

VersiTank®

Stormwater
Management



035 - 005
100% recycled
materials



- 1 Rainwater Down Pipe
- 2 Leaf/Silt Trap
- 3 Re-use Tank
- 4 Infiltration Tank
- 5 Stormwater Drain
- 6 Pump
- 7 Sprinkler

The expansion of urban and industrial development has generated large areas of impermeable surfaces such as roofs, car parks, playgrounds and roads. As a consequence, stormwater run-off increases substantially resulting in flooding and the discharge of pollutants into streams, rivers, ocean outlets and storage systems.

Conventional drainage systems involve conveying rainwater run-off from urban areas via channels and pipe systems to storage or discharge outlet points. These drainage systems involve high installation and maintenance costs and are neither efficient nor effective methods of dealing with high volumes of polluted water discharging from impervious surfaces.

VersiTank® is high strength, modular stormwater infiltration or storage tank made using recycled polypropylene material.

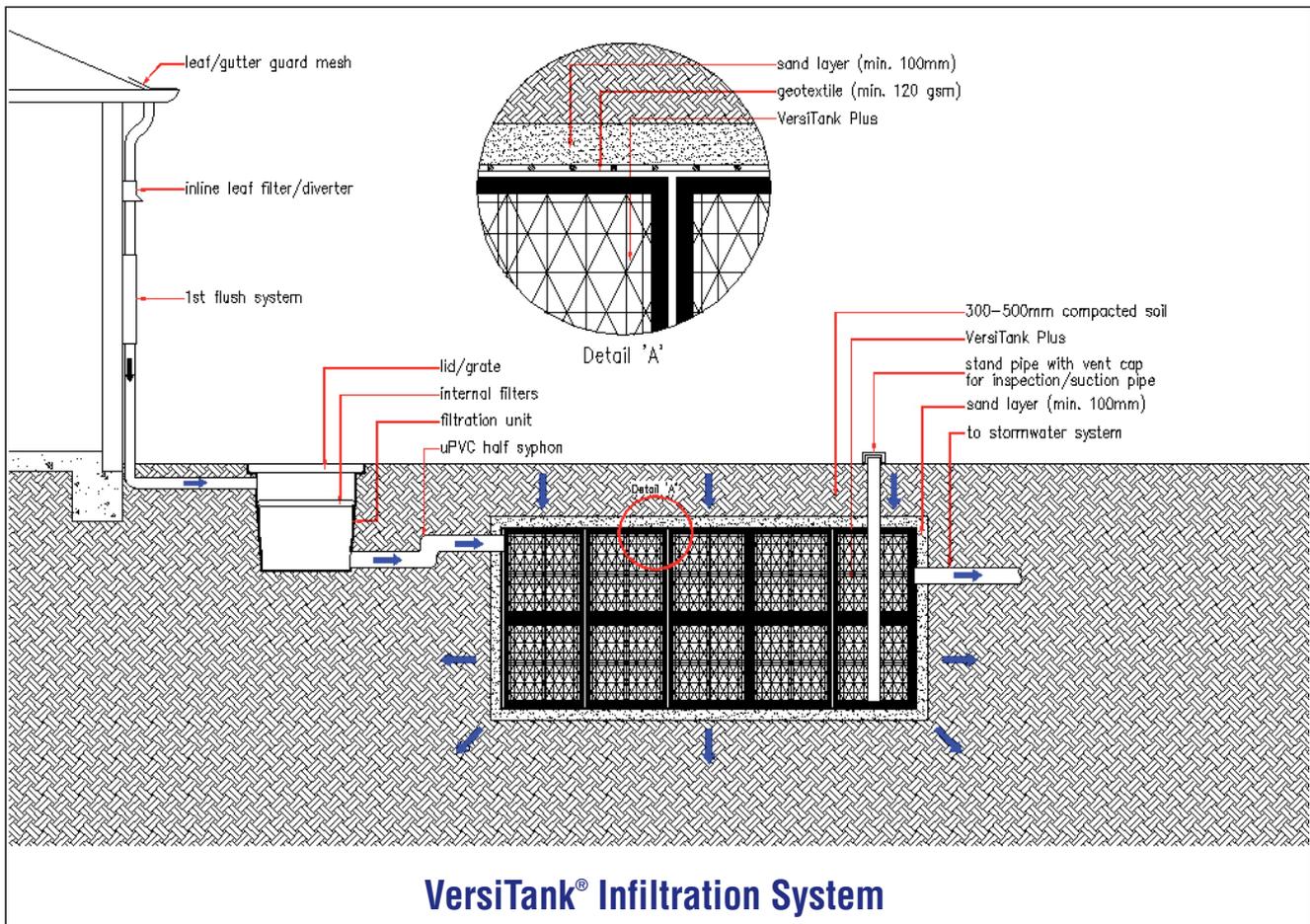
VersiTank® offers architects, engineers and developers an efficient and cost effective sub-surface alternative to conventional methods for stormwater management by:

