

# CONTACTOR® & RECHARGER®

## STORMWATER CHAMBERS



### Product Brochure

- RETENTION • DETENTION • INFILTRATION • WATER QUALITY





Published by

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## CULTEC has the solutions!

Managing high levels of stormwater is a challenge facing municipalities across the country. In built-up areas, buildings and paved surfaces inhibit the natural infiltration of stormwater into the ground. With expanding urbanization, existing infrastructure is unable to accommodate the increased peak flows and runoff volumes which lead to ponding and flooding problems. Conventional stormwater management systems such as ponds, swales, pipe and concrete structures capture water but are labor intensive, expensive to maintain and occupy valuable land. CULTEC Stormwater Chambers provide a cost-effective solution for underground detention and infiltration.

### What sets us apart from other chambers? Stormwater chambers are our specialty.

As the founder of plastic chamber technology, CULTEC's expertise lies in the innovation and evolution of chamber systems. We are equipped to solve even the most challenging stormwater management assignments.

- The first stormwater chambers ever manufactured with installations dating back over 30 years.
- CULTEC stormwater chambers are designed to withstand AASHTO HS-25 defined loads when installed according to our recommended installation instructions.
- Most extensive product line in the industry. With chamber heights from 8.5" to 48" tall, CULTEC offers an extensive product line capable of accommodating both extreme low-profile limitations as well as high-volume demands.
- Our unique internal manifold feature allows for maximum design flexibility, provides a significant cost-savings to the overall project, and, in most applications, can also reduce the system footprint. It allows for placement of the manifold at any location within the system without interrupting the line of chambers and eliminates the requirement of manholes and/or extra fittings.
- Exceptional custom design services performed by stormwater chamber specialists.

### Installations Worldwide

With installations dating back to over 30 years, CULTEC products have not only been installed nationally from coast-to-coast but also internationally in Canada, Mexico, Puerto Rico, Guam, the Caribbean, Africa, and Europe.

For a recent list of case studies, please visit us at [www.cultec.com/case-studies/](http://www.cultec.com/case-studies/)



Dry well Applications



Residential Drainage



Commercial Drainage

## CULTEC Stormwater Systems 101 - The Basics

The CULTEC Contactor® and Recharger® chambers replace conventional stormwater retention/detention systems such as ponds, swales, pipe and stone trenches or beds, or concrete structures. The chambers may be used for dry wells. Infiltration contact area is maximized by the fully open bottoms.

Water is collected in a catch basin or other collective device followed by a CULTEC Separator™ Row to be treated. The water is then directed into the Contactor® or Recharger® chambers and distributed via the side portal internal manifold and crushed stone embedment. Depending on the system application, the water infiltrates into the ground, or it is detained and released.

Typical CULTEC stormwater systems are designed by using the largest chamber that meets the site's depth constraint and system requirements. By choosing the largest available chamber that meets the system's parameters, you reduce the number of chambers and land area required. The client is able to maximize storage volume at the given workable elevations.

### Applications

- Retention Systems
- Detention Systems
- Infiltration Systems
- Reclamation
- Dry wells
- Conveyance
- Manage residential roof drain run-off
- Contain swimming pool or water conditioner back-wash

### Features

- Overlapping rib connection
- Unique in-line internal manifold
- High infiltrative capability
- Lightweight
- Variety of sizes
- Chemically resistant

### System Benefits

- Maximum use of land area
- Store larger volumes in a lower profile than comparably sized pipe
- Ability to recharge water on-site
- Single or multi-level systems
- Less heavy equipment required
- The units nest on pallets for convenient shipping and stockpiling of material
- Allows for greater infiltration into the ground
- Permits further development
- Reduces insurance liabilities and potential breeding grounds for infectious mosquitoes associated with open ponds

