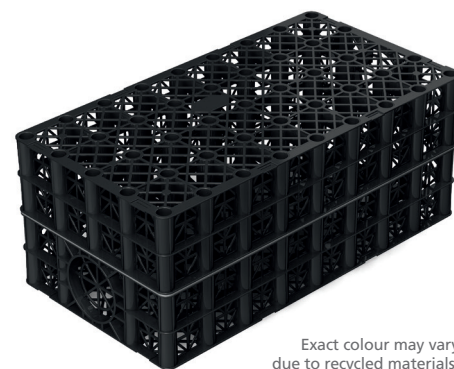


Product code: PSM1A

The Polystorm-R modular cell is ideally suited for loaded applications at greater depths, such as housing, commercial and infrastructure projects and has a compressive strength of up to 61 tonnes/m<sup>2</sup>. It offers all the proven performance of the Polystorm cell, with the added benefits of being manufactured from over 90% recycled material content.

Wherever performance criteria and standards allow, we will always maximise the sustainability of our products by using post consumer plastics in their manufacture. By sourcing and carefully controlling the quality of the recycled material we use our precision injection moulding. Therefore we are able to guarantee consistent quality in our recycled plastic, giving you the confidence and the performance levels you expect from the market leader.



Exact colour may vary due to recycled materials.

## Applications

The Polystorm-R modular cells are combined to form a structure that receives rainwater collected from roofs of surface drains. The rainwater is then either attenuated by the structure, when wrapped in an impermeable membrane, or infiltrated by the structure, when wrapped in a permeable geotextile.

## Key Benefits

- Made from specially selected and controlled recycled materials
- Environmentally friendly, sustainable solution
- Has undergone stringent testing to ensure product performance
- Compressive strength of 61 tonnes/m<sup>2</sup>
- Ideal for retention, attenuation and infiltration applications with a suitable geomembrane or geotextile
- Designed for trafficked and loaded applications
- BBA approved
- Visual and maintenance access can be achieved when used in conjunction with Polystorm Access & Inspect
- Allow flexibility of shape – ideal for shallow excavation systems, narrow strips or use in restricted areas
- Can be used as part of a value engineered hybrid system with Polystorm, Polystorm Lite and Polystorm Xtra
- Integrated inlet and outlet
- 3D flow throughout the structure
- 95% void ratio
- Light in weight yet robust – excellent Health & Safety and installation benefits
- 100% recyclable
- 60 years creep limited life expectancy

ELEMENT	VALUE
<b>PHYSICAL PROPERTIES</b>	
Length	1m
Width	0.5m
Depth	0.4m
Total volume	0.2m <sup>3</sup>
Unit weight	9kg
Unit storage volume	0.19m <sup>3</sup> (190 litres)
Void ratio	95%
<b>SHORT TERM COMPRESSIVE STRENGTH</b>	
Vertical	Maximum 610 kN/m <sup>2</sup> *
Lateral	Maximum 63 kN/m <sup>2</sup> *
<b>SHORT TERM DEFLECTION</b>	
Vertical	60 kN/m <sup>2</sup> per mm
Lateral	4.4 kN/m <sup>2</sup> per mm

Note: Polystorm-R is ideal for use in trafficked and pedestrian applications subject to a structural design check and suitable installation conditions

Each unit includes 4 Clips and 2 Shear Connectors.

\* Compressive strength at yield, maximum recommended value for design purposes.



### RECOMMENDED MAXIMUM DEPTH OF INSTALLATION (to cell invert) [m]

TYPICAL SOIL TYPE	TYPICAL ANGLE OF SHEAR RESISTANCE	SOIL WEIGHT kN/m <sup>3</sup>	WITHOUT GROUNDWATER (below base of cells) NORMAL CASE		WITH GROUNDWATER AT 1M BELOW GROUND LEVEL AND UNITS WRAPPED IN GEOMEMBRANE	
			Pedestrian	Trafficked (cars) <3000kg GVW	Pedestrian	Trafficked (cars) <3000kg GVW
Stiff over consolidated clay e.g. London clay	24	20.0	2.2	1.9	1.8	1.6
Normally consolidated silty sandy clay e.g. alluvium, made ground	26	19.0	2.4	2.2	1.9	1.7
Loose sand and gravel	30	18.0	3.0	2.7	2.0	1.9
Medium dense sand and gravel	33	19.0	3.2	2.9	2.0	1.9
Dense sand and gravel	38	20.0	3.7	3.5	2.1	2.0

Note:

1) Stated depths based on the calculation methodology detailed within CIRIA C680 (2008)

2) Assuming water density = 10.0kN/m<sup>3</sup>

3) Assumed ultimate limit state (ULS) partial factor of safety applied to: Material = 2.75 Lateral pressure = 1.35

### Durability

Wherever allowable we maximise the sustainability of our product by using post-consumer plastics in their manufacture. By carefully sourcing and controlling the quality of the recycled material we are able to guarantee the consistency of our recycled products. The polymer material used in the manufacture of the Polystorm-R unit has an adequate resistance to attack from the type and quantities of chemicals that may be expected to naturally occur in uncontaminated soils and rainwater run-off. When installed in accordance with our recommendations, it is expected that the Polystorm-R unit will have a design life in excess of 60 years\*. The installer of a proposed geocellular structure should ensure that an appropriate design check has been undertaken, in accordance with the recommended methodology and factors of safety given in CIRIA C680 (2008), Structural Design of Modular Geocellular Drainage Tanks, prior to the commencement of construction activities.

\* Derived from long term extrapolated creep testing

### Notes

1. Unless stated, all values are nominal and may vary within normal production tolerances.
2. The characteristic unit parameters stated have been based on Polypipe BBA certificate N° 06/4297, sheet 3.
3. Polypipe reserve the right to change product specifications without prior notice.
4. This document is uncontrolled and updates will not be issued automatically.

### RECOMMENDED MINIMUM COVER LEVELS [m]

LIVE LOAD CONDITIONS	PEDESTRIAN	LIGHT TRAFFICKED	
		Car park with vehicle mass <GVW	
Minimum cover depth required (m)	0.50	<3000kg 0.50	<9000kg 0.65

Note

1) Stated depths based on the calculation methodology detailed within CIRIA C680 (2008)

2) Assumed serviceability limit state (SLS) partial factor of safety applied to: Material = 1.5 Live load = 1.0 Dead load = 1.0

3) Shallower minimum burial depths may be applicable subject to an assessment of the specific site conditions. For further details please consult our Technical Team on 01509 615100.

### Technical Support

Detailed guidance and assistance is available.

For further information, please contact our Technical Team

on +44 (0) 1509 615100 or email [civils@polypipe.com](mailto:civils@polypipe.com)

or visit [www.polypipe.com/civils-technical-hub](http://www.polypipe.com/civils-technical-hub)

### Polystorm-R Modular Cell can be utilised in these SuDS techniques

TECHNIQUES													
Blue-Green roofs	Podium Decks	Trees	Sports Pitches	Cycle Paths	Permeable Paving (sub base & podium)	Bioretention & Rain Gardens	Attenuation Storage Tanks	Infiltration	Swales	Filter Drains	Detention Basins	Ponds & Wetlands	Filter Strips
			✓			✓	✓	✓	✓	✓	✓	✓	

Visit [www.polypipe.com/greeninfrastructure](http://www.polypipe.com/greeninfrastructure)

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