1. Controlling stormwater at source
2. Providing temporary underground storage of water
3. Allowing infiltration of water into the surrounding soil
4. Storing water for re-use
5. Controlling release of stored water to stormwater systems via connecting pipes

Enhancing Our Environment

VersiTank® enhances our environment by providing efficient stormwater management





VersiTank® units have the capacity to cater for run-off from individual houses up to the largest commercial and industrial developments and can be tailored to suit specific requirements of each site.

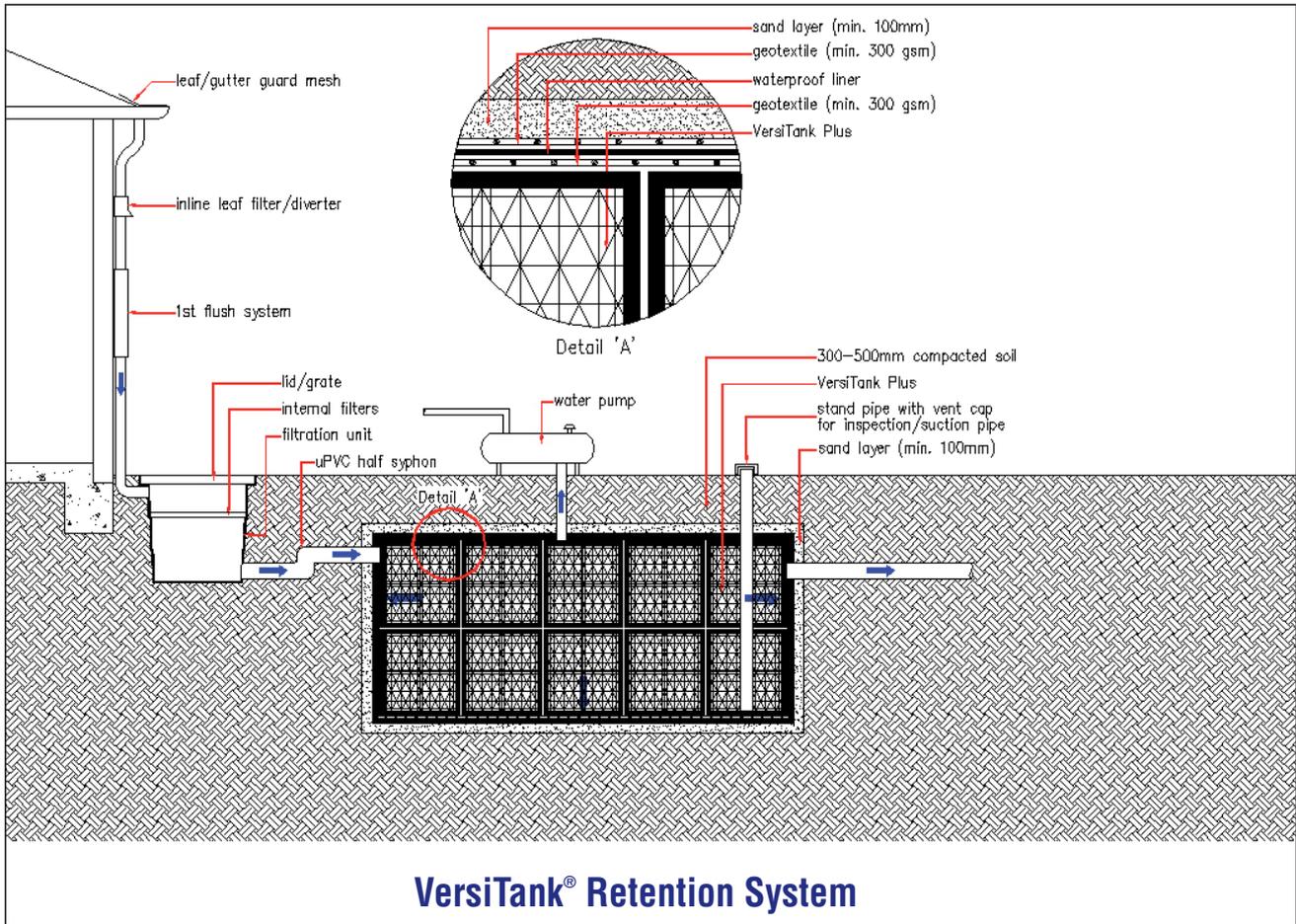
VersiTank® units are easily assembled on-site by clipping together lightweight, high compressive strength interlocking panels. Assembled units can be interlocked thereby ensuring that the system remains stable under trafficable or high weight bearing load areas.

