

# Rainwater Harvesting Tank

*Assembly and Installation Guide*



# Tank Module Assembly Guide

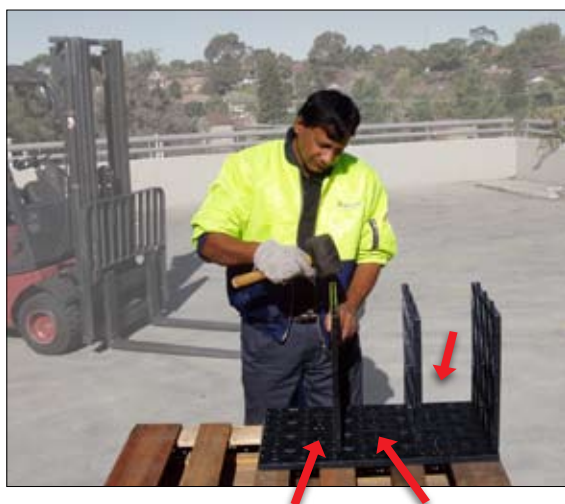
## Assemble Matrix® Tank Units

If Matrix® Tanks arrive on your project in flat panels they will need to be assembled on-site. Building the units should take roughly as follows:

Mini	=	2 minutes
Single	=	2 minutes
Double	=	4 minutes
Triple	=	8 minutes
Quad	=	10 minutes
Pent	=	13 minutes

**Assembly Instructions**, as per required Strength (following the drawings on the right).

Evenly distribute and connect the small panels into one large panel.



Next, working from one end to the other, attach a second large plate (A) on the opposite side of the first.

Once the top and bottom large plates are attached, complete the sides of the tank module. This is a SINGLE Matrix® Tank.

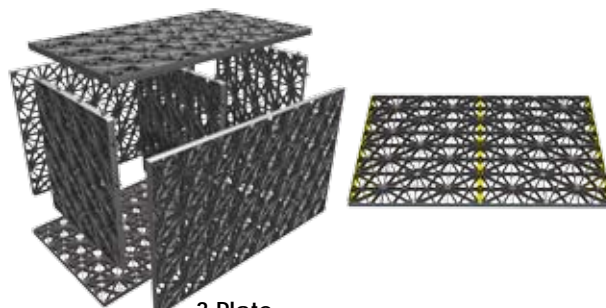
To build a DOUBLE unit (or larger), follow the directions above, starting at "Assembly Instructions:" using the top of the existing unit as the large plate.

Completed tank modules should be staged as close to the installation area as possible.

## STRENGTH OPTIONS

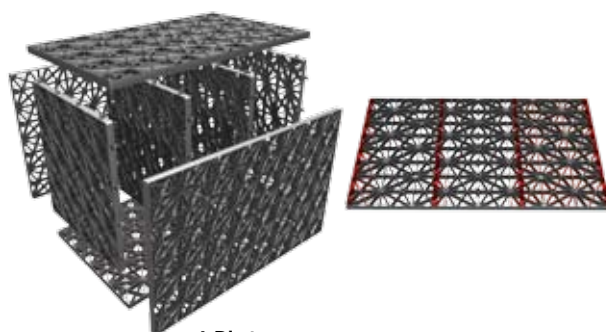
### Use Strength with Intelligence...

Design our tank modules to suit your budget & load requirements.



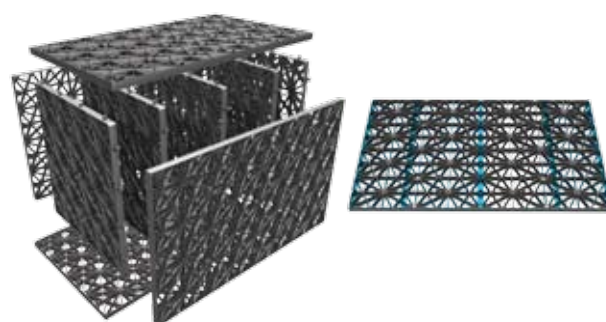
#### 3 Plate

Suitable for landscaping and pedestrian traffic loading.



