

Stormwater Information

Our 2006 Quick Stormwater Design Guide is now available online in .pdf format on our Downloads page.

For design and technical assistance, call CULTEC, Inc. at 1-800-4-CULTEC, Ext. 3 (*1-800-428-5832, Ext. 3*).

	Contactor® Model 100	Contactor® Model 100HD	Recharger® Model 150	Recharger® Model 280	Recharger® Model 330	Recharger® Model V8I
Overall Chamber Length (ft)	8.00	8.00	8.50	8.00	7.50	8.00
Installed Chamber Length (ft.)	7.40	7.50	7.50	7.00	6.25	7.50
Chamber Length Adjustment (ft.)	0.60	0.50	1.00	1.00	1.25	0.50
Chamber Width (in.)	36	36	33	47	52	54
Chamber Height (in.)	12.5	12.5	18.5	26.5	30.5	34
Chamber Volume (cu. ft. / ft.)	1.961	1.866	2.650	6.079	7.459	8.933
40% Stone Void Volume (cu. ft. / ft.)	1.938	1.976	2.244	3.130	3.864	4.093
Total Min. Retention Storage Volume (cu. ft. / ft.)	3.90	3.84	4.89	9.21	11.32	13.03
Total Min. Retention Storage Volume (cu. ft. / unit)	28.85	28.81	36.71	64.46	70.77	97.72
Surface Area Required (sq. ft. / unit)	24.67	25.00	24.38	30.33	30.21	37.50
Min. Stone Required (cu. ft. / unit)	35.85	37.05	42.08	54.77	60.37	76.75
Min. Effective Depth (ft.)	2.04	2.04	2.54	3.21	3.54	3.83
Min. Center to Center Spacing (Design Unit Width) (ft.)	3.33	3.33	3.25	4.33	4.83	5.00

All calculations based on installed chamber length. Assumes 6" stone base and 6" stone above units. Total storage retention is the minimum storage when installed surrounded in stone according to above spacing and burial recommendations. Storage volume may be increased by adding additional stone above or below the units.



CULTEC Stormwater Retention/Detention Infiltration Chambers

The Environmental Protection Agency (EPA) requires the control of stormwater runoff since the passage of the Clean Water Act (CWA). Stormwater discharges are generated by runoff from land and impervious areas such as paved streets, parking lots, and building rooftops during rainfall and snow events. These discharges often contain pollutants in quantities that could adversely affect water quality. Most stormwater discharges are considered point sources and require coverage by a National Pollutant Discharge Elimination System (NPDES) permit. The primary method to manage stormwater discharge is through the use of best management practices (BMPs) which help reduce the quantity and improve the quality of stormwater runoff. One BMP solution is underground stormwater storage by infiltration (exfiltration) basins. A benefit to using this type of system is simultaneous pollution prevention and regeneration of lakes, rivers and other natural water resources. Infiltration systems are one of the few means that provide significant groundwater recharge in areas with a high percentage of impervious surface area.

CULTEC, Inc. developed retention/detention infiltration and storage chamber systems to concurrently protect our environmental resources and meet EPA stormwater management regulations while complying with the AASHTO requirements.



CULTEC, Inc. is the manufacturer of CULTEC Recharger® Plastic Stormwater Detention/Retention Chambers, CULTEC HVLV™ Header System and CULTEC Stormfilter® Stormwater Filter Chamber. CULTEC is deemed one of the foremost authorities in plastic stormwater systems product design. The concept of HDPE plastic chambers derived from concrete structure predecessors.

Each of the products listed below are used in conjunction with each other to provide a BMP manner of subsurface stormwater management in accordance to Phase II of the federally mandated Clean Water Act. The Clean Water Act mandates that a certain percentage of stormwater run-off be contained and treated on-site. This means that developers and homeowners need

to capture and contain a degree of stormwater run-off that is shed by their impervious structures such as buildings and parking areas. Infiltration has been proven to be the leader in the removal of phosphorous, nitrogen, lead, zinc, suspended solids and organic carbon when compared to wetlands, water quality ponds, filtering systems and water quality swales.

Systems may be installed quickly and easily using a patented overlapping rib connection unique to CULTEC chambers. They require less stone and area than most pipe systems. They allow land to be used for other purposes such as parking. They are lightweight (up to 70 lbs each), yet they can withstand AASHTO H20 (32,000 lbs/axle) designation.

Water enters from a collective device, typically from a catch basin inlet structure; it then passes through our CULTEC Stormfilter® Stormwater Filter Chamber to remove silt, fines and debris. The stormwater is then conveyed from the CULTEC Stormfilter® by our CULTEC HVLV™ Header System and directed into the CULTEC Recharger® Chambers for storage until it can infiltrate back into the ground.

