TREATING

EFFECTIVE AND EASILY MAINTAINED TREATMENT SOLUTIONS
EFFECTIVE AND EASILY MAINTAINED TREATMENT SOLUTIONS

When it rains, surface runoff carries pollutants, suspended solids and hydrocarbons. Floating debris is swept through collection systems in subsurface networks. Degradation of the receiving environment is becoming a routine environmental issue, forcing network managers to modify their approach and to implement best management practices.

Soleno offers effective solutions for meeting surface runoff quality control objectives. Our perfectly watertight HDPE solutions, with no moving parts, can be used alone or together to create an effective and easily maintained treatment train. Settling, hydrodynamic separation, filtration and infiltration are among the solutions available for eliminating suspended solids.

Soleno’s solutions come with complete technical documentation, allowing system administrators to effectively control what is being directed to receiving environments.

At the time of printing, the Soleno Aqua-Swirl treatment systems are in the process of being certified by ETV Canada. The information on all our products and certifications are always available and up-to-date on our website.
TABLE OF CONTENTS

CONTROL OF TOTAL SUSPENDED SOLIDS (TSS), OILS AND FLOATING DEBRIS USING HYDRODYNAMIC SEPARATION
- Aqua-Swirl – Storm water treatment system
- Operation
- Advantages and benefits

CONTROL OF TOTAL SUSPENDED SOLIDS (TSS), OILS AND FLOATING DEBRIS USING SETTLING AND SEPARATION
- Storm water settling tank
- Operation
- Advantages and benefits

CONTROL OF TOTAL SUSPENDED SOLIDS (TSS), NUTRIENTS, HEAVY METALS AND HYDROCARBONS
- Aqua-Filter – Storm water treatment system
- Operation
- Advantages and benefits

CONTROL OF SEDIMENTS AND FLOATING DEBRIS
- Treatment catch basin with smooth exterior wall
- Operation
- Advantages and benefits
HYDRODYNAMIC SEPARATION
Control of Total Suspended Solids (TSS), oils and floating debris by hydrodynamic separation.

This system maximizes removal of Total Suspended Solids (TSS), hydrocarbons and floating debris from surface runoff before they are conveyed to an outlet.

LEED®

For several years in Quebec and elsewhere in Canada, it has been possible to obtain environmental certifications for the design and construction of sustainable buildings. Businesses and organizations use the LEED® certification program or other certification systems, to develop the necessary tools that have an immediate and measurable impact on their buildings’ performance.

Some solutions available from Soleno are eligible for the obtainment of credits leading to certification. Whether for the Sustainable Sites (SS), Water Efficiency (WE) or credits relating to Materials and Resources (MR) under the LEED program, or for other opportunities for certification, please contact the Soleno team to learn more about how our solutions can positively contribute to your obtainment of a certification for your project.

1 Canada Green Building Council’s Leadership in Energy and Environmental Design
AQUA-SWIRL®
STORM WATER TREATMENT SYSTEM

Size of particles to control: from coarse silt to very coarse sand (60 microns and over).
In addition to recovering oils and floating debris, it helps to effectively eliminate Total Suspended Solids (TSS).

OPERATION

1. Sediments, floating debris and oils penetrate storm water sewers.
2. Contaminated water enters the Aqua-Swirl through the main sewer pipe or the diversion channel.
3. The Aqua-Swirl vortex hydrodynamic separator recovers sediments and floating debris. Once it has been cleaned of sediments, oils and other debris, the water is conveyed to an outlet.
4. Analysis in independent laboratories has produced conclusive, positive results with respect to elimination of Total Suspended Solids (TSS).

Inspection and maintenance: Inspection and maintenance are facilitated by chimneys providing access to recover oils and sediments.

Diversion: Systems are sized to treat design flow and use internal and external diversion channels to manage extreme weather events.

Pipe connections: Our systems are custom designed with a range of entry and outlet diameters at various configuration angles.

Vortex separation: Uses hydrodynamics and gravity to recover suspended solids (TSS).

Storage capacity: Large storage capacity for oils, debris and sediments helps to spread out maintenance cycles. Sediment storage capacity may reach 7.64 m³ (25 ft³). Debris storage capacity may reach 6,427 litres (1,698 U.S. gallons).

Aqua-Swirl System: Provides customized solutions for every project. Systems are designed for specific treatment flows. Various sizes are available: from 750 mm (30 in) to 3,600 mm (140 in). Aqua-Swirl includes access chimneys, grates and lids.

Installation: Quick and easy, providing significant savings in project costs. Withstands CL-625 and H-20 loads. Its size reduces excavation costs. Lightweight and sustainable construction. Lift eyelets and cables provided.

ADVANTAGES AND BENEFITS

- Aqua-Swirl is available in a range of diameters for removing sediments at greater treatment rates than competing systems.
- Simple system without interior moving parts.
- The hydrodynamic separator is easy to maintain because it provides direct surface access to the sediment pyramid accumulated in the reservoir.
- This system eliminates work in confined spaces.
- Aqua-Swirl is made from durable, lightweight and corrosion-resistant high density polyethylene (HDPE).
SETTLING AND SEPARATION

Control of suspended solids (TSS), oils and floating debris using settling and separation

System that helps remove suspended solids (TSS), oils and floating debris from surface runoff before they are conveyed to an outlet.
SETTLING AND SEPARATION TANK FOR STORM WATER

Size of particles to control: from very fine sand to very coarse sand (100 microns and over)
It helps to effectively eliminate Total Suspended Solids (TSS).