#### 4 Plate

Suitable for landscaping and lightweight traffic loading (with adequate backfill depth)



#### 5 Plate

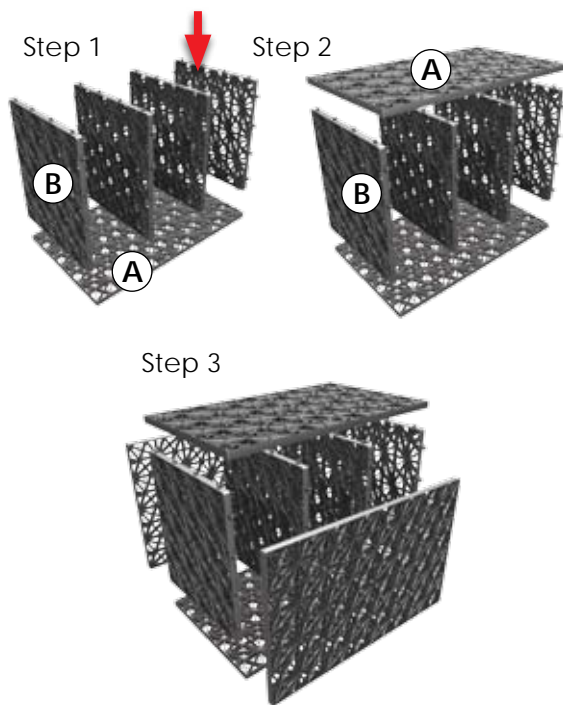
Suitable for traffic loading (with adequate backfill depth)

#### NOTE

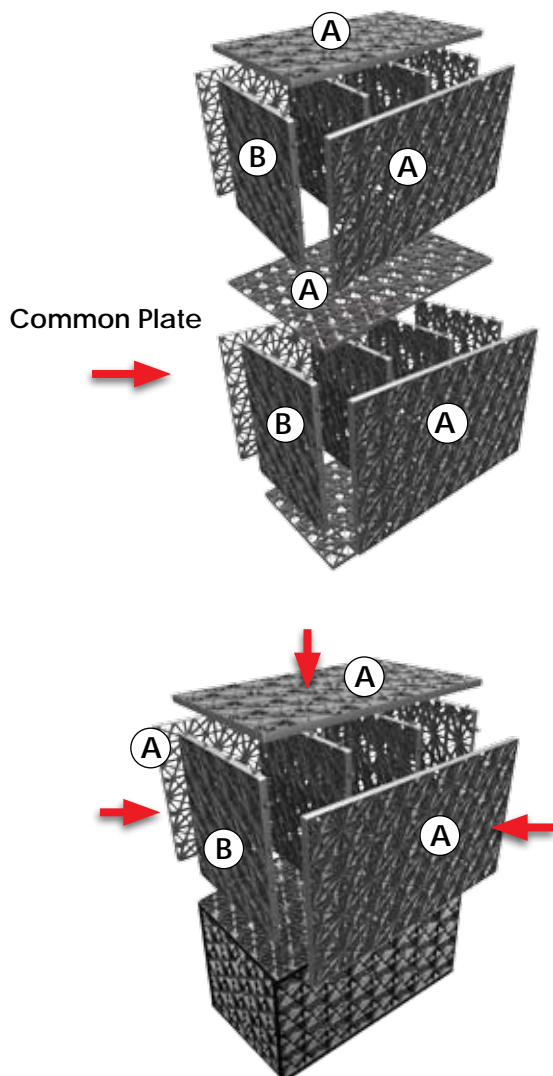
1. Atlantis® Matrix® tank modules must be installed with the 450mm (17.7") side in the vertical dimension to ensure maximum strength.
2. Compressive strength tests were conducted at the University of Technology, Sydney under controlled conditions. Safety factors should be employed to these results as actual site conditions may affect real compressive strength values.
3. Atlantis® Matrix® tank modules are manufactured using recycled products, Atlantis recommends a structural capacity incorporating a minimum safety factor of 2 to allow for variation in recycled plastic batches.
4. Atlantis® Matrix® tank modules should be installed in accordance with the Atlantis® D-Raintank® technical specifications.



