

# Hydrodynamic Separation



# The experts you need to solve your stormwater challenges



**Contech is the leader in stormwater solutions, helping engineers, contractors and owners with infrastructure and land development projects throughout North America.**

With our responsive team of stormwater experts, local regulatory expertise and flexible solutions, Contech is the trusted partner you can count on for stormwater management solutions.

## Your Contech Team



### **STORMWATER CONSULTANT**

*It's my job to recommend the best solution to meet permitting requirements.*



### **STORMWATER DESIGN ENGINEER**

*I work with consultants to design the best approved solution to meet your project's needs.*



### **REGULATORY MANAGER**

*I understand the local stormwater regulations and what solutions will be approved.*



### **SALES ENGINEER**

*I make sure our solutions meet the needs of the contractor during construction.*

**Contech is your partner in stormwater management solutions**



## Removing Pollutants using Hydrodynamic Separation

HDS systems play a vital role in protecting our waterways by removing high levels of sediment, trash, debris, and hydrocarbons from stormwater runoff.

Frequently used as end-of-pipe solutions, they are also used to provide stormwater quality treatment in places where space is limited.

HDS systems capture and retain a variety of stormwater pollutants and are very easy to maintain. These two key benefits have resulted in new uses for HDS technologies, such as pretreating detention, Low Impact Development, and green infrastructure practices, as well as other land-based stormwater treatment systems.

*Utilize high-performance hydrodynamic separation to effectively remove finer sediment, oil and grease, and floating and sinking debris.*

CASCADE  
separator®

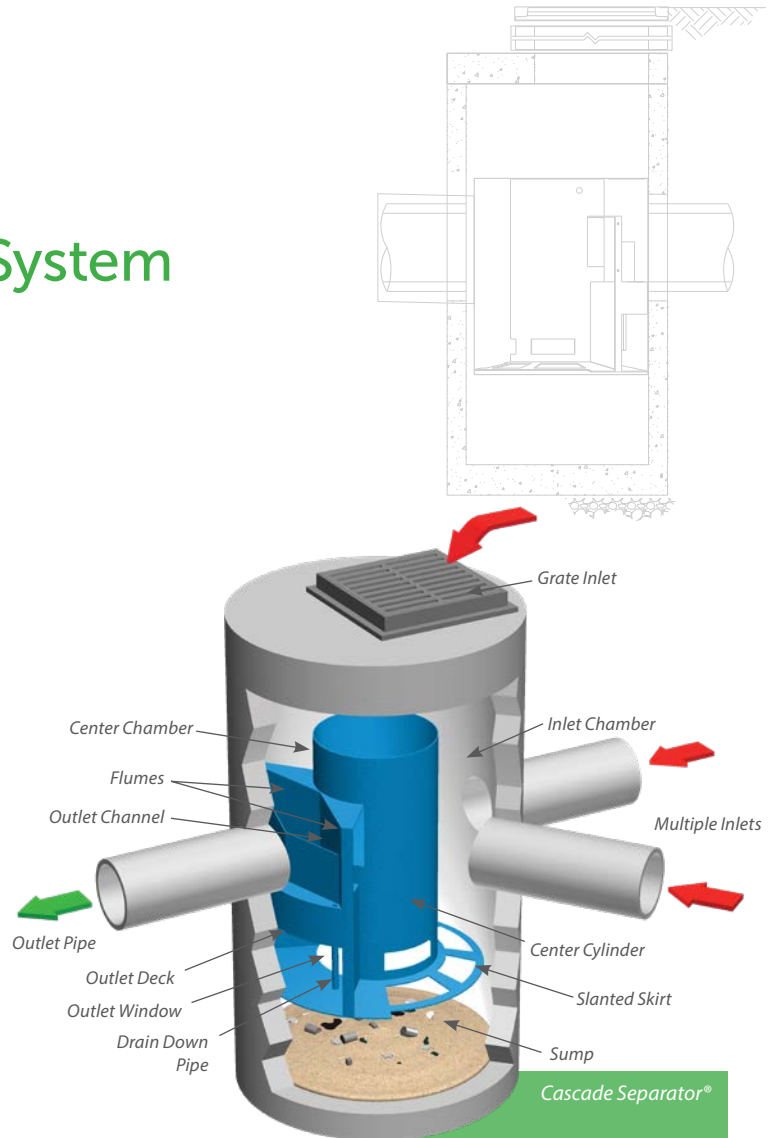


# The Cascade Separator® System

## Advanced Sediment Capture Technology ...

The Cascade Separator® is the newest innovation in stormwater treatment from Contech. The Cascade Separator was developed by Contech's stormwater experts using advanced modeling tools and Contech's industry leading stormwater laboratory.

