

## StormCrates SC200, SC300 & SC500 from MatsGrids

MatsGrids StormCrates are **manufactured in the UK** from strong copolymer polypropylene to create a sturdy, dynamic and efficient solution for the management of excess rainfall and to create underground water storage areas.

StormCrates can help to **prevent extreme peak flows** to main drainage and water treatment systems. Collected rainwater is effectively filtered by the geotextile wrapping and can be recycled for grey water applications such as toilet/urinal flushing, washing machines, gardening, car cleaning etc.

StormCrates are **light**, with each unit weighing **less than 18kg**, eliminating the need for lifting equipment, keeping down both labour and plant hire costs. The **modular** nature of the design means you can be creative with the shape of the system.

The MatsGrids StormCrates have a capacity of **380 litres**, making it one of the most capacious crates available on the market currently.

Correctly installed, the StormCrate200 can withstand up to **20 tonnes** of compression per square metre which would be ample for light traffic and pedestrians. Available for more intensively used areas and HGV applications is the StormCrate300 which is effective up to **30 tonnes** per square metre.

For exceptionally heavy-duty applications, we have developed a **50 tonne** variant of the StormCrates which is suitable for heavy plant, refuse collection vehicles, car transporters and more substantial HGV traffic.

### What are SuDS?

Sustainable drainage systems (SuDS) are drainage solutions that provide an alternative to the direct channelling of surface water through networks of pipes and sewers to nearby watercourses.

By mimicking natural drainage regimes, SuDS aim to reduce surface water flooding, improve water quality and enhance the amenity and biodiversity value of the environment. SuDS achieve this by lowering flow-rates, increasing water storage capacity and reducing the transport of pollution to the aquatic environment.

The need for alternative drainage such as SuDS is likely to increase to meet environmental challenges such as climate change and population growth. Provision for SuDS and the national standards required for their design, construction, maintenance and operation is included in the Flood & Water Management Act 2010.

### Useful Resources

- **Flood & Water Management Act 2010: Schedule 3** ([legislation.gov.uk](http://legislation.gov.uk))
- **Code for Sustainable Homes** ([planningportal.gov.uk](http://planningportal.gov.uk))
- **Planning Policy Statement 25** ([nationalarchives.gov.uk](http://nationalarchives.gov.uk))

- **Effective** water retention
- **Reduces** surface water
- **Lowers** risk of localised flooding
- **Reduces** waterborne pollutants
- **Recycled** water can be put to multiple uses both domestic and commercial

MatsGrids Water Storage Crates are a **high performance, durable** product with the versatility to be applied in a number of applications.

**95% void ratio** design provides excellent operation without compromising quality or durability.

### Suitable for:

- Brownfield sites
- Housing developments
- Industrial estates
- Residential properties
- Golf courses
- Sports fields

### MatsGrids Limited

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### Technical Data & Measurements

#### SuDS Best Practice CIRIA C697

The SuDS Manual, published by CIRIA 2007 (C697) defines that a sustainable urban drainage system should consider certain basic requirements, including:

- Run-off from a developed area should be no greater than the run-off prior to development
- Run-off from a developed area should not result in any downgrading of downstream watercourses or habitat
- Consideration should be given at the development feasibility stage to water resource management and control in the developed area
- Run-off should replicate as far as possible the natural response of the site to rainfall

SuDS best practice limits the flow of rainwater which runs off a site or is piped away, protects local watercourses from contamination carried in surface run-off, encourages natural groundwater recharge (where appropriate) and reduces the likelihood of downstream flooding.

	StormCrate 200	StormCrate 300	StormCrate 500
<b>Dimensions</b>	1000mm x 1000mm x 400mm		
<b>Weight</b>	16kg	16kg	22kg
<b>Capacity</b>	400 Litres (2.5 crates per m3)		
<b>Void Ratio</b>	95.50%	94.50%	94.20%
<b>Material</b>	CoPolymer Polypropylene		
<b>Manufactured</b>	Made in UK		
<b>Colour</b>	Black		
<b>Connection Method</b>	Single/Double Clip		
<b>Compressive Strength</b>	>200kN/m2	>300kN/m2	>500kN/m2

SC200



SC300



SC500



*Our business mission is to become the UK's leading supplier of groundwork, civil and landscaping products. Over the last few years, our company has grown to become one of the UK's most reputable suppliers to these demanding specialist markets.*