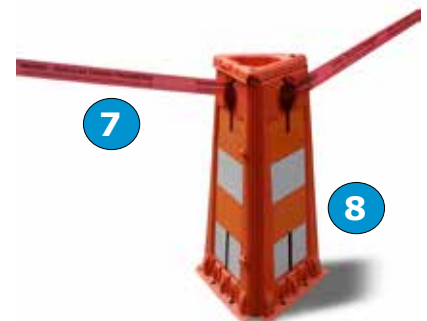


**CULTEC'S INTERNAL MANIFOLD ALLOWS FOR PLACEMENT OF MANIFOLD AT ANY LOCATION WITHIN SYSTEM WITHOUT BREAKING THE LINE.**

## Typical CULTEC Stormwater System Components



1. **CULTEC Stormwater Chamber** - used for retention, detention, reclamation
2. **CULTEC HVLV™ Feed Connector** - internal manifold component
3. **CULTEC Separator™ Row**- water quality filtration row
4. **CULTEC No. 410™ Non-woven Geotextile**- prevents soil intrusion into system
5. **CULTEC No. 4800™ Woven Geotextile**- placed under CULTEC manifold components, prevents scouring of stone base
6. **Stone** - used for stone base, embedment stone and stone above chambers
7. **CULTEC Warning Tape** - marks off location of underground CULTEC Stormwater System during construction to prevent vehicular traffic
8. **Multicade™ Pylon** - marks location of underground CULTEC Stormwater System during construction phase



*In urban areas, rising land costs require developers to look for innovative stormwater management products that optimize land usage and meet local environmental regulations.*



## CULTEC - The Founder of Plastic Chamber Technology

Back in 1986 CULTEC introduced its Contactor® and Recharger® septic and stormwater chambers to the industry and helped to begin a revolution towards the usage of plastic construction products. Since then, several product developments and strategic alliances have made CULTEC a cutting edge R&D-based manufacturer.

CULTEC's chambers are dome shaped, open-bottomed corrugated plastic structures. They function like conventional stormwater ponds and work in conjunction with existing storm sewer infrastructure to provide underground retention/detention and infiltration of rainwater into the ground. Infiltration methods have been proven to be the most effective way to remove phosphorous, nitrogen, lead, zinc, suspended solids and organic carbon from water compared to wetlands, water quality ponds, filtering systems and water quality swales.







# CULTEC Contactor® & Recharger® Chambers

CULTEC Contactor® and Recharger® chambers can be used as detention systems, infiltration systems or a combination of both. With a wide range of sizes and models available, their advanced design and ease of installation makes them an ideal alternative to ponds, swales, concrete structures or pipe installations. CULTEC chamber systems can be installed with a Separator™ Row, consisting of a row of chambers surrounded by geotextile on all sides.

It is designed to capture the first flush of a rain event and is a cost effective means of removing Total Suspended Solids (TSS) that may pass through the upstream water quality structures. In addition to removing solids and debris, the Separator Row provides easier access for inspection and maintenance of the total system.

## TYPICAL APPLICATIONS

- Commercial Developments
- Residential Developments
- Industrial Areas
- Athletic Fields

 <b>QUALITY</b>	 <b>EASE OF INSTALLATION</b>	 <b>EASE OF TRANSPORTATION AND STORAGE</b>	 <b>COST EFFECTIVE</b>
<ul style="list-style-type: none"> <li>• Made of durable and chemically resistant HDPE or impact-modified polypropylene</li> <li>• Open bottom maximizes infiltration capability and performance</li> </ul>	<ul style="list-style-type: none"> <li>• Lightweight components can be hand-carried into position</li> <li>• Overlapping ribs provide a fast and secure connection</li> <li>• Internal manifold system allows flexibility in design and on-site reconfiguration</li> </ul>	<ul style="list-style-type: none"> <li>• Units nest on pallets for convenient shipping and reduced freight costs</li> <li>• Less space required in staging areas</li> </ul>	<ul style="list-style-type: none"> <li>• Valuable land becomes available for further development</li> <li>• Less area and less crushed stone required for installation compared to conventional systems</li> </ul>



**CULTEC CHAMBERS STACK ON SKIDS FOR EASY LOADING, UNLOADING AND STOCKPILING**



**CULTEC CHAMBERS CAN BE HAND CARRIED FOR EASE OF INSTALLATION**

## CULTEC Stormwater Chambers

### CONTACTOR® SERIES

The Contactor® series consists of lower profile chambers and are typically used for installations with depth restrictions or when a larger infiltrative area is required.