This innovative hydrodynamic separator excels at sediment capture and retention while also removing hydrocarbons, trash, and debris from stormwater runoff. What makes the Cascade Separator unique is the use of opposing vortices that enhance particle settling and a unique skirt design that allows for sediment transport into the sump while reducing turbulence and resuspension of previously captured material. These two factors allow the Cascade Separator to treat high flow rates in a small footprint, resulting in an efficient and economical solution for any site.



FEATURE	BENEFIT
Unique skirt design & opposing vortices	Superior TSS removal; reduced system size and costs
Inlet area accepts wide range of inlet pipe angles	Design and installation flexibility
Accepts multiple inlet pipes *	Eliminates the need for separate junction structure
Grate inlet option*	Eliminates the need for a separate grate inlet structure
Internal bypass	Eliminates the need for a separate bypass structure
Clear access to sump and stored pollutants	Fast, easy maintenance

\* NJDEP testing based on Cascade Separator with one inlet pipe and no grate inlet

Learn More:  
[www.ContechES.com/cascade](http://www.ContechES.com/cascade)

### SELECT CASCADE APPROVALS

- New Jersey Department of Environmental Protection Certification (NJDEP)

### CASCADE MAINTENANCE

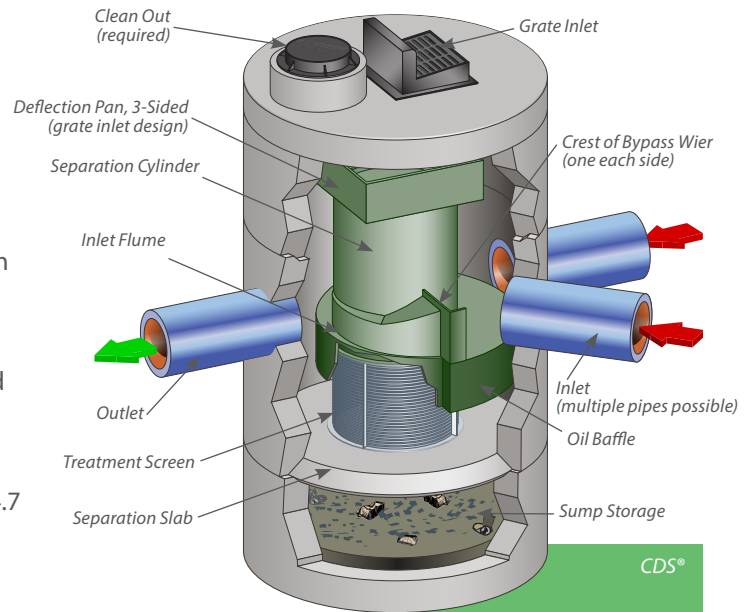
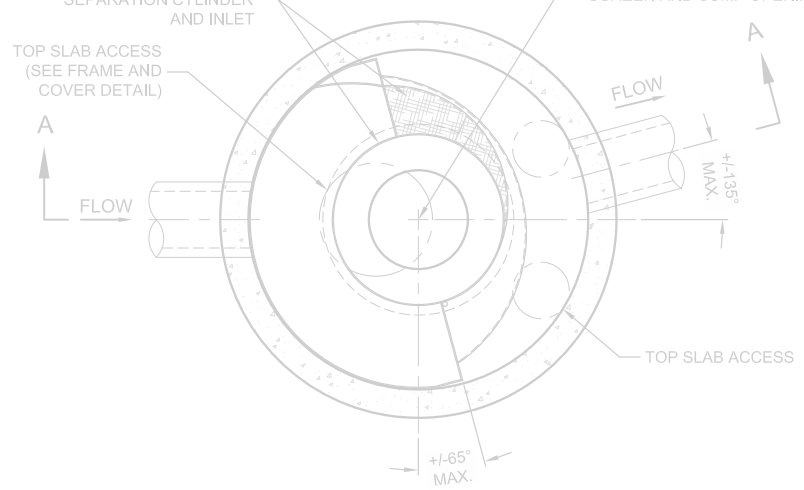
Cascade provides unobstructed access to stored pollutants, making it easy to maintain using a vacuum truck, with no requirement to enter the unit.