CULTEC Stormfilter® Stormwater Filter Chamber

A plastic chamber consisting of series of pass-thru filter frames to remove debris, silt and fines from stormwater. The Stormfilter® can be entered and serviced through a top access opening brought up to grade. It is a value-engineering option to more cost-prohibitive alternatives.

CULTEC HVLV™ (High Volume, Low Velocity) Header System

The HVLV Header System is a combination of plastic chamber-type sections that interlock together and have side portals to make necessary tee connections for feed lines into the plastic stormwater chambers. High volumes of stormwater are able to be conveyed in a lower profile than its conventional pipe equivalent. This means less excavation, stone, time and labor. The HVLV™ Header utilizes a patented overlapping rib connection for quick installation. Their design presets center to center spacing of CULTEC Recharger® chambers and feed entry elevations. It eliminates costly and labor intensive conventional pipe manifold systems which require multiple tee connections, cutting and critical alignment.

CULTEC Recharger® Plastic Stormwater Chambers

Dome-shaped, fully open bottom corrugated chambers with perforated sidewalls. The chambers allow stormwater to be stored within the dome void until it can infiltrate into the ground. They are able to be used for residential or commercial use. They free up land areas that would be required for open retention/detention ponds and puts the system underground (such as under parking areas). Water is infiltrated into the ground and replenishes the surrounding soil and aquifer on-site rather than storing it above ground (health liability issues such as West Niles breeding grounds for mosquitoes, or drowning) or redirecting it to a watercourse and potentially overloading or polluting our natural surroundings and resources. The lightweight plastic chambers replace conventional pipe and stone systems, concrete structures or above ground drainage areas such as ponds or swales.



Tiered Recharger 330HD System - 1664 pieces

The installation of a multi-layer CULTEC Chamber system differs from its single layer requirements. We will be happy to assist you in your multi-layer configuration.

Please contact our Technical Department directly at 203-775-4416 for further information.

Product	Avg. Outside Pipe Diameter or Chamber Height (inches)	Storage Capacity (cu. ft. / ft)	Storage Advantage over Comparable Sized Pipe
HVLV™ F24 Feed Connector	12.00	0.819	1.1% greater than 12" pipe
Contacto® 100HD	12.50	1.866	4.8% greater than 18" pipe
Contacto® 100	12.50	1.961	10.1% greater than 18" pipe
12" HDPE	14.45	0.810	
15" HDPE	17.57	1.220	
HVLV™ F110 Feed Connector	18.00	1.968	10.6% greater than 18" pipe
Recharger® 150	18.50	2.650	48.9% greater than 18" pipe.
HVLV™ 180 Header Section	20.50	3.445	9% greater than 24" pipe.
18" HDPE	21.20	1.780	
Recharger® 280	26.50	6.079	23.8% greater than 30" pipe
24" HDPE	27.80	3.160	
Recharger® 330	30.50	7.459	5.5% greater than 36" pipe
Recharger® V8	34.00	8.933	26.4% greater than 36" pipe
HVLV™ V8 Header Section	34.00	8.933	26.4% greater than 36" pipe
30" HDPE	35.10	4.910	
36" HDPE	41.70	7.070	
42" HDPE	47.70	9.350	

CULTEC Chambers have a higher storage capacity in a lower profile product and require less stone than HDPE pipe.

For example, a CULTEC Recharger® 330 is 30.5" tall whereas 30" HDPE pipe has an average outside diameter of 35.1"—4.6" greater than the CULTEC Chamber.

In addition, the storage capacity of a CULTEC Recharger® 330 chamber is over 50% greater than 30" HDPE pipe. Even a 36" HDPE pipe (41.7" outside diameter) can not compete with the CULTEC Recharger® 330 for storage capacity—7.459 cu. ft./ft. versus 7.07 cu. ft./ft.

Spacing between HDPE pipe is 12-inches up to 24-inches in diameter, and half the inside diameter for 30-inch and larger sizes. On the other hand, spacing between CULTEC chambers is typically no more than 6-inches.

	CULTEC Stormwater Chambers	Large Diameter Pipe Systems
Maintenance	No maintenance is required on the chambers themselves. All maintenance is to be performed on the collective systems and/or filtering devices. Catch basins should be pumped and emptied regularly. CULTEC promotes the use of its Stormfilter® Stormwater Filtering Chamber to further clean the water prior to entering the HVLV™ Header and chamber system.	Although pipe may be pumped and jetted, the silts and fines are only displaced from their original position within the pipe and forced into the surrounding stone backfill. Therefore, the system is still corroded. This is not an effective maintenance program.
Structural Integrity	No reported failures on any CULTEC product. Tested and exceed AASHTO H10 and H20 standards by a minimum of 3.75 times.	Incorrect installation can lead to pipe squaring and eventual pipe failure. Proper haunching of the pipe may be difficult if not impossible resulting in open spaces within the system and more probable shifting of pipes.
Space Efficiencies and Cost	CULTEC offers a large variety of sizes able to accommodate almost any site constraint. Our higher profile Recharger® series makes optimal usage of large storage capacities in a smaller footprint. Our Recharger® 330HD chambers may be installed in a multi-layer configuration to reduce the overall land area required. A CULTEC Stormwater system is typically less expensive than an equally sized pipe system.	Able to store large volumes in relatively small areas, however, the overall cost of the system may exceed any benefits.

CULTEC CHAMBERS	COMPETITOR CHAMBERS
10-yr. WARRANTY	1-yr. WARRANTY
LONG-TERM PROVEN HISTORY CULTEC has eighteen (18) years of proven history, with no reported failures on any properly installed system since the company began in 1986.	HISTORY NOT YET ESTABLISHED Our competitor's chamber has only been around approximately two (2) years and has not yet established a long history.
CHEMICALLY RESISTANT CULTEC manufactures (HDPE) polyethylene chambers which are chemically resistant to oil, gasoline and anti-freeze all found in parking lot run-off. <i>Packaging materials used for motor oil and gas cans = HDPE</i>	NOT THE SAME CHEMICAL RESISTANCE Our competitor's (PP) polypropylene chambers do not have the same chemical resistance.
NO SEPARATE END PLATES Our chambers have the endplates formed directly onto the part during the manufacturing process thus making a stronger unit.	SEPARATE ENDPLATES REQUIRED Separate endplates must be added onto the chamber in the field.
PATENTED REPEATING ENDWALL CULTEC has a patented repeating cross-strut support wall on every chamber making CULTEC chambers stronger than systems which do not have an internal support wall. These support walls have no effect on flow throughout the system yet assist in keeping the structure intact. <i>CULTEC's support panels may be removed, if desired.</i>	NO REPEATING ENDWALL The competitor's chambers do not have an internal support wall within their chamber line.
MORE STORAGE PER CHAMBER CULTEC's largest chamber has more storage per chamber (46.5 CF/unit) than the competitor.	LESS STORAGE PER CHAMBER Our competitor has less storage per chamber (45.9 CF/unit).
LESS CHAMBERS REQUIRED When keeping the stone quantity a constant, CULTEC requires fewer chambers per installation.	MORE CHAMBERS REQUIRED When keeping the stone quantity a constant, our competitor requires more chambers per installation.
OVERALL COST SAVINGS Although the unit cost of our chambers may be slightly more expensive than the competitor, we are able to provide an overall cost savings on the entire installation. More storage per chamber in a smaller footprint Less or equal stone required Smaller bed area More shallow burial depth Less excavation Less heavy equipment & labor time	OVERALL MORE COSTLY Although the competitor's unit cost may be slightly less expensive than CULTEC, their overall installation may be more costly. Less storage per chamber in a larger footprint Equal or more stone required Larger bed area Deeper burial depth More excavation More heavy equipment & labor time
UNIQUE MANIFOLD SYSTEM CULTEC has developed its own High Volume, Low Velocity (HVLV™) header system which presets the center to center spacing of the stormwater storage chambers, is lightweight, user-friendly and is a cost-effective alternative to conventional pipe manifolds. No special fittings required. <i>A conventional pipe manifold may also be used, if desired.</i>	CONVENTIONAL PIPE MANIFOLD Our competitor uses a separate pipe manifold that requires critical alignment for determining center to center spacing of their chambers, heavy equipment for placement, stone haunching, critical in-field cuts and requires special large diameter fittings.
SPECIALIZED FILTRATION CHAMBER CULTEC manufactures Stormfilter® Filtration Chamber to pretreat stormwater within the small footprint of one chamber specifically produced for access and maintenance. The unit may be flushed and vacuumed out. Filters may be easily replaced. <i>CULTEC can duplicate the competitor's proposed filtration system, if desired.</i>	PROVISIONAL FILTRATION SYSTEM Our competitor promotes the use of a designated chamber row for filtration. The proposed JetVac maintenance program does not allow for full cleaning of the system. Silts, fines and debris may become embedded within the filter media. The woven filter fabric can not be replaced without removing the entire chamber row.