Sizes range from 8.5 - 12.5 inches (216 - 318 mm) in height.

Available models are the Contactor® Field Drain C-4HD and Contactor® 100HD.

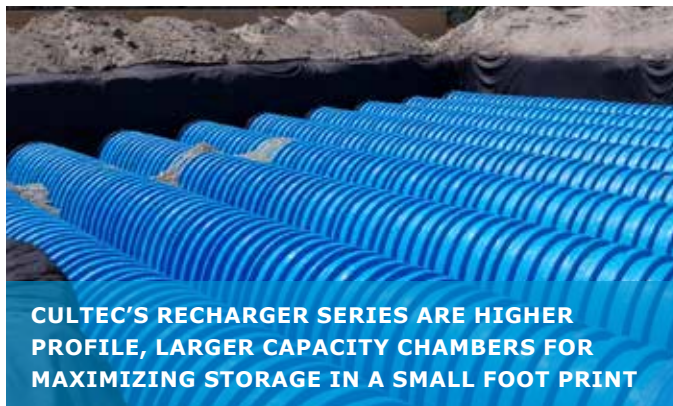


**THE CULTEC LOW PROFILE CONTACTOR SERIES CAN ACCOMMODATE SYSTEMS WITH HIGH WATER TABLES OR OTHER DEPTH CONSTRAINTS**

### RECHARGER® SERIES

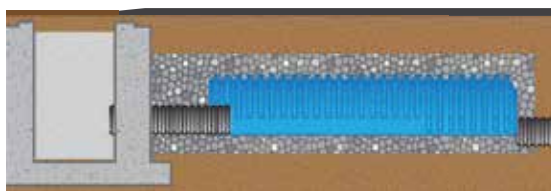
CULTEC's Recharger® series includes higher profile, larger capacity chambers. Sizes range from 18.5 - 48 inches (470 - 1219 mm) in height. Chamber capacities vary from 2.65 - 17.31 ft<sup>3</sup>/ft (0.246 - 1.61 m<sup>3</sup>/m).

Available models within this series are the Recharger® 150XLHD, 180HD, 280HD, 330XLHD, 360HD and 902HD.



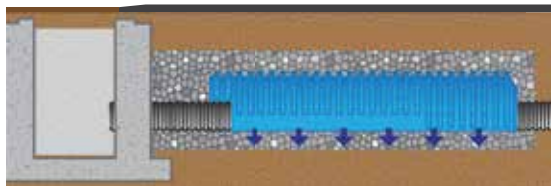
**CULTEC'S RECHARGER SERIES ARE HIGHER PROFILE, LARGER CAPACITY CHAMBERS FOR MAXIMIZING STORAGE IN A SMALL FOOT PRINT**

#### Detention Systems



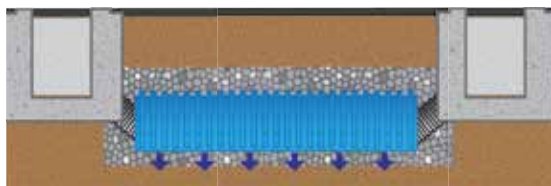
Stormwater runoff exceeding a site's allowable discharge rate is temporarily stored in chambers connected to a control structure (manhole). Downstream flows are restricted to a set rate using an orifice.

#### Detention/Infiltration Systems



Detention volume is set by the elevation of the outlet pipe to the control structure. Water remaining below the outlet pipe invert will infiltrate providing groundwater recharge.

#### Infiltration Systems



Water enters the chambers via the storm sewer network where it is held until the water infiltrates into the surrounding soils. Systems provide pollutant removal, total downstream volume reduction and temperature control of the downstream flow.