*The extensive range of products we stock is tailored to cater for the needs of our clients, which we complement with unrivalled customer service and friendly, knowledgeable staff. We strive to build long term working relationships with each of our customers to provide the best value for money without compromising on quality or service.*

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## Excavation & Installation Instructions

**For attenuation systems:** position the inflow and outflow connections level with the base of the crate structure

**For infiltration systems:** position the inflow connection at the top of the crate structure

1. Excavate to the required dimensions and level the base. Ensure the area is sufficient to allow for plant/equipment access to the sides of the system to compact the backfill material (500mm minimum for light to moderate use, 750mm minimum for intensive & HGV use above the system)
2. Ensure the base is smooth and level with no sharp protrusions or obstacles. Check that the slopes are cut back to a safe angle or adequately supported and that a safe access is always possible to allow site personnel to enter the excavation.
3. Inspect the base for any soft spots. If there any present, excavate and replace with compacted granular fill material.
4. Lay a 75mm sharp sand bedding layer to the base of the excavation and ensure it is level. Lay the geotextile protection fleece (non-woven, thermally bonded) ensuring a minimum 150mm overlap. **This is required for both attenuation & infiltration systems.**

5. If the system is for water storage, lay a non-permeable geomembrane over the geotextile and sand bedding layer and up the side of the excavation. Examine the geomembrane for damage and test all welds if present.
6. Assemble the SC units and install within the void in accordance with the design, specification and any regulations applicable to the installation site. Special clips are provided to join the units to prevent displacement. **Single clips for adjacent units (3 per unit) and double clips for all multi-layer applications (1 per unit)**
7. Complete the geotextile and/or geomembrane encapsulation to the sides and the top of the installation, ensuring that the protection fleece has the required 150mm overlap. The geomembrane should be welded with double seams and inspected for damage, testing the welds as required.
8. Connect the drainage connections to the installation using proprietary adaptors. Alternatively for infiltration systems, use flange adapters and attach them to the crate units with self-tapping screws.

*For attenuated systems, it is recommended that all connections and air vent installations are achieved using sealed drainage connections into a preformed socket using proprietary seals (top-hats).*

9. **Backfill around the installation with a type 1 or 2 sub base, compacting in layers of 150mm in accordance with the Specification for Highway Works**
10. Place 75mm sharp sand protection layer if required over the top of the crates and continue to backfill as follows:

### **For trafficked areas**

Type 1 or 2 sub base material compacted in 150mm layers in accordance with the Specification for Highway Works. Compaction equipment on top of the system should not exceed 2,300kg per m<sup>2</sup>.

### **For landscaped & non-trafficked areas**

Selected "as dug" material with a unit size of no more than 75mm compacted to 90% maximum dry density. Compaction equipment on top of the system should not exceed 2,300kg per m<sup>2</sup>.

11. Finalise the pavement construction or landscaping over the crate system.



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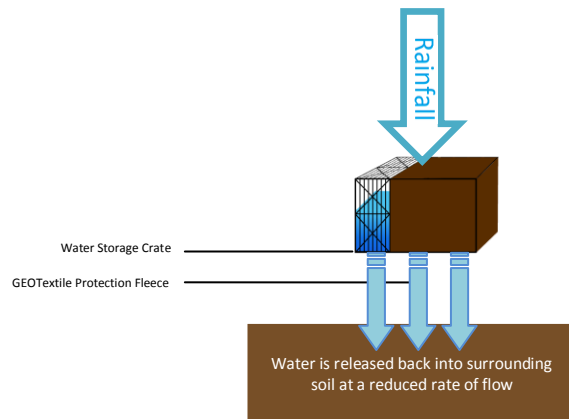


## Infiltration Applications

When used for infiltration, water storage crates can temporarily store surface water run-off while surrounding soil naturally disperses the rainfall.

Soakaways are commonly used for below-ground infiltration, however using water storage crates this can be reduced due to the high void area ratio (95%). This results in a reduction in the required excavation depth, fill material weight, labour cost and improves health and safety standards when compared to conventional gravel-type soakaways.

Infiltration installations are wholly dependent on the permeability of the soil surrounding the installation. GCL Water Storage Crates require a geotextile wrapping in accordance with the installation instructions.



