

Geocellular Stormwater Tank



PRODUCT PROFILE

Geocellular Tank is an ultra-lightweight, honeycombed modular structure made from recycled PP. The ready-to-install units are preformed to provide an underground stormwater storage system, designed for applications in stormwater Detention/attenuation and infiltration.



BENEFITS & FEATURES

- High strength – strong enough to be installed under roads, parking lots, and landscaped areas.
- Cost savings – 95% void ratio reduces excavation and earthworks.
- Fast installation-typically 500-1,000 m/week per crew, depending on access and lifts.
- Lightweight & easy to handle – simplifies transport and on-site handling.
- Excellent hydraulic performance – honeycomb design allows high permeability and low flow resistance.
- Efficient system design – unique lateral and vertical filling reduces pipework and stone requirements.
- Flexible modular design – adapts to different site conditions and architectural needs.
- Flood protection – greatly reduces flooding risks by providing reliable stormwater storage.
- Supports reuse – enables rainwater harvesting and integration with irrigation systems.
- Engineering support – full design services available, including calculations and layouts.





ARW-1050 SPECIFICATION & TECHNICAL DATA SHEET

Parameter	Units / Format	ARW-1050-30	ARW-1050-40	ARW-1050-60
External size (L x W x H)	mm / in / ft	1000 x 500 x 500 39.37 x 19.69 x 19.69 3.28 x 1.64 x 1.64		
Color	—	Black / Green		
Material	—	UV-stabilized Polypropylene (PP) — Recycled or Virgin		
Typical net weight	kg (lb)	≈ 9.8 kg (≈ 21.6 lb)		
Void ratio	%	95%		
Effective storage per module (95% void)	m ³ / L / ft ³ / US gal	0.2375 m ³ / 237.5 L / 8.39 ft ³ / 62.7 gal		
Vertical compressive strength — Minimum Ultimate	t/m ² kN/m ² (=kPa) psi	≥ 30 t/m ² ≥ 300 kN/m ² ≥ 43 psi	≥ 40 t/m ² ≥ 400 kN/m ² ≥ 57 psi	≥ 60 t/m ² ≥ 600 kN/m ² ≥ 85 psi
Lateral loading — Minimum	kN/m ² psi	≥ 115 kN/m ² (≈ 16.7 psi)	≥ 118 kN/m ² (≈ 17.1 psi)	≥ 185 kN/m ² (≈ 26.8 psi)
Assembly / Orientation	—	Cells vertical; side plates + top cover + interlocks		
Wrapping (typ.)	—	Nonwoven PP geotextile ~8 oz/yd ² (GTX-NW8), 12-in overlaps		
Lined option (if impermeable)	—	60-mil HDPE or LLDPE liner with ~16 oz/yd ² protection geotextile above & below		
Suitable applications (guideline)	—	Green spaces, landscape	Mixed-use areas, factories, schools	Airports, seaports, major highways



ARW-1050 SPECIFICATION SHEET

Tank Units	Size in Feet (L x W x H)	Size in Inches (L x W x H)	Size in Millimeters (L x W x H)
ARW-1050 Single	3.28' x 1.64' x 1.64'	39.37" x 19.69" x 19.69"	1000 x 500 x 500 mm
ARW-1050 Double	3.28' x 1.64' x 3.28'	39.37" x 19.69" x 39.37"	1000 x 500 x 1000 mm
ARW-1050 Triple	3.28' x 1.64' x 4.92'	39.37" x 19.69" x 59.06"	1000 x 500 x 1500 mm
ARW-1050 Quad	3.28' x 1.64' x 6.56'	39.37" x 19.69" x 78.74"	1000 x 500 x 2000 mm
ARW-1050 Pent	3.28' x 1.64' x 8.20'	39.37" x 19.69" x 98.43"	1000 x 500 x 2500 mm

Tank Units	Tank Volume (ft ³)	Tank Volume (US gal)	95% Water Storage (ft ³)	95% Water Storage (US gal)
ARW-1050 Single	8.83	66	8.39	62.7
ARW-1050 Double	17.66	132.1	16.77	125.5
ARW-1050 Triple	26.49	198.1	25.16	188.2
ARW-1050 Quad	35.31	264.2	33.55	251
ARW-1050 Pent	44.14	330.2	41.94	313.7

Note:

Dimensions are nominal (± 0.2 in / ± 5 mm). Sizes shown are L x W x H; ARW-1050 keeps L/W fixed (1000 x 500 mm) with 500-mm height increments. Storage 95% void. Strength values are Minimum Ultimate ; apply project Factor of Safety per local code (e.g., ASTM C857).



NON-WOVEN GEOTEXTILE MATERIAL SPECIFICATIONS

Wrap the AQUA RainWater 8053 Tanks with a polypropylene, staple-fiber, needle-punched nonwoven geotextile. Fibers shall resist UV and biological/chemical environments typically found in soils. Material shall meet or exceed the following minimum average roll values:

PROPERTY	TEST METHOD	Minimum Average ROLL VALUE	
Mechanical		Metric	English
Grab Tensile Strength	Grab Tensile Strength	4 oz: 0.445 kN; 6 oz: 0.711 kN; 8 oz: 0.911 kN	4 oz: 100 lb; 6 oz: 160 lb; 8 oz: 205 lb
(Elongation @ Break)	ASTM D4632	50%	
Trapezoidal Tear	ASTM D4533	4 oz: 0.222 kN; 6 oz: 0.289 kN; 8 oz: 0.378 kN	4 oz: 50 lb; 6 oz: 65 lb; 8 oz: 85 lb
Mullen Burst	ASTM D3786	4 oz: 1481 kPa; 6 oz: 2170 kPa; 8 oz: 2756 kPa	4 oz: 215 psi; 6 oz: 315 psi; 8 oz: 400 psi
Puncture Strength	ASTM D4833	4 oz: 0.285 kN; 6 oz: 0.400 kN; 8 oz: 0.578 kN	4 oz: 65 lb; 6 oz: 90 lb; 8 oz: 130 lb
Hydraulic			
Pore Size (O95)	ASTM D4751 (Dry)	4 oz: 0.212 mm; 6 oz: — ; 8 oz: 0.18 mm	4 oz: 70 US Sieve; 6 oz: 75 US Sieve; 8 oz: 80 US Sieve
Permittivity	ASTM D4491	4 & 6 oz: 1.6 s⁻¹; 8 oz: 1.4 s⁻¹	
Water Flow Rate	ASTM D4491	4 oz: 5689 L/min/m ² ; 6 oz: 4480 L/min/m ² ; 8 oz: 3657 L/min/m ²	4 oz: 140 gpm/ft ² ; 6 oz: 110 gpm/ft ² ; 8 oz: 90 gpm/ft ²
Endurance			
UV Resistance (% retained @ 500 h)	ASTM D4355	70% @ 500 hours	70% @ 500 hours

Note: For roadway/parking H-25 applications, select 8 oz/yd² or heavier and reference AASHTO M288 requirements for load-bearing road applications. For light-duty/infiltration conditions, 6 oz/yd² may be used per soil gradation and hydraulic design.



GEOMEMBRANE — COMBINED SPEC (HDPE & LLDPE)

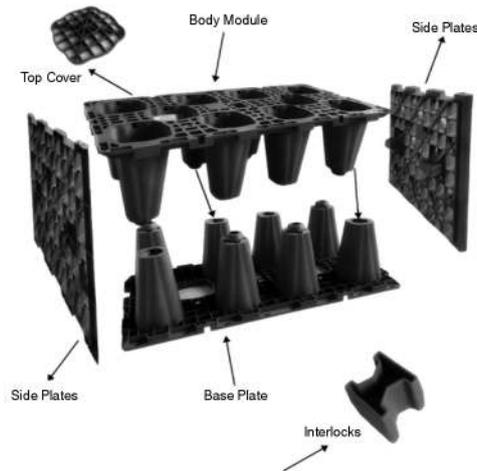
Use a geomembrane only when plans call for a lined (impermeable) system—detention, water-reuse, or groundwater-protection applications; do not specify a liner for infiltration systems.

ITEM	TEST METHOD	HDPE — GRI GM13	LLDPE — GRI GM17
Material & Thickness	ASTM D5199	HDPE 60 mil (≈1.5 mm)	LLDPE 60 mil (≈1.5 mm)
Density	ASTM D1505 / D792	Per GM13	Per GM17
Tensile (Type IV)	ASTM D6693	Meets GM13 minimums	Meets GM17 minimums
Tear / Puncture	ASTM D1004 / D4833	Per GM13	Per GM17
Stress Crack (NCTL)	ASTM D5397	Per GM13	Per GM17
Carbon Black / Dispersion	ASTM D4218 / D5596	Per GM13	Per GM17
OIT (Std./HP)	ASTM D3895 / D5885	Per GM13	Per GM17
Seam Strength (destructive)	ASTM D6392	Pass (shear/peel)	Pass (shear/peel)
Non-destructive Seam Tests	ASTM D4437	Pass (air-channel/vacuum box)	Pass
Leak Location (optional)	ASTM D7007	Recommended	Recommended
Liner Protection	ASTM D6241 (CBR)	GTX-NW16 ≥ 400 lb above & below	Same

Notes:

- Selection tip: choose HDPE (GM13) for maximum chemical resistance/rigidity; choose LLDPE (GM17) for flexibility and detail conformance (tight corners, cold weather welding).
- Typical lined section: GTX-NW16 (bottom) / 60-mil HDPE or LLDPE / GTX-NW16 (top), then GTX-NW8 wrap for filtration/separation.
- Provide seam QA/QC: 100% NDT per ASTM D4437, and peel/shear tests per ASTM D6392.

ARW-1050 TANK MODULE ASSEMBLY



Complete set of components

- Base Plate (subplate)
- Body Module (with vertical cells/columns)
- Side Plates (left & right)
- Top Cover
- Interlocks (clips)

Tools & Prep

Flat, clean surface; gloves; dead-blow/rubber mallet and a 2x4 wood block; tape measure/level. Inspect parts; keep cells vertical; do not strike plastic directly.



Step 1 — Interconnect base & body

Place the Base Plate on the floor. Seat the Body Module onto the locating pegs until fully engaged ("click" fit).



Step 2 — Install side plates

Align each Side Plate with the vertical keys of the Body Module. Press into place and tap through a 2x4 with a dead-blow mallet until flush.



Step 3 — Fit top cover & interlocks

Position the Top Cover over the pegs; seat evenly using the 2x4. Insert the Interlocks at all designated positions.



Step 4 — Finish & check

Verify overall L x W x H dimensions; re-tap any loose joints. The module is now ready for wrapping/installation.

Multi-module assemblies (Double / Triple / Quad / Pent)

Repeat Steps 1–3 for each layer and stack vertically (cells vertical). Install interlocks at the specified vertical connection points between layers. Check plumb and level before moving to the next layer.

Handling & Safety

Lift from Side Plates/Base, not by the columns; do not drop. Keep sharp aggregate away from exposed plastic. Store on flat pallets; cover for UV protection if long-term storage is expected.