# CULTEC Contactor® & Recharger® Chambers

## Specification Information

MODEL	Length	Width	Height	Installed Length	Chamber Storage		Compatible Internal Manifold Component
Contactor® Field Drain C-4HD	8.5' 2.59 m	48" 1219 mm	8.5" 216 mm	8' 2.44 m	1.69 ft³/ft 13.54 ft³/unit 101 gal	0.16 m³/m 0.38 m³/unit 383.28 L	N/A
Contactor® 100HD	8' 2.44 m	36" 914 mm	12.5" 318 mm	7.5' 2.29 m	1.87 ft³/ft 14.00 ft³/unit 105 gal	0.17 m³/m 0.40 m³/unit 396.88 L	HVLV SFCx2 Feed Connector
Recharger® 150XLHD	11' 3.35 m	33" 838 mm	18.5" 470 mm	10.25' 3.12 m	2.650 ft³/ft 27.16 ft³/unit 203 gal	0.25 m³/m 0.77 m³/unit 769.12 L	HVLV FC-24 Feed Connector
Recharger® 180HD	7.33' 2.23 m	36" 914 mm	20.5" 521 mm	6.33' 1.93 m	3.45 ft³/ft 21.81 ft³/unit 163 gal	0.32 m³/m 0.62 m³/unit 617.47 L	HVLV FC-24 Feed Connector
Recharger® 280HD	8' 2.44 m	47" 1194 mm	26.5" 673 mm	7' 2.13 m	6.079 ft³/ft 42.55 ft³/unit 318 gal	0.56 m³/m 1.21 m³/unit 1204.91 L	HVLV FC-24 Feed Connector
Recharger® 330XLHD	8.5' 2.59 m	52" 1321 mm	30.5" 775 mm	7' 2.13 m	7.459 ft³/ft 52.21 ft³/unit 391 gal	0.69 m³/m 1.48 m³/unit 1478.44 L	HVLV FC-24 Feed Connector
Recharger® 360HD	4.17' 1.27 m	60" 1525 mm	36" 914 mm	3.67' 1.12 m	10.00 ft³/ft 36.66 ft³/unit 274 gal	0.93 m³/m 1.04 m³/unit 1038.03 L	HVLV FC-48 Feed Connector
Recharger® 902HD	4.25' 1.30 m	78" 1981 mm	48" 1219 mm	3.67' 1.12 m	17.31 ft³/ft 63.47 ft³/unit 475 gal	1.61 m³/m 1.80 m³/unit 1798.07 L	HVLV FC-48 Feed Connector

### NOTES:

- Based on installed length. Stone void is calculated at 40%. Most models include 6 inch (152 mm) stone base, 6 inch (152 mm) stone layer above chamber crown and stone around units based on typical minimum center-to-center spacing.
- Recharger 902HD assumes 9 inch (229 mm) stone base, 12 inch (305 mm) stone layer above and typical center-to-center spacing.
- Recharger models 360HD and 902HD chambers require a separate end cap.



## MAINTENANCE

To ensure a well-functioning system, regularly scheduled cleaning of catch basins and pre-treatment devices is required. We suggest the inclusion of a CULTEC StormFilter® 330 or CULTEC Separator™ Row in the design for water quality and particulate removal.



