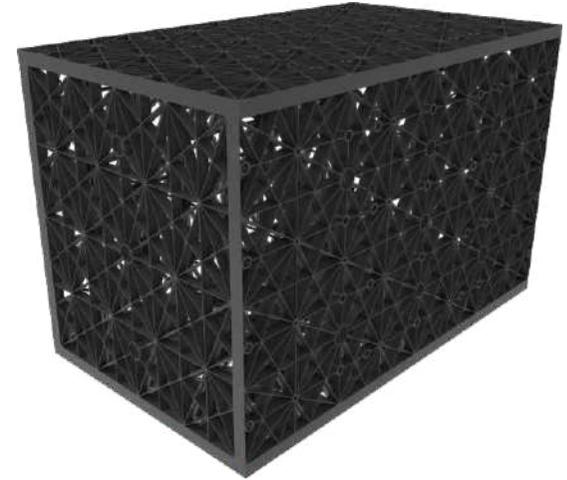
Common Measurements:

Length: 685 mm

Width: 408 mm

Module Footprint:
0,2795 m²

Module Footprint:
3 ft²



Flo-Channel

Underground channels

Flo-Channel is a constructive lightweight modular reservoir system used to build underground pipelines for sewage.

The modular nature of the system makes it easy to create channels of any size. Universal modules can be designed to suit the specific conditions of the site.

Applications:

- *Underground Stormwater Channels*
- *Drainage*

The modular tank systems are characterized in that there is a need to achieve high water quality, especially with efficient removal of nutrients and major pollutants. In addition to the obvious environmental benefits of positioning systems close to the surface, it provides a more practical ground area and improves aesthetic tuning compared to above-ground concrete or plastic tanks. The efficiency of the modular reservoir system exceeds the outdated aggregate trenches.

The Flo-Channel system provides empty space of more than 90% compared to less than 20% in typical aggregate trenches. Consequently, with a smaller distance, the system reaches the same capacity as the total trench. This saves time and money on installation and construction work. The lightweight design of the modular modules of tanks also makes installation quicker, safer and cheaper. There is no accumulation of sediment in the system, in contrast to the clogging characteristic of aggregate-based approaches.



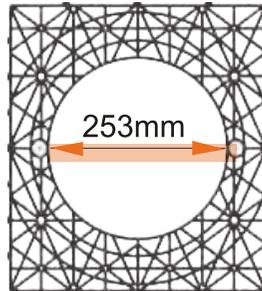
Flo-Channel Tank

Technical characteristics of the module

	Mini	Single	Double	Triple	Quad	Penta
Height (mm)	240	450	880	1310	1740	2170
Water storage (L)	64,58	119,47	233,64	347,80	461,93	576,10
Water storage (Gal)	17,06	31,58	61,72	91,88	122,03	152,19

For excavation and backfill requirements see Flo-Tank Module Specs

The module opening has a diameter of 253mm (9.84")



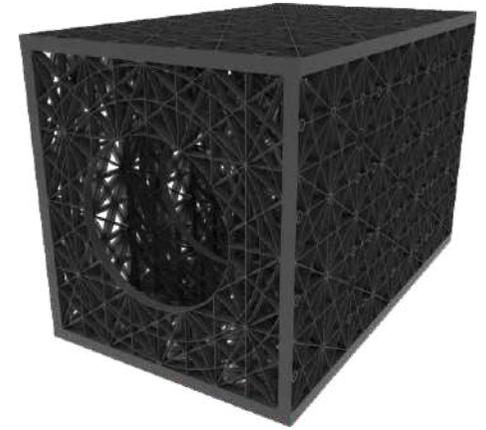
Common Measurements:

Length: 685 mm

Width: 408 mm

Module Footprint: 0,2795 m²

Module Footprint: 3 ft²



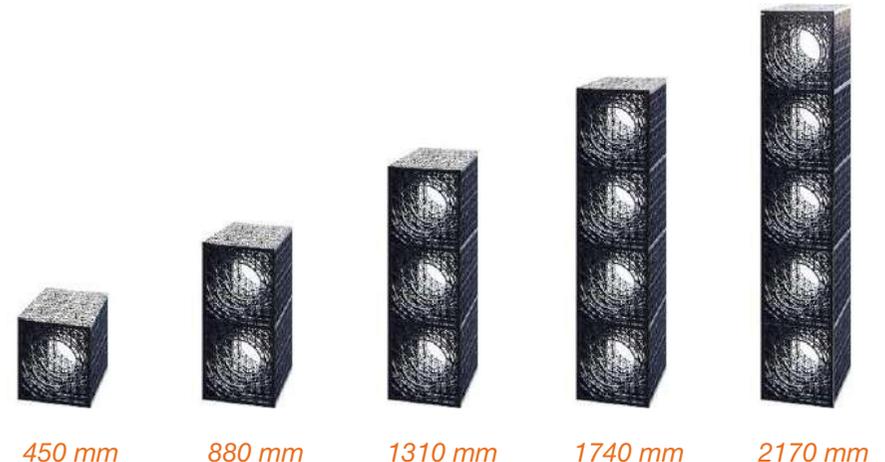
Single	Double	Triple	Quad	Penta
70003FC	70004FC	70005FC	70006 FC	70007FC

Flow Rate

- Maximum Flow Rate @ 1% gradient 28.5 L/s
- Maximum Flow Rate @ 5% gradient 89.7 L/s
- Maximum Flow Rate @ 10% gradient 148 L/s

Material Properties

- Void Ratio: 95% void (approximately)
- Material: 85% Recycled PP, 15% Propriety Materials



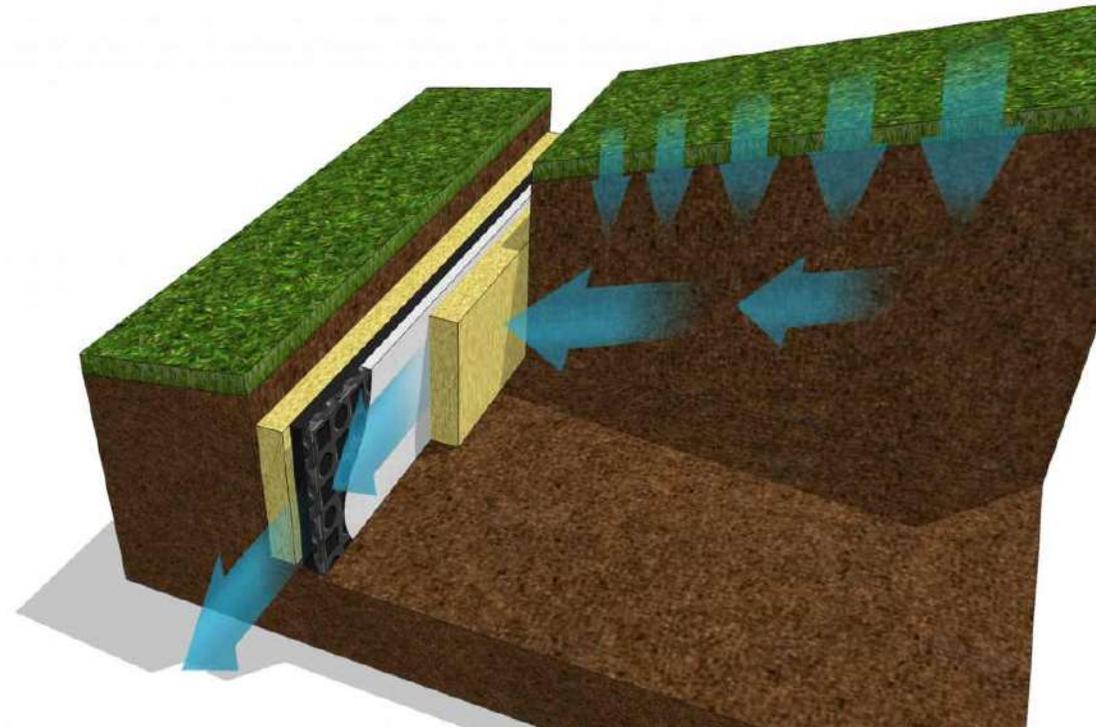
Flo-Pipe & Flo-Log

Trench & Strip Drainage

Flo-Pipe and Flo-Log underground pipes are suitable for situations that require rapid drainage, high flow rates and compressive strength. Flo-Pipe is an alternative to high-performance AG (agricultural pipe) pipes.