OPERATION

1. When it rains, surface runoff carries suspended sediments, oils and floating debris. Collection systems direct water to a storm water sewer which channels it to a settling tank.
2. When water carrying suspended pollutants enters the tank, its velocity is reduced to begin the settling process.
3. Suspended solids are deposited through settling upstream from the first vertical plate. Oils and floating debris are retained by the second plate.

Inspection and maintenance: Inspection and maintenance are performed from the surface, using two chimneys that provide access to the sediments deposited upstream from the first plate and the oils and floating debris retained in the second compartment. Work in confined spaces is not required.

Pipe connections: Soleno offers dependable connections, compatible with all materials usually used for construction of storm water sewers (HDPE, PVC, concrete and CSP).

Installation: quick and easy, providing significant savings in project costs. Withstands CL-625 and H-20 loads. Its size reduces excavation costs. Lightweight and durable construction.

Separation by settling: Gravity is used to separate suspended solids and oils.

Treatment capacity: Soleno’s settling tank treats up to 550 l/s (145 gallons/sec) and helps eliminate sediments and suspended solids greater than 100 microns.

ADVANTAGES AND BENEFITS

• An economical solution in a range of diameters up to 3,350 mm (132 in), allowing for very high treatment rates.
• An ideal solution for removing sand particles.
• Simple system without interior moving parts.
• The storm water settling tank is made from durable, lightweight and corrosion-resistant high density polyethylene (HDPE).
• Monolithic solution up to 15.24 m (50 ft) in length.
• This system eliminates work in confined spaces.
FILTRATION

Control of suspended solids (TSS), nutrients, heavy metals and hydrocarbons.

System that maximizes the removal of suspended solids (TSS), nutrients, heavy metals and hydrocarbons from surface runoff before they are conveyed to an outlet.
**AQUA-FILTER™**
**STORM WATER TREATMENT SYSTEM**

Size of particles to control: from clay to medium silt (20 microns and over). It helps to effectively eliminate Total Suspended Solids (TSS).

**OPERATION**

1. Fine sediments and oils are trapped by the storm water sewer.
2. The Aqua-Swirl vortex hydrodynamic separator recovers oils and floating debris.
3. The Aqua-Filter eliminates fine sediments, nutrients and oils.
4. Filtration elements are accessible by two maintenance access chimneys.
   - Independent laboratory analysis confirms treatment train performance.

**Installation:** Easy installation without a crane, providing significant savings in project costs. Lift eyelets and handling cables provided.

**Inspection and maintenance:** Inspection and maintenance are facilitated by manholes providing access to recovered sediments and filtration elements.

**Filter cartridges:** Filter cartridges eliminate small suspended particles, nutrients, heavy metals and hydrocarbons. Various types of filtration media are available.

**Aqua-Filter System:** Treatment train adapted to the specific needs of each project. An Aqua-Filter always requires an Aqua-Swirl.

**Vortex separation:** Uses hydrodynamics and gravity to recover suspended solids (TSS). See Aqua-Swirl page 4.

**Pipe connections:** Our systems are custom designed with a range of entry and outlet diameters at various configuration angles.

**ADVANTAGES AND BENEFITS**

- Specifically designed for every treatment rate.
- Filtration media are available for each type of pollutant to be eliminated. They are easy to remove during maintenance.
- Lightweight HDPE construction.
- Aqua-Filter is equipped with an internal diversion system able to control peak flows.
CONTROL
of sediments and floating debris

Structure that helps maximize removal of sediments and floating debris from surface runoff at the source to prevent it from dispersing through the whole network.
TREATMENT CATCH BASIN

Particles to control: Sediments and floating debris.

OPERATION

1. During rainfall events, surface runoff carries sediments and floating debris. Collection systems direct water to the storm water sewer system.
2. A portion of the suspended sediments is deposited at the bottom of the catch basin.
3. Because of its permanently submerged water intake, the treatment catch basin ensures retention and accumulation of floating pollutants.
4. The treatment catch basin acts directly at the source to prevent pollutants dispersing through the whole storm water sewer network.

Inspection and maintenance: As with conventional catch basins, inspection and maintenance are performed from the surface. Sediments and floating debris are pumped out with equipment used for cleaning conventional catch basins.

Pipe connections: Soleno offers dependable connections, compatible with all materials usually used for construction of storm water sewers (HDPE, PVC, concrete and CSP).

Separation by settling: Suspended solids and small particles are separated in a mechanical separation operation using gravity.

Retention capacity: The volume of contaminants retained by the treatment catch basin is related to the diameter and height of the unit. Larger catch basins retain a higher volume of contaminants.

ADVANTAGES AND BENEFITS

- Can easily replace any of the standard catch basins from our collecting solutions, helping to further control the quality of surface runoff in urban areas.
- Is an economical solution for the upstream treatment of some types of pollutants.
- Can be easily adapted to all types of pipe while maintaining network watertightness.
- Is easy to install on site, as it is much lighter than traditional catch basins.
- Eliminates the need for frost-resistant geocomposite.
- Provides excellent resistance to de-icing salts, abrasives, chemicals and vibration, as it is made from HDPE.

All references to LEED in our brochures correspond to the Canadian Green Building Council requirements. Please consult Soleno for information on the U.S. Green Building Council requirements.
Soleno complies with all ECORESPONSIBLE sustainable development program criteria and was awarded the LEVEL 1 certification - ENGAGEMENT from the Council of Sustainable Industries.

Soleno is ISO 9001 certified (Saint-Jean-sur-Richelieu plant only)

Our HDPE products and solutions are designed and manufactured according to the most rigorous standards.