



FABCO FILTER TECHNOLOGIES

Treating Stormwater Closer to the Source

fabco
Industries Inc

An all too common issue with today's highly impervious landscape is how to meet stormwater regulations with limited budgets and tight space constraints. Fabco filtration solutions are highly engineered water quality devices that are deployed directly in the storm sewer system to capture contaminants close to where they accumulate. Easily retrofitted into new or existing structures, Fabco filtration technology is a decentralized approach to stormwater treatment that essentially repurposes traditional site infrastructure and customizes it to meet specific site water quality goals. In this way, it satisfies important objectives of today's LID (Low Impact Development) criteria. From an operations perspective, catch basins with Fabco filters are also easier and quicker to clean out because pollutants are trapped just under the grate eliminating the contamination of sump water and costly disposal.

StormSack

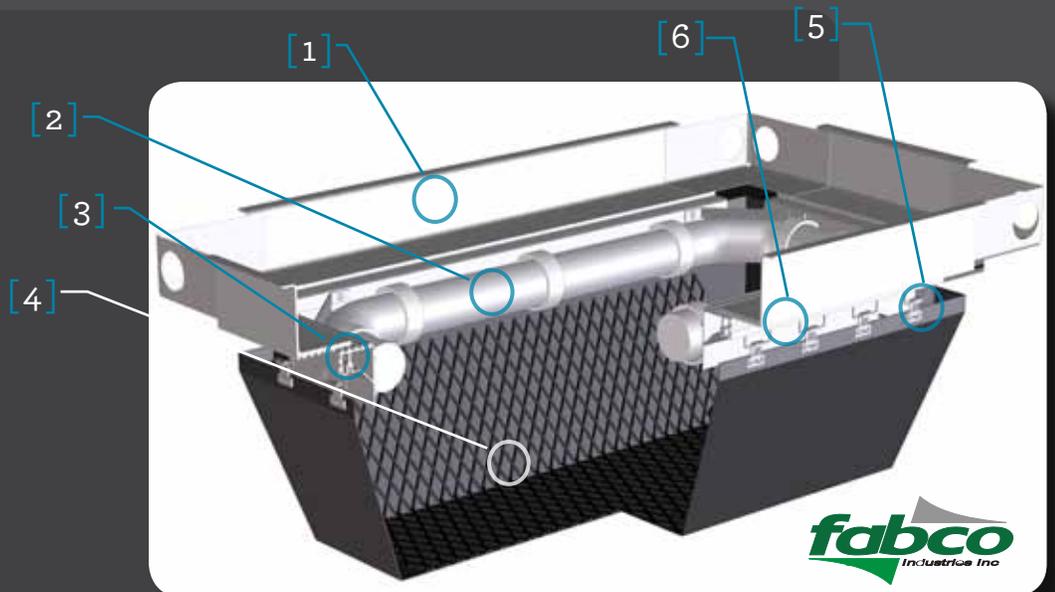
The StormSack is specifically designed for the capture of gross pollutants: sediment, trash, and oil and grease. Ideally suited for municipal storm drain retrofits, the StormSack's unique design allows maintenance to be performed using conventional vacuum suction equipment.



| APPLICATION | REGULATORY ISSUE | TARGET POLLUTANTS |
|---|--|----------------------------------|
| Municipal storm drain retrofits | MS4 Permits | Sediment, trash, O&G |
| Commercial/retail/residential | Stormwater Compliance | Sediment, trash, O&G |
| Litter prone urban areas | Trash TMDLs | Trash ≥ 4700 microns (0.2") |
| Scrap metal/solid waste/oil storage/etc | Industrial Multi-Sector General Permit | Gross pollutants, O&G |
| Pre-treatment BMP for new development | Municipal Stormwater Permits | Sediment, trash, O&G |
| Construction sediment/erosion | Construction Stormwater Permit | Sediment/erosion control |

FEATURES/BENEFITS

1. Durable, aluminum frame construction has 15 year service life
2. Integral oil boom effectively captures oil and grease from spills
3. Patented dovetailed flange - allows 5" of length/width field adjustment
4. Polypropylene netting protects sack from suction hose during maintenance
5. Steel clip with locking tab holds replaceable filter sack in place
6. Baffled bypass traps floatables



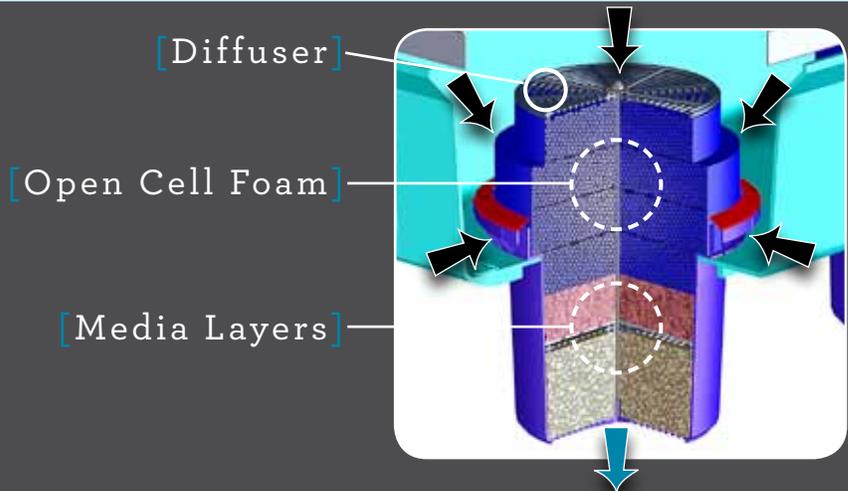
Note: Also available in round configurations.

StormBasin

The StormBasin is a filtration BMP that employs custom-built filtration cartridges to remove fine particulate, hydrocarbons, heavy metals, organics and bacteria. The insert combines a gross pollutant trap with filtration technology for effective solid and dissolved pollutant capture. The proprietary filter cartridges contain various media to target specific pollutants of concern and are typically replaced annually.

