

STORMCRATES TECHNICAL DATA Our Differentiation – Our Unique Innovation

# **ReGen Global StormCrates Our Unique Value and Technical Differentiation**

- Eliminates the need for granular backfill material, streamlining installation processes and reducing associated costs.
- Significantly reduces procurement, transportation, and manpower expenses by eliminating the requirement for aggregates, leading to overall cost savings.
- Occupies a smaller footprint compared to traditional systems, offering greater space efficiency while maintaining the same water volume. Shallow installation depth translates to reduced ongoing maintenance costs.
- Minimizes excavation volumes, preserving site topography and minimizing soil movement, thereby reducing preparation time and environmental impact.
- Provides superior hydraulic efficiency and volumetric storage capacity with a 95% void ratio, ensuring optimal performance.

- Boasts exceptional mechanical strength, capable of supporting over 80 tons per square meter, ensuring durability and long-term reliability.
- Offers a modular, flexible, and adaptable design, allowing for seamless integration into various project requirements and configurations.
- Enhanced accessibility facilitates regular inspections and enables more effective preventive maintenance through exclusive inspection plates, ensuring system integrity.
- Made from high-density polypropylene, the system is recyclable, promoting sustainability and contributing to a reduced environmental footprint.
- Manufactured in the UAE providing In-Country Value, supporting the local economy, reducing costs and ideally positioned to deliver in the Middle East.

StormCrates are a more efficient and economically viable, long-term sustainable solution.

# **Hydraulic Efficiency**

#### **Exceptional Infiltration Rates**

Our StormCrates boast infiltration rates exceeding 1000mm/h, facilitating aquifer recharge and minimizing surface runoff. With a volumetric infiltration capacity of 95%, they efficiently handle large rainwater volumes by maximizing soil exposure and promoting water absorption in all directions.

#### **Optimal Water Handling**

Unlike other systems that rely on large amounts of aggregates and perforated pipes or arches, our StormCrates excel in water management. Traditional methods often offer lower infiltration rates (50-200 mm/hr) and volumetric capacities (75-85% void), limiting their ability to handle substantial water volumes effectively.

# **Storage and Retention**

#### **Superior Storage and Retention**

The StormCrates system boasts an impressive storage and retention capacity of 95%, facilitated by its modular crates. This allows for gradual water release and precise flow control, ensuring efficient water management.

#### **Flexible Configuration**

With storage capacities ranging from 450 Lts (Single Crate) to 2,200 Lts (Pent Crate) per square meter, the system offers flexibility to adapt to varying project needs. Our StormCrates are modular in design to facilitate customizable configurations that accommodate specific storage and retention requirements, optimizing space efficiency and minimizing disruption.

#### **Versatile Installation**

Our StormCrate design allows for versatile installation in any shape, maximizing space efficiency and minimizing disruption. In contrast, other systems relying on perforated pipes or arches often have lower storage capacities and limited temporary holding capacity, primarily focused on evacuation velocity, capacity, primarily focused on evacuation velocity.

Module (Units)	Width (mm)	Width (Inches)	Length (mm)	Length (inches)	Height (mm)	Height (inches)
Single (1)	410	16.14	685	26.97	450	17.72
Double (2)	410	16.14	685	26.97	880	34.65
Triple (3)	410	16.14	685	26.97	1310	51.57
Quad (4)	410	16.14	685	26.97	1740	68.50
Pent (5)	410	16.14	685	26.97	2170	85.43
Module (Units)	Tank Vol (Ltrs)	Tanl Vol (cf)	Tanl Vol (gal)	Water Storage (Lts)		
Single (1)	126.38	4.46	33.36	126.28		
Double (2)	247.15	8.73	65.30	247.19		
Triple (3)	367.91	12.99	97.17	367.83		
Quad (4)	488.68	17.26	129.11	488.74		
Pent (5)	609.44	21.52	160.98	609.38		

# **Mechanical Resistance**

#### **Robust Construction**

Our StormCrates are crafted from high-density polypropylene (HDPP), ensuring durability and reliability. With a compressive strength of up to 400 kN/m<sup>2</sup> and the ability to withstand lateral loads of up to 25 kN/m<sup>2</sup>, the system offers exceptional structural integrity

#### **High Load Capacity**

Our StormCrates boast a static load capacity of up to 80 tons per square meter, tailored to specific configurations and requirements. This ensures stability and resilience even under heavy loads, guaranteeing long- term performance

#### **Superior Performance**

In comparison, other systems may vary in impact resistance depending on the material used, introducing additional challenges and costs in challenging environments. Their load capacities typically range from 10 to 30 tons per square meter, based on configuration and backfill type, potentially limiting their suitability for demanding applications.