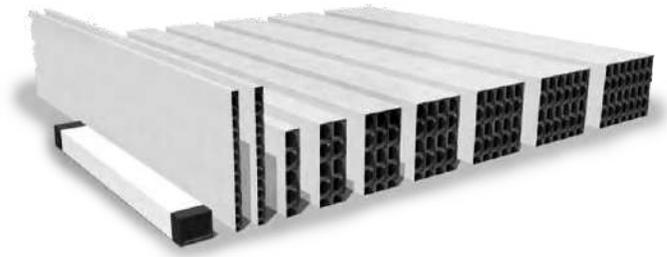
Flo-Pipe & Flo-Log drain strips provide superior performance with longitudinal drainage of pallets compared to traditional gravel drainage, slotted pipes, and AG drains.
Flo-Pipe and Flo-Log pipes have superior strength and are made from recycled polypropylene.

Flo-Pipe provides the most efficient solution for applications such as drainage of trenches and tapes, drainage of retaining walls, regional drainage for roads, drainage systems for sports fields, and requirements for distributing water below the surface.



Trench drainage Flo-Log & Flo-Pipe

Technical characteristics of the module



Plates are pre-wrapped in quality geotextiles and are available in various sizes. Plates are two meters long and can be joined together to form any length.

* Custom plates available

Number	30014	20418	10418	10519	10520	10521	10522	10523	10524	10525
Width (mm)	100	20	30	52	104	156	208	260	312	364
Height (mm)	80	408	408	260	260	260	260	260	260	260
Length (mm)	1080	1920	1920	1920	1920	1920	1920	1920	1920	1920
Flow Rate 0.5% gradient (Approx.)	80 l/m	106 l/m	178 l/m	267 l/m	427 l/m	640 l/m	854 l/m	934 l/m	1120 l/m	1307 l/m
Weight (kg)	0,62	2,4	2,98	2,6	5,2	7,8	10,4	13	15,6	18,2
Geotextiles	Hydrophillic Non Woven Geotextile (As per Atlantis Specifications)									
Void Ratio	90% void									
Material	85% Recycled PP, 15% Propriety Materials									
Biological Resistance	Not affected by biological activity									
Chemical Resistance	Excellent resistance to, Acids, Alcohols, Bases and Mineral Oils. Good resistance to Aliphatic Hydrocarbons, Ketones and Vegetable Oils.									
Service Temperature	-30°C to 70°C									

Flo-Log Horizontal Exfiltration Area (Linear Metre)



Number	30014	20418	10418	10519	10520	10521	10522	10523	10524	10525
Gross Exfiltration Area	0.26m ²	0.45m ²	0.47m ²	0.63m ²	0.74m ²	0.84m ²	0.95m ²	1.05m ²	1.15m ²	1.26m ²
Net Exfiltration Area (90%)	0.23m ²	0.40m ²	0.42m ²	0.57m ²	0.67m ²	0.76m ²	0.85m ²	0.94m ²	1.03m ²	1.13m ²

Flo-Log Vertical Exfiltration Area (Linear Metre)



Number	30014	20418	10418	10519	10520	10521	10522	10523	10524	10525
Gross Exfiltration Area	0.28m ²	0.84m ²	0.85m ²	0.57m ²	0.62m ²	0.68m ²	0.73m ²	0,78m ²	0,83m ²	0,88m ²
Net Exfiltration Area (90%)	0.25m ²	0.76m ²	0.77m ²	0.51m ²	0.56m ²	0.61m ²	0.66m ²	0.70m ²	0,75m ²	0,79m ²

Flo-Wall

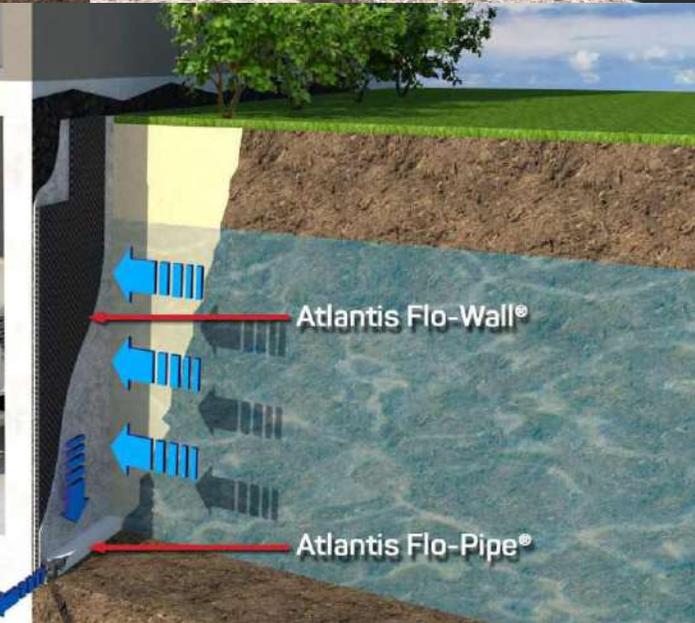
Wall drainage

Flo-Wall is a durable wall drain that solves many challenges of modern architecture. The vertical drainage system is ideal for controlling water infiltration, underground car parks, basements, tunnels, retaining walls, leakage grooves that provide hydrostatic pressure relief.