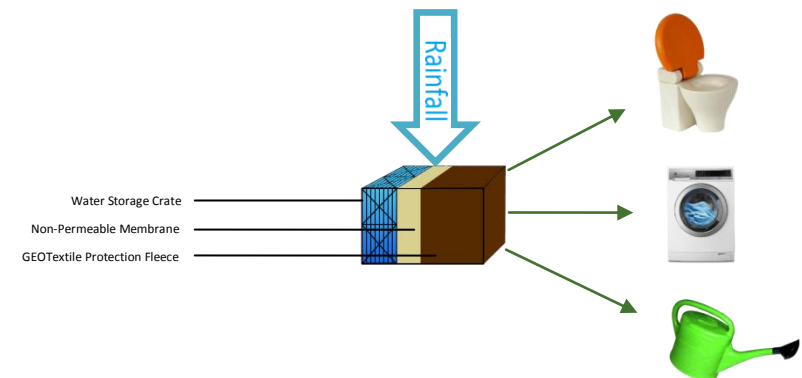
*\*Image for illustrative purposes only*

## Attenuation Applications

Attenuation systems are designed to store excess rainfall temporarily in a chamber below the ground and release it at a pre-determined rate, helping to combat ground saturation.

The limiting of the peak flow of water and reduces the likelihood of overloading downstream pipelines or watercourses. The sizing of the attenuation tank used is critical to allow enough capacity to prevent upstream flooding. Attenuation tanks must be encapsulated with an impermeable membrane and geotextile to create an underground chamber.

As sewer networks increasingly approach capacity, attenuation methods can offer a cost effective solution for accommodating additional catchment areas without an increase in sewer size.



*\*Image for illustrative purposes only*



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## Other Products Available

### We can also supply:

- Gravel Driveway Grids
- Grass Protection Mesh
- BiAxial Geogrids
- Rubber Grass Mats
- Interlocking Rubber Play Tiles
- Rubber Floor Tiles
- Rubber Paving Bricks
- Woven Membrane
- Spun Bonded Membrane
- Soil Retention Cells
- Lawn Edging
- GeoBorder Paving Edging
- Rubber Street Bollards
- Cable Protection Tiles

## X-Grid®

X-Grid® ground reinforcement grid is quick and easy to install and can simply be laid onto a well compacted base and filled with selected materials to form a solid, permeable surface.

This permeable paving solution can be used in conjunction with water storage crates as part of a complete SUDS system, suitable for attenuation and infiltration.

X-Grid® simply clips together to the desired length and width before being filled to produce a surface suitable for many applications such as both residential and commercial car parking, pathways and access routes.

Physical Properties	GEOTextile
Grid Dimensions (WxLxD):	330mm x 330mm x 40mm
Wall Thickness:	3mm
Weight per Grid:	0.57kg
Weight per m <sup>2</sup> :	5.13kg
Grids per m <sup>2</sup> :	9 Grids/m <sup>2</sup>
Cell Profile:	Cylinders 55mm Nominal ID 63mm OD
Permeability:	93% Open Structure
Material:	100% Recycled Plastic (UK Sourced)
Connection Method:	Slot & Peg QuickSnap
Load Bearing Capacity:	Up to 350tonnes/m <sup>2</sup>
Natural Stability - Temperature:	-50°C to 90°C
Expected Life:	25 Years with 10 Year Manufacturer Guarantee
DDA Compliance:	Part M Building Regulations
Maximum Gradient:	12%
Maximum Vehicle Speed:	15mph
Installation:	100m <sup>2</sup> per person/hr
Environmental Compatibility:	Neutral in accordance with DIN38412

## GEOTextile

Non-woven geotextile plays a vital part in attenuation and infiltration systems to ensure a soft and smooth base and drastically reduces the risk of puncture or tear to the geomembrane layer used in attenuation systems.

This product is manufactured using a needlepunching and/or thermal bonding process producing a strong geotextile with excellent drainage and filtration properties.

Mechanical Properties	GEOTextile
Tensile Strength - MD	8.4 kN/m
Tensile Strength - XD	9.8 kN/m
Elongation at Break - MD	85.0%
Elongation at Break - XD	60%
CBR Puncture Resistance	1500 N
Dynamic Cone Drop	25.0 mm
Hydraulic Properties	GEOTextile
Characteristic Opening Size	110.0 µm
Permeability	110 x 10 <sup>-3</sup> m/s
Waterflow Normal to The Plane	120 l/m <sup>2</sup> .s
Physical Properties	GEOTextile
Thickness under 2kPa	0.85 mm
Weight	115 g/m <sup>2</sup>
Roll Size	4.5m x 100m
Roll Diameter (+/- 10%)	30cm



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