# The CDS® System

## Superior Trash Removal ...

The CDS is a hybrid technology that uses a combination of swirl concentration and indirect screening to separate and trap trash, debris, sediment, and hydrocarbons from stormwater runoff.

At the heart of the CDS system is a unique screening technology used to capture and retain trash and debris. The screen face is louvered so that it is smooth in the downstream direction. The effect created is called “Continuous Deflective Separation.” The power of the incoming flow is harnessed to continually shear debris off the screen and to direct trash and sediment toward the center of the separation cylinder. This results in a screen that is self-cleaning and provides 100% removal of floatables and neutrally buoyant material debris 4.7 mm or larger, without blinding.



FEATURE	BENEFIT
Captures and retains 100% of floatables and neutrally buoyant debris 4.7 mm or larger	Superior trash removal
Self-cleaning screen	Ease of maintenance
Isolated storage sump eliminates scour potential	Excellent pollutant retention
Internal bypass	Eliminates the need for additional structures
Multiple pipe inlets and 90-180° angles	Design flexibility
Clear access to sump and stored pollutants	Fast, easy maintenance

Learn More:  
[www.ContechES.com/cds](http://www.ContechES.com/cds)

### SELECT CDS APPROVALS

- Washington Department of Ecology (GULD) – Pretreatment
- Canadian Environmental Technology Verification (ETV)
- California Statewide Trash Amendments Full Capture System Certified\*

\* The CDS System has been certified by the California State Water Resources Control Board as a Full Capture System provided that it is sized to treat the peak flow rate from the region specific 1-year, 1-hour design storm, or the peak flow capacity of the corresponding storm drain, whichever is less.

# The Vortechs® System

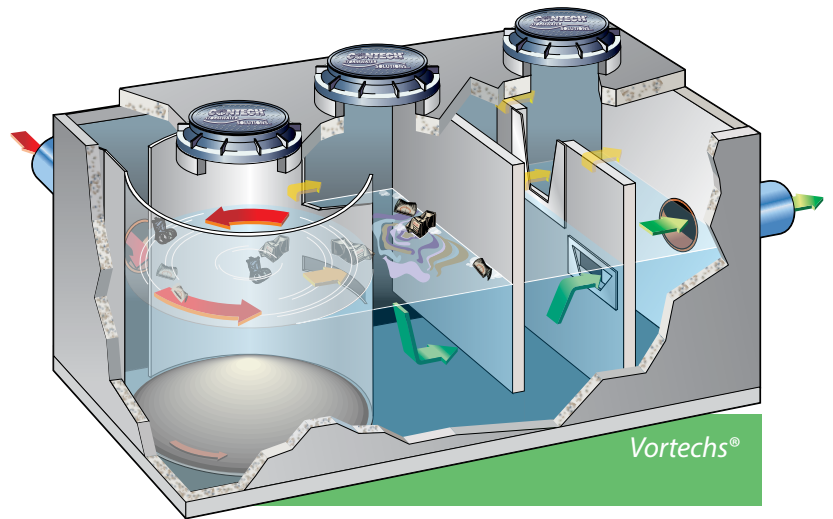
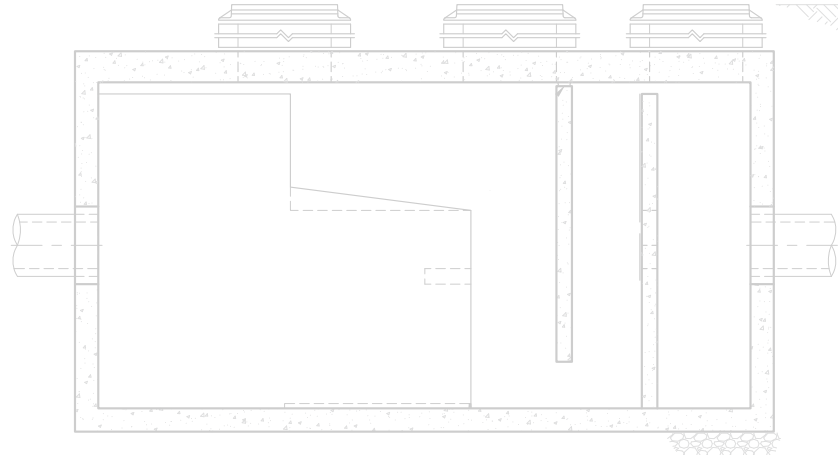
## Stormwater Treatment in a Shallow Footprint ...