Assembled **VersiTank®** units, when enveloped with a permeable geotextile or filter fabric, allow stormwater stored within the tank void, to be discharged into the surrounding soil and via controlled release to connected stormwater pipes. The inherent run-off and soil infiltration rates must be determined to calculate the number of **VersiTank®** units required.

VersiTank® units may be enveloped in an impervious membrane to allow for the retention or temporary storage of stormwater, where soil conditions do not permit discharge into the surrounding soil. Stored water is released via a connected stormwater pipe incorporating a flow control valve, or re-used, subject to local environmental regulations.



VersiTank® Infiltration System being installed



VersiTank® units must be installed to engineering specifications and must be used in conjunction with an in-line proprietary leaf and silt trap system or other recommended filtering units.



VersiTank® Retention System installed under a landscaped area allows water to be re-used

Applications

1. Sub-grade stormwater infiltration system when encased with geotextile
2. Sub-grade water storage system when enveloped with a waterproof membrane
3. Filling void spaces on roof decks and planter boxes
4. Converting swimming pools into underground water storage facilities

Benefits

1. On-site infiltration and retention of stormwater
2. At source treatment of stormwater
3. Temporary storage of water for re-use
4. Water infiltration into and re-charging of sub-soil
5. Improved drainage of landscaped areas
6. Mitigation of downstream flooding
7. Low cost compared to conventional systems
8. Reduced waterlogging enhances plant growth
9. Cost effective alternative to landscaped bio-swales and retention ponds
10. Optimum site utilisation
11. Manufactured from recycled plastics

Advantages

1. High compressive strength allows use under trafficable areas
2. Interlock vertically and horizontally giving maximum stability
3. Less costly than bio-swales, retention ponds, concrete and metal storage systems
4. Caters for all volume requirements
5. Easy assembly of panels and installation of units
6. No surface water storage hazards



VersiTank® modules allow storm water to be stored and re-used for irrigation



VersiTank® Infiltration System installed under a car parking area



VersiTank® Infiltration System and the completed 'Rain Garden'