Load test- Client requirement						
		Position	Details			
001: Maximum load		Normal	See comments			
ltem 01:	With 4 pipes and 3 Inner Plates					
	Loading Face (mm) 405 x 678					
	Cross-sectional area (m2): 0.27459					
	Crushing load: 239.7 kN / 24.4 tons					
	Crushing strength (tons/m2): 88.9					

# **Service Life Durability**

#### Long-Term Reliability

Our StormCrates are engineered to surpass design periods of over 100 years, ensuring a durable and weather-resistant solution for the long-term future. This longevity provides peace of mind and reduces the need for frequent replacements, resulting in additional cost savings over time and superior through life value.

#### **Resilient Design**

Our StormCrates' ability to withstand adverse environmental conditions reinforces our system resilience and assured longevity, ensuring reliable performance over the long term. Its modular and robust design minimizes the need for frequent maintenance and replacement, optimizing operational efficiency and reducing costs.

In contrast, other systems have varying service lives influenced by factors such as backfill type and site-specific conditions. Reliance on stone backfill can pose environmental challenges related to material extraction and transportation, potentially affecting sustainability goals and raising project and ongoing costs.



# **Abrasion Resistance**

#### **Enhanced Durability**

Our StormCrates are engineered with robust abrasion resistance, ensuring long-lasting performance and stability even in adverse environments. The use of high-density polypropylene (HDPP) enhances durability, protecting against wear caused by moving solid particles.

#### **Resilient Construction**

The modular cells of our StormCrates feature an open structure and sturdy walls, minimizing direct contact with abrasive surfaces. This design element significantly contributes to our superior abrasion resistance, guaranteeing sustained functionality over time.

In contrast, other systems reliant on perforated pipes or arches may be more vulnerable to abrasion, particularly in high-impact areas. The material used in these systems often leads to wear and tear over time, especially in conditions with significant abrasion. Therefore, careful consideration is necessary when selecting materials for applications in abrasive environments. Our systems are robust and assured.

Surface area	90 to 95% void
Material	100% recycled Polypropylene, virgin pipes
Biological & Chemical Resistance	Unaffected by mould and algae, soil-bourne chemicals, bacteria, bitumen
Service Temperature	-30°C to 120°C (-22°F to 248°F)
Flow rate	0.038 m3/sec

# Load Cycles And Dynamic Resistance

#### **Structural Integrity**

Our StormCrates design, combining modularity with robust mechanical strength, ensures exceptional resilience against dynamic load cycles. The system effectively withstands constant changes in loading conditions without compromising its structural integrity.

#### **Flexible Adaptability**

Constructed from high-density polypropylene (HDPP), ReGen StormCrates possess inherent flexibility that enables them to adapt to stresses generated by dynamic loads. This flexibility is particularly beneficial in managing load fluctuations within stormwater management systems, enhancing overall system reliability and longevity

### Sustainable Development

#### **Sustainable Construction**

The utilization of sustainable material options underscores our commitment to sustainability, offering an eco-friendly and durable solution. StormCrates are recyclable and reusable, aligning with environmental objectives and reducing waste. We champion sustainable practices by utilizing recycled polypropylene in our construction and offering permeable paving options. Our commitment to eco-friendly materials aligns with environmental regulations and fosters sustainable development best practice

#### **Compliance and Efficiency**

Unlike other systems that require additional measures to meet sustainability standards, our StormCrates provide a straightforward solution that seamlessly integrates with environmental requirements, ensuring compliance and operational efficiency

#### Local Manufacture and In-Country Value

We establish regional manufacturing facilities to minimize our carbon footprint and optimize local benefits. We manufacture in the UAE, ideally poised to support projects in the MENA region and qualifying for In-Country-Value. We also manufacture in India and are currently establishing a manufacturing capability in Canada. This layered regional infrastructure helps to support our operations globally, reduce our carbon footprint and provide cost-benefits to our clients, all whilst delivering positive local economic and social impact.

# **Inspection And Maintenance**

#### **Enhanced Accessibility**

Our StormCrates offer ease of access for interventions and repairs due to their modular design and absence of granular material, allowing for timely inspections and maintenance. The open cells enable visual inspections, facilitating early detection of issues and minimizing system downtime.