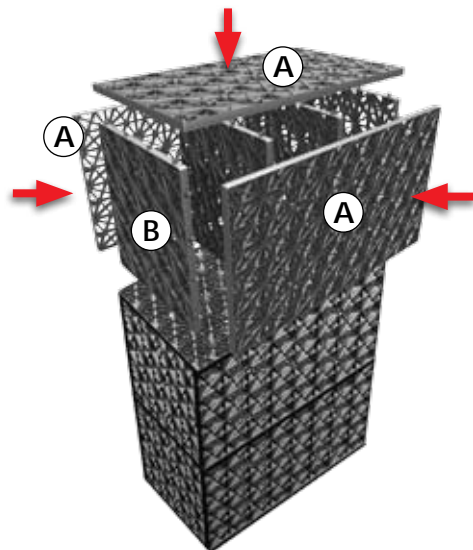
### Single Module Assembly



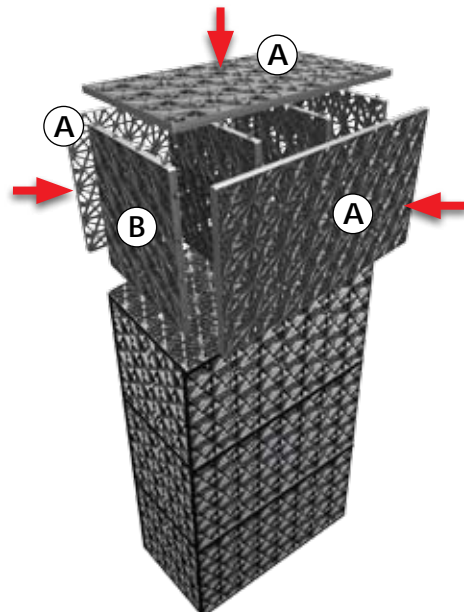
### Double Module Assembly



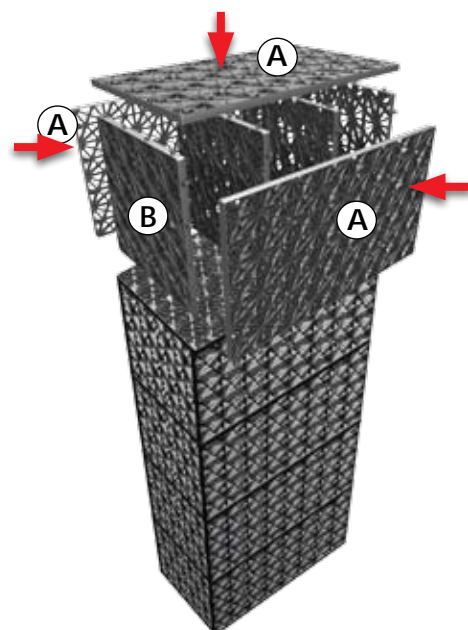
### Triple Module Assembly



### Quad Module Assembly



### Penta Module Assembly



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The excavation should allow for the tank dimensions, sufficient backfill material and compaction equipment required during backfilling.



If excavation dimensions are not given or can't be obtained from the plans, consider the following:

Base Fill	Side Backfill
100 - 150mm (4"-6")	300mm Perimeter (12")

Loading	Minimum Cover
Pedestrian	300mm (12")
Occasional Traffic	600mm (24")



Establish a smooth and level working platform.

#### 

Base material should be 95% compactable material such as sand or stone. If the design of the project incorporates infiltration of water into a sub-soil, base material should be sand or open-graded stone. If no infiltration is required, a more durable road base material can be used.

Place base material and spread to 100mm (4") minimum depth, and compact.

Completed tank modules should be staged as close to the installation area as possible.

#### 

Take care not to tear or puncture the liner.

Overlapping edges and joins should be welded by an experienced polyplastic welder. Tank configurations should have as few welded joins as possible.

Ensure enough liner on the ends to wrap over the tank modules.



#### 

For most applications, the geotextile should be 150g/sqm of non-woven needle-punched material.