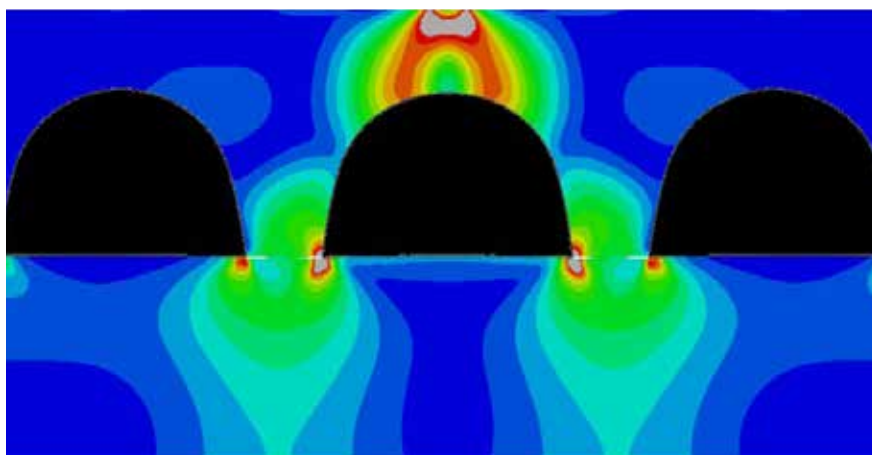
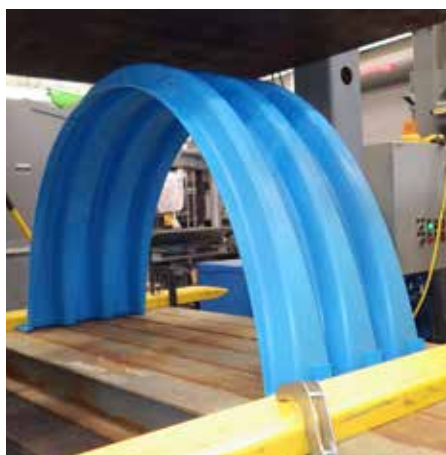
## SAFETY FIRST!

### Eliminate flooding with CULTEC stormwater chambers

- Reduce road accidents, washouts and driver delays
- Minimize building and property damage, sewer backup and foundation settlement
- Lower clean-up costs, health hazards and environmental damage

## Chamber Design

The arched shape and corrugated design of the chamber effectively transfers live and dead loads to the subgrade. Stone columns between chamber rows also share in the load transfer. CULTEC chambers undergo rigorous testing. Select profiles meet the performance requirements of the American Society for Testing and Materials (ASTM) F2418, and meet the loads defined by the American Association of State Highway and Transportation Officials (AASHTO) (Section 12.12) Load Resistance Factor Design (LRFD) and the CAN/CSA-S6-14 CL-625 Design Truck. The Recharger 902HD has achieved third-party certification to the Canadian Standards Association (CSA) B184 standard for polymeric subsurface stormwater management structures. Chambers are constructed of impact-modified and long-term creep resistant polymers, ensuring that the chambers achieve a minimum 50-year service life.



### Let us help you with your next project!

Contact a CULTEC Representative to arrange complimentary design assistance.

You'll receive project-specific stage-storage calculations, CAD layouts, details and product submittal packages.

CULTEC's intuitive design tools are also available to manually complete your design.

Download the CULTEC Stormwater Design Calculator, Incremental Storage Calculator and CAD design templates to complete an accurate, site-specific layout complete with stage-storage calculations.

Visit [www.cultec.com/stormwater-design.html](http://www.cultec.com/stormwater-design.html) for design assistance.



# Installation

Refer to CULTEC’s most current installation instructions for further details including but not limited to acceptable fill materials and vehicle loads.