#### **Efficient Maintenance**

Regular inspections are streamlined with our StormCrates system, leading to more efficient scheduling of maintenance activities and reducing downtime. This proactive approach to maintenance ensures optimal system performance over time

#### **Comparative Challenges - Our Competition**

In contrast, other systems reliant on buried perforated pipelines or arches and extensive granular material and aggregates may pose challenges in access and inspections. Limited visual inspection capabilities and the need for specialized equipment can hinder early problem detection and significantly increase maintenance costs



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### **Economic System**

Experience the unparalleled economic efficiency of our StormCrates system, where durability meets cost-effectiveness and sustainability. By eliminating the need for granular and stone backfill (specific and costly aggregate required for our competitors' systems), our system not only simplifies installation but also reduces material and transportation expenses and carbon footprint. Unlike traditional methods, our system doesn't require additional shipping or transportation of materials, ensuring a streamlined and budget-friendly process.

With a smaller footprint compared to pipes or arches, our system maximizes space utilization and minimizes project constraints, leading to reduced excavation time and costs, quicker completion times and superior results. Unlock the benefits of sustainable and efficient stormwater management now by contacting us at ReGen AquaTech.

# Standard Crates Dimensions ALL H25 load rated

Module (Units)	Width (mm)	Width (Inches)	Length (mm)	Length (inches)	Height (mm)	Height (inches)
Single (1)	408	16.06	685	26.97	450	17.72
Double (2)	408	16.06	685	26.97	880	34.65
Triple (3)	408	16.06	685	26.97	1310	51.57
Quad (4)	408	16.06	685	26.97	1740	68.50
Pent (5)	408	16.06	685	26.97	2170	85.43
Module (Units)	Tank Vol (Ltrs)	Tank Vol (cf)	Tank Vol (gal)	Water Storage (Lts)	Water storage Vol (cf)	Water storage Vol (gal)
Single (1)	125.77	4.44	33.22	119.47	4.22	31.56
Double (2)	254.94	8.69	64.97	233.64	8.25	61.72
Triple (3)	366.12	12.93	96.72	347.80	12.28	91.88
Quad (4)	486.31	17.17	128.47	461.93	16.31	122.03
Pent (5)	606.46	21.42	160.21	576.10	20.35	152.19

Surface area	90 to 95% void
Material	100% recycled Polypropylene
Biological & Chemical Resistance	Unaffected by mould and algae, soil-bourne chemicals, bacteria and bitumen
Service Temperature	-30°C to 120°C (-22°F to 248°F)
Flow rate	0.038 m3/sec

#### **Ultimate Load/ Unconfined Crush Testing:**

Load Underground	To H25 USA Standard	Over 50,000 Lbs
Crush Load 5 Plates	35.97 t/m2	
Displacement	11 mm	0,433"
Temperature	8-14°C	46.4- 57.2° F

#### **5 INNER PLATES Single Crate**





# High Strength Crates Dimensions ALL H25 load rated

Module (Units)	Width (mm)	Width (Inches)	Length (mm)	Length (inches)	Height (mm)	Height (inches)
Single (1)	410	16.14	685	26.97	450	17.72
Double (2)	410	16.14	685	26.97	880	34.65
Triple (3)	410	16.14	685	26.97	1310	51.57
Quad (4)	410	16.14	685	26.97	1740	68.50
Pent (5)	410	16.14	685	26.97	2170	85.43
Module (Units)	Tank Vol (Ltrs)	Tank Vol (cf)	Tank Vol (gal)	Water Storage (Lts)		
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Pent (5)	609.44	21.52	160.98	609.38		

Surface area	90 to 95% void
Material	100% recycled Polypropylene, virgin pipes
Biological & Chemical Resistance	Unaffected by mould and algae, soil-bourne chemicals, bacteria, bitumen
Service Temperature	-30°C to 120°C (-22°F to 248°F)
Flow rate	0.038 m <sup>3</sup> /sec

#### **Unconfined Crush Testing:**

Load Underground	H25 USA Standard	Over 90 tons/ Sqm
Crush Load 5 Plates	88.9 t/m2	
Displacement	.5 mm	0.01"
Temperature	23°C	73.4° F

#### Single HS Crate Ultimate Load





# REGEN GLOBAL STORMCRATES

#### Note

All ReGen Global Products and Systems are worldwide PATENT GRANT or PATENT PENDING & DESIGN REGISTERED

#### **Safety Factors**

Engineers, designers and geotechnical engineers should design and calculate safety factors to a serviceable limited state to suit specific project requirements. In case of doubt, please consult ReGen AquaTech.

#### Disclaimer

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