Lay the Geotextile into the excavation, overlapping edges by 300mm (12") or as specified by the manufacturer or engineer.

Ensure enough fabric on the ends to wrap over the tank modules.



Use pins, rocks or sandbags to prevent geotextile from sliding or blowing down into the excavation.





## Step 5: Install Rain Tanks

Using a string line, establish two straight lines on one corner of the installations area. Typically, this should be an area of a critical pipe connection that would be difficult to adjust.

Using these marks as a guide, place the Matrix® Tank units into the excavation along the lines, filling in the field as you go. Minor gaps (< 5mm - 1/4") between adjacent units or variations in height (< 5mm - 1/4") are acceptable.

**NOTE :** The top of the Matrix® Tank should ALWAYS be one large panel. The edges of any panel should NEVER be seen on top.



## Step 6: Install Inspection / Maintenance Ports

Typically made from PVC pipe, these provide vertical access into the system. They should be long enough to sit on the bottom of the Matrix® Tank, rising to the finished surface where they are capped.

**Inspection Ports:** Typically these are small diameter perforated pipes (<150mm - 6"), and can be cut through the Matrix® Tank module with ease. Cut all horizontal plates with a reciprocating saw, fitting the pipe between the internal vertical plates.

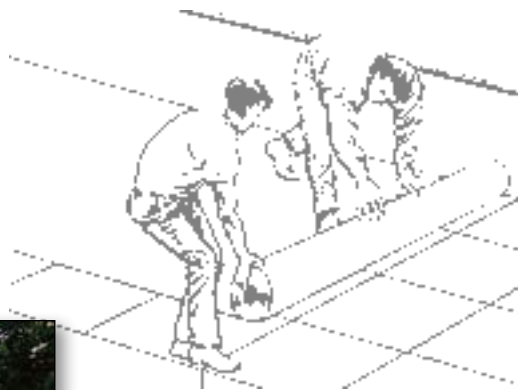
**Maintenance Ports:** Typically these are larger diameter (>150mm - 6") solid pipes with large notches cut into the bottom installed to back flush the system.

After the installation, be sure to install the cap to cover the opening, preventing debris from entering the system.

All horizontal plates must be cut. For double Matrix® Tank modules through to penta's, It is easiest to disassemble the unit and cut all necessary panels at once.

## Step 7: Wrap Tank in Geotextile and Plastic Liner

Wrap Geotextile placed in Step 4 over the Matrix® Tank units, creating a fabric envelope around the Matrix® Tank, completely sealing the system to keep backfill materials out of the system. Use duct tape to temporarily secure overlaps. Wrap further the tank in Plastic Liner. To cut inspection/maintenance ports through Geotextile and Liner, follow directions in Step 8.

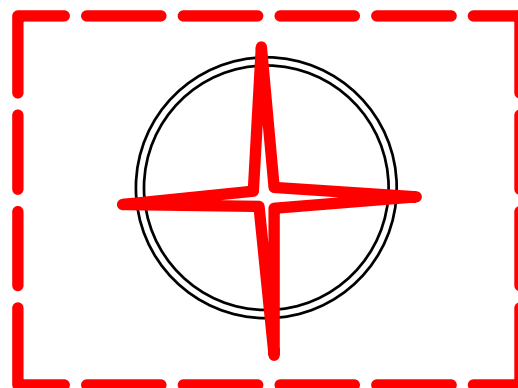


## Step 8: Connect Inlet / Outlet Pipes

Pipe connections can be made anywhere on the top or sides of the Matrix® Tank by simply butting the pipe to the Matrix® Tank.

Wherever a pipe must pass through the Geotextile and Liner, cut an "X" in the textile and liner, pull the four flaps back over the pipe, and clamp them off to the pipe using a stainless steel band clamp. Inlet and Outlet pipes greater than 450mm (18") in diameter do not need to penetrate into the structure of the Matrix® Tank, but may simply butt against the side of the unit. Pipes should rest firmly against the Matrix® Tank with no gaps or voids. Pipes should contact the Matrix® Tank at a 90° angle.

Matrix® Tank systems should not be activated or brought on-line until construction is completed and the site is stabilized. This will prevent construction debris and unusually heavy sediments from contaminating the system.

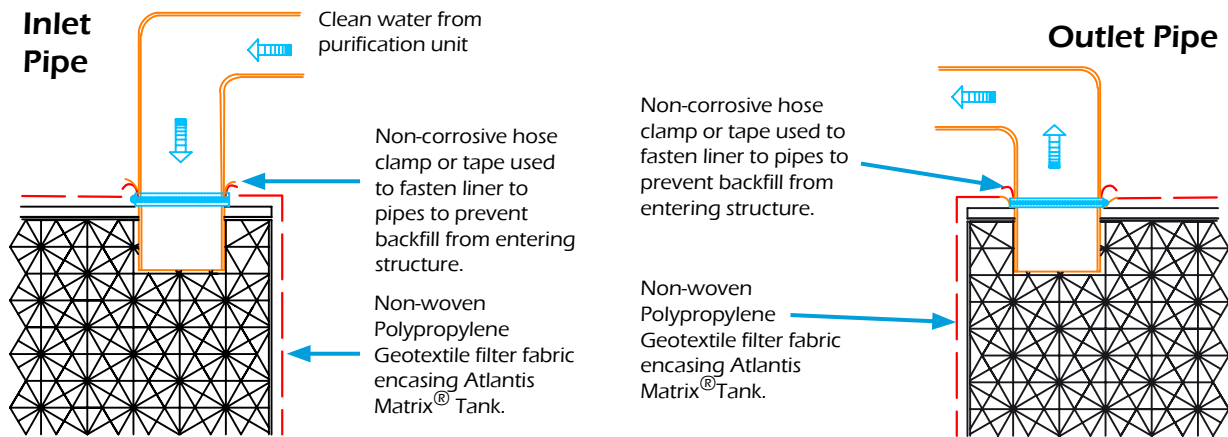




# ATLANTIS Infiltration Tank Typical Inlet Outlet Design

## IMPORTANT

Any water entering the Atlantis system must be filtered by an Atlantis Filtration device.  
**DO NOT** connect stormwater pipes directly in to Atlantis tank system.



Cut X slightly smaller than pipe as fabric will stretch, making a tighter boot.



Raised X cut geotextile and liner.



Core drill into the Atlantis matrix plate.



Place pipe into the X cut hole of the geotextile.



Slide the pipe through the geotextile and the hole made in the Atlantis module.



Seal base of pipe with adhesive tape and silicon.



## Step 9: Backfill Sides

Using compactable material such as washed river sand or stone, backfill the wrapped Matrix® Tank System evenly on all sides to prevent units from shoving. Compact backfill material in 300mm (12") lifts to 95% maximum compaction with a powered hand held mechanical compactor. Vibration from compactor will help eliminate minor gaps between Matrix® Tank units.

Backfill materials containing clay should NEVER be used

NOTE : picture left shows optional additional geotextile layer on sides of excavation before backfilling.



## Step 10: Backfill Top

When backfill reaches the top of the Matrix® Tank units, begin covering the structure with backfill material.

Exercise care when placing the first 150mm (6") lift on Matrix® Tank. Spread material using a lightweight powered mechanical compactor or roller.

The next 150mm (6") lift may be placed using lightweight equipment with tracks. Place at least 500mm (20") of material and blade down to 300mm (12"), where required, then compact to 95%.

### Cover Required

Pedestrian Traffic 300-500mm (12"-20")

Vehicular Traffic 600-1000mm (24"-40")

For the tank to be covered under warranty, an independent compaction test verifying 95% compaction must be obtained.



## Step 11: Place Geogrid (optional)

Geogrid is required for load-bearing applications such as systems placed below parking lots. Geogrid should be BX-1200 or equal, and should extend 300mm (12") beyond the excavation footprint.

Overlap all edges by 500mm (20") or as recommended by manufacturer or engineer, and continue backfilling to recommended level in 150-300mm (6"-12") lifts with compaction to 95%.

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