The Flo-Wall series is perfect for rapid drainage of saturated soil, which can cause issues with damp in the walls. It is highly durable and does not deform over time, proving long-term drainage.

The Flo-Wall series is a finished product wrapped with high-quality Italian geotextile with hydrophilic properties for adequate drainage.

Each Flo-Wall is fitted with a geotextile overlay allowing each joint to be properly sealed with tape. The temperature in the soil can vary by 200°C at 10 cm below the surface and 100°C at 50 cm underneath the surface. Large fluctuations cause tremendous stress and strain on the basement walls, which can lead to cracking of both the waterproof membrane and the wall itself.

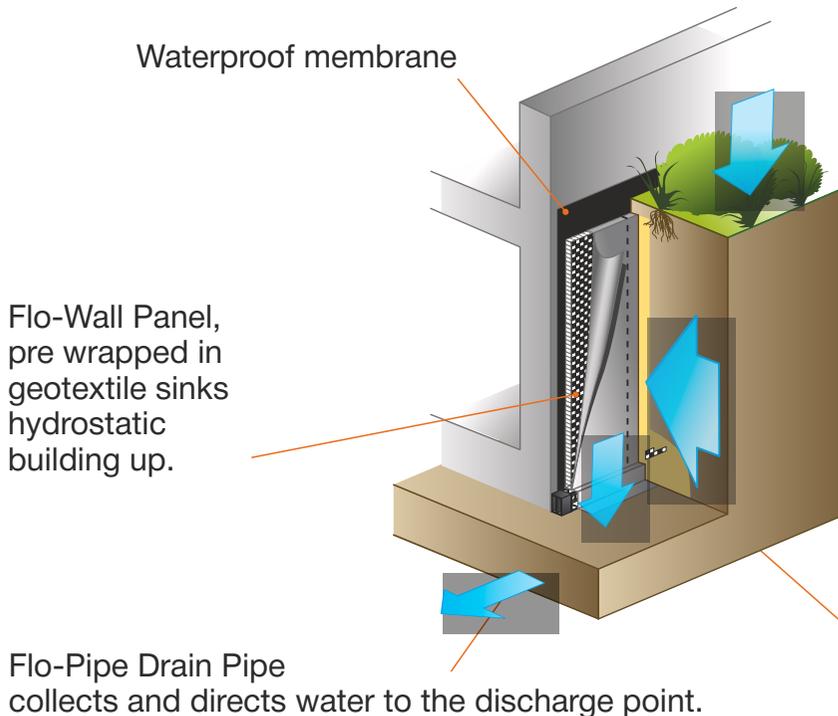


Flo-Wall

Technical characteristics of the module



Number	10412	10418	10424	11212	10519	30014
Width (mm)	400	400	400	1200	260	100
Height (mm)	1200	1800	2400	1200	1920	1080
Length (mm)	30	30	30	30	52	80
Flow Rate @ 0.5% gradient (Approx.) l/m	178 l/m	178 l/m	178 l/m	533 l/m	267 l/m	80 l/m
Weight (kg)	1,49	2,24	2,98	4,47	2,60	0,62
Geotextiles	Hydrophilic non-woven geotextiles (as per specifications Atlantis)					
Void Ratio	90% void					
Material	85% Recycled PP, 15% Propriety Materials					
Biological Resistance	Not affected by biological activity					
Chemical Resistance	Excellent resistance to, Acids, Alcohols, Bases and Mineral Oils. Good resistance to Aliphatic Hydrocarbons, Ketones and Vegetable Oils.					
Service Temperature :	-30°C to 70°C					



Our panels are available in thicknesses of 30 mm and 52 mm and are wrapped with high-quality geotextiles for long-term performance. Sizes are also available on request.



DESIGN SUPPLY INSTALLATION MAINTENANCE

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