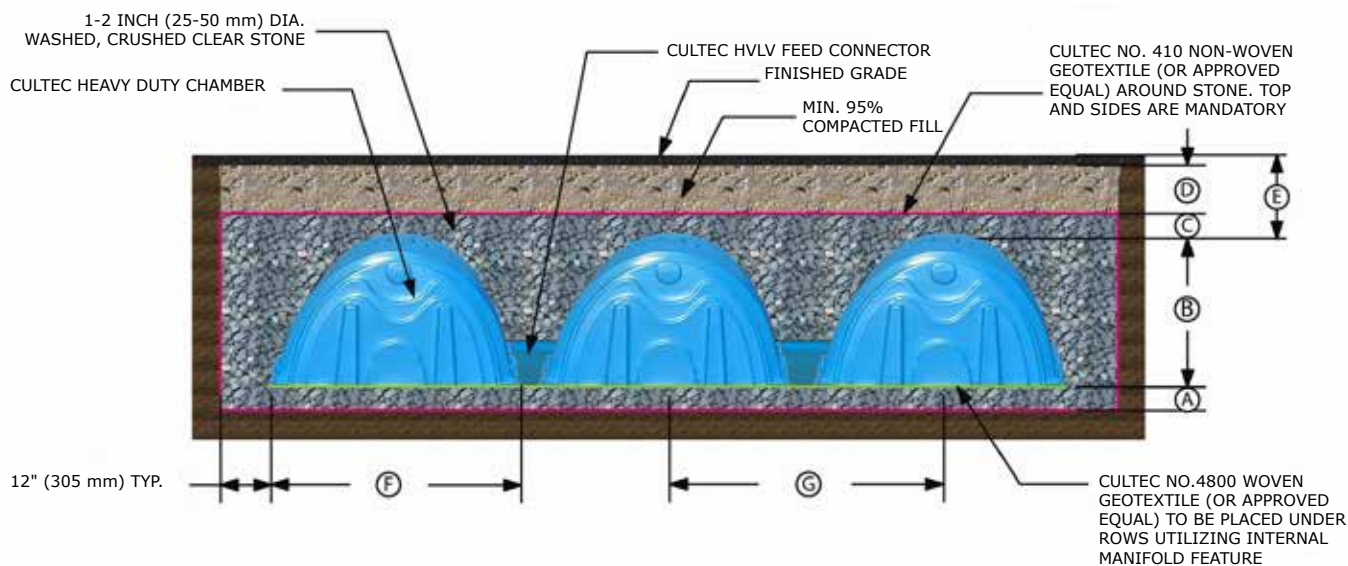
For design assistance, contact CULTEC’s Technical Department at [tech@cultec.com](mailto:tech@cultec.com) or 203-775-4416 ext. 203.

**Table 1 - Minimum Fill Requirements for Traffic Applications**

	Ref.	Contactor® Field Drain C-4HD	Contactor® 100HD	Recharger® 150XLHD	Recharger® 180HD	Recharger® 280HD	Recharger® 330XLHD	Recharger® 360HD	Recharger® 902HD
Min. depth of stone base	A	6" 152 mm	6" 152 mm	6" 152 mm	6" 152 mm	6" 152 mm	6" 152 mm	6" 152 mm	9" 229 mm
Chamber height	B	8.5" 216 mm	12.5" 318 mm	18.5" 470 mm	20.5" 521 mm	26.5" 673 mm	30.5" 775 mm	36" 914 mm	48" 1219 mm
Min. depth of stone required above units for traffic applications	C	6" 152 mm	6" 152 mm	6" 152 mm	6" 152 mm	6" 152 mm	6" 152 mm	6" 152 mm	12" 305 mm
Min. depth of 95% compacted fill required for paved traffic applications	D	8" 203 mm	8" 203 mm	8" 203 mm	8" 203 mm	8" 203 mm	10" 254 mm	12" 305 mm	12" 305 mm
Max. depth of cover allowed above crown of chamber	E	12' 3.66 m	12' 3.66 m	12' 3.66 m	12' 3.66 m	12' 3.66 m	12' 3.66 m	12' 3.66 m	8.3' 2.53 m
Chamber width	F	48" 1219 mm	36" 914 mm	33" 838 mm	36" 914 mm	47" 1194 mm	52" 1321 mm	60" 1525 mm	78" 1981 mm
Typical center-to-center spacing	G	48" 1219 mm	40" 1016 mm	39" 991 mm	39" 991 mm	52" 1321 mm	58" 1473 mm	69" 1753 mm	87" 2211 mm

**NOTES:**

- Structurally designed to withstand HS-20/HS-25 live loads in accordance with AASHTO



For more information, contact CULTEC at (203) 775-4416 or visit [www.cultec.com](http://www.cultec.com).



Find out how CULTEC's Stormwater Chamber Systems can be used on your next project.

**Contact us today.**

**CULTEC, Inc.**

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