Specifications

VersiTank model	VT 250	VT 550	VT+ 840	VT+ 880
Dimension (mm)				
Length	500	500	745	745
Width	250	500	395	790
Height	560	560	425	425
Volume (m³)	0.07	0.14	0.125	0.25
Tanks per m³	14.3	7.1	8.0	4.0
Weight (kg)				
2 Stabilizers	3.4	4.8	-	-
3 Stabilizers	-	5.8	7.6	12.3
4 Stabilizers	-	6.8	8.3	13.7
5 Stabilizers	-	-	9.0	15.1
6 Stabilizers	-	-	-	-
7 Stabilizers	-	-	-	17.8
Max. load (unconfined) t/m²				
2 Stabilizers	13.5	8.7	-	-
3 Stabilizers	-	11.4	26.8	11.9
4 Stabilizers	-	14.4	33.3	14.9
5 Stabilizers	-	-	40.0	16.0
6 Stabilizers	-	-	-	-
7 Stabilizers	-	-	-	18.0
Surface area m²	1.1	1.62	1.54	2.48
Surface void area %	≤ 62	≤ 62	≤ 38	≤ 40
Internal void %	≤ 95	≤ 95	≤ 93	≤ 93
Material	Polypropylene (Recycled)			
Colour	Black			
Biological/chemical resistance	Unaffected by moulds and algae, soil-borne chemicals, bacteria and bitumen			
Service Temperature	-20°C to 120°C			



VersiTank® Infiltration System used in a trench application

Installation of VersiTank®

Infiltration System

1. Excavate an area to design specifications.
2. Ensure the base of the excavated area is level and compacted.
3. Lay down, level and compact a minimum 100 mm of coarse sand.
4. Place geotextile (minimum 120 g/m²) over the base and up the walls of the excavated area. Provide for a minimum 200 mm overlap and seal joints with adhesive PVC tape. Ensure sufficient geotextile overhang is available to cover the surface of the **VersiTank®** units after placement in the excavated area.
5. Position **VersiTank®** units on the geotextile in the excavated area.
6. Secure installed units with stainless steel fixing clips, tie wire or high strength plastic cable ties if necessary.
7. If required, another layer of **VersiTank®** units may be placed on top of the already positioned and secured units.
8. Form holes in the correct positions to receive both inlet and outlet pipes. Insert flanged connectors into both the inlet and outlet positions. Ensure that the outlet is positioned lower than the inlet.
9. Cover the sides and tops of the installed units with geotextile and seal overlaps around the inlet and outlet pipe areas with adhesive PVC tape.
10. Backfill on the sides and over the top of the **VersiTank®** units with a minimum 100 mm of clean coarse sand and compact using hand tools to engineering specifications.
11. Ensure a minimum 400 mm free-draining soil cover is applied on top of the 100 mm of clean coarse sand layer on the surface of the installed units to meet engineering and design authority specifications.

Retention System

1. Follow steps 1-4 above.
2. Ensure a minimum 280g / m² geotextile is used.
3. Carefully position the impermeable membrane on the geotextile. The membrane must either be pre-fabricated to the required dimensions or be in sheet form of sufficient dimensions to completely envelop the installed **VersiTank®** units.
4. Install a second layer of a minimum 280g / m² geotextile over the impermeable membrane. Care must be taken to ensure that the membrane is not damaged during installation.
5. Follow steps 5-8 above.
6. Ensure that the membrane joins on the top surface of the **VersiTank®** units and that inlet and outlet pipes are well sealed using techniques recommended for the specific membrane.
7. Follow steps 9-11 above.

VersiTank® retention systems must be installed by competent contractors skilled in the art of installing impermeable sheet membranes.

Note: The information provided in this brochure is based on current knowledge and experience and does not infer any legally binding assurance or warranty, expressed or implied. Intending purchasers should verify whether any changes to specifications or applications or otherwise have been made since this literature was issued. The products in this brochure are manufactured using specified recycled plastics under detailed quality control standards and procedures. Factors including source of raw material and manufacturing processes may impact slightly on the strength of the modules.



Singapore: +65 6356 2800
Australia: +61 2 9648 2073

www.elmich.com



Distributed by: