

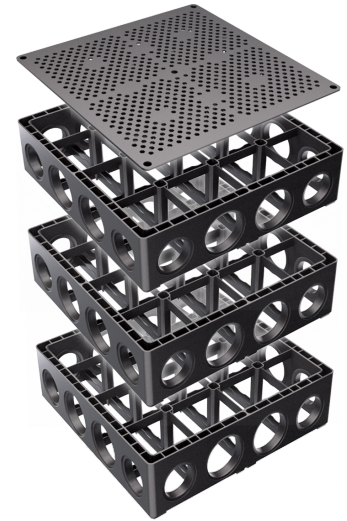
MARINO CELL DATA SHEET - MC20

Modular Stormwater Management System High-Strength Geocellular System for Structural Stormwater Applications

The DeepRoot Marino Cell is a shallow, sustainable drainage system (SuDS). Featuring a shallow profile and a stackable design (up to four frames tall), it allows for customizable chamber sizes to fit nearly any project specification. It can also be installed at very shallow depths for added field versatility. Stormwater attenuation, infiltration, and harvesting can all be achieved with the Marino Cell. There are two models to match your project's budget and loading needs. Both models feature two sizes of utility pipe inlets for easy pass-through access.

Up to 1,050 kN/m² Structural Capacity Measured as Unit Strength at Failure

Engineered for stormwater attenuation, infiltration, and load-bearing applications, Marino Cell delivers high structural performance validated through full-scale testing.



KEY BENEFITS

- High structural capacity validated through full-scale testing
- Modular, stackable system (1–4 layers)
- Designed for trafficked and landscaped applications
- Efficient underground storage performance
- Compatible with geotextiles and geomembranes

STRUCTURAL PERFORMANCE

Marino Cell demonstrates high structural capacity when evaluated using consistent units and ultimate load conditions.

Normalized Performance (kN/m ²)	
Marino Cell Frame Height	Structural Capacity
Unit Strength at Failure (1X)	1,050 kN/m ²
Unit Strength at Failure (2X)	937 kN/m ²
Unit Strength at Failure (4X)	806 kN/m ²

WHAT THIS MEANS

Why Unit Strength at Failure Matters

Unit Strength at Failure represents the maximum load capacity of the system at structural breakdown, providing a more realistic measure of performance under real-world conditions.

Many systems report only short-term compressive strength, which does not fully reflect ultimate structural behaviour.

SYSTEM PERFORMANCE

Load & Deflection Characteristics

- Vertical Deflection Strength: 3723 kN/m²
- Lateral Deflection Strength: 840 kN/m²

MC20 PHYSICAL PROPERTIES

100% Recycled Polypropylene
Unit Size: 600 × 600 × 150 mm
Weight per Unit: 6.03 kg
Void Ratio: 93%

STANDARDS & TESTING

European Alignment

- Tested in accordance with EN 17150 (short-term compression testing)
- Aligned with EN 17151 methodology for long-term performance evaluation
- Designed in alignment with CIRIA C737 principles EN-tested. CIRIA-informed. Built for real-world performance.

Technical Approach

Marino Cell systems are designed using a limit state methodology consistent with Eurocode principles, incorporating:

- Vertical loading (including traffic surcharge)
- Lateral earth pressures
- Soil–structure interaction
- Conservative safety factors

DESIGN CONSIDERATIONS

System performance is influenced by:

- Pavement structure and thickness
- Soil conditions and subgrade strength
- Installation methodology and compaction

Loads are distributed through overlying layers, reducing stress on the system.

APPLICATIONS

- Stormwater attenuation systems
- Infiltration systems
- Car parks and trafficked pavements
- Urban drainage (SuDS)
- Green infrastructure