Vortechs combines swirl concentration and flow controls into a single treatment unit that captures and retains trash, debris, sediment, and hydrocarbons from stormwater runoff.

The Vortechs system's large swirl chamber and flow controls work together to create a low energy environment, ideal for capturing and retaining particles down to 50 microns.

Vortechs is the ideal solution for sites with high groundwater, bedrock, utility conflicts, or sites with a large volume runoff.

The Vortechs System is approved by the Washington Department of Ecology (GULD) - Pretreatment.



## Select Vortechs Approvals

- Washington Department of Ecology (GULD) – Pretreatment

Learn More:

[www.ContechES.com/vortechs](http://www.ContechES.com/vortechs)

FEATURE	BENEFIT
Large swirl chamber	Fine particle removal down to 50 microns
Shallow profile – Typical depth below pipe invert is only 3 feet.	Can be used on sites with high groundwater, bedrock, or utility conflicts
Unobstructed access to stored pollutants	Fast, easy maintenance

The ideal solution for sites with high groundwater

# Hydrodynamic Separator Selection & Sizing Tool

Hydrodynamic Separation Product Calculator Jane Smith (external)

Project Name : Birmingham Gas Station Site Designation : WQ

1 Project 2 Design 3 Treatment 4 Performance

System Sizing

Treatment System Options

CDS or Cascade Separator

User Selected Treatment System \*

Cascade Separator [Learn More About Cascade Separator](#)

Particle Size Distribution or D50 \*

110

System Model

CS-4

Predicted Net Annual Removal Efficiency (%)

80.85

The peak flow rate exceeds the maximum capacity of the unit. The unit must be placed offline.  
[Contact Us](#)

**Cascade Separator Features**

The diagram illustrates the internal structure of a Cascade Separator. It features a central blue cylinder surrounded by a slanted skirt that leads to a sump at the bottom. Multiple inlets enter from the sides into an inlet chamber, which then flows through flumes into a central chamber. From there, the water passes through an outlet channel and an outlet deck with windows, finally exiting through an outlet pipe. A grate inlet is located at the top of the unit.

Learn More:

[www.ContechES.com/designcenter](http://www.ContechES.com/designcenter)

## Quickly prepare designs for estimates and project meetings ...

Engineers are always looking for new ways to quickly prepare designs for estimates and project meetings. Contech has developed an online tool to help with the hydrodynamic separation product selection process... the Hydrodynamic Separator Selection and Sizing Tool.

Part of the Contech Design Center, this free, online tool fully automates the layout process for identifying the proper hydrodynamic separator for your site. You can create multiple systems for each project while saving all project information for future use.

- Multiple sizing methods available.
- Site-specific questions ensure the selected unit will comply with site constraints.
- Multiple treatment options may be available based on regulations and site parameters.
- Follow up reports contain a site-specific design, sizing summary, standard detail, and specification.

**CONTECH**<sup>®</sup>  
**DESIGNCENTER**  
DESIGN MADE EASY

A free, online tool to aid in the selection of a hydrodynamic separation solution.

# A partner you can rely on



STORMWATER  
SOLUTIONS



PIPE  
SOLUTIONS



STRUCTURES  
SOLUTIONS

Few companies offer the wide range of high-quality stormwater resources you can find with us — state-of-the-art products, decades of expertise, and all the maintenance support you need to operate your system cost-effectively.

## THE CONTECH WAY

Contech® Engineered Solutions provides innovative, cost-effective site solutions to engineers, contractors, and developers on projects across North America. Our portfolio includes bridges, drainage, erosion control, retaining wall, sanitary sewer and stormwater management products.

## TAKE THE NEXT STEP

For more information: [www.ContechES.com](http://www.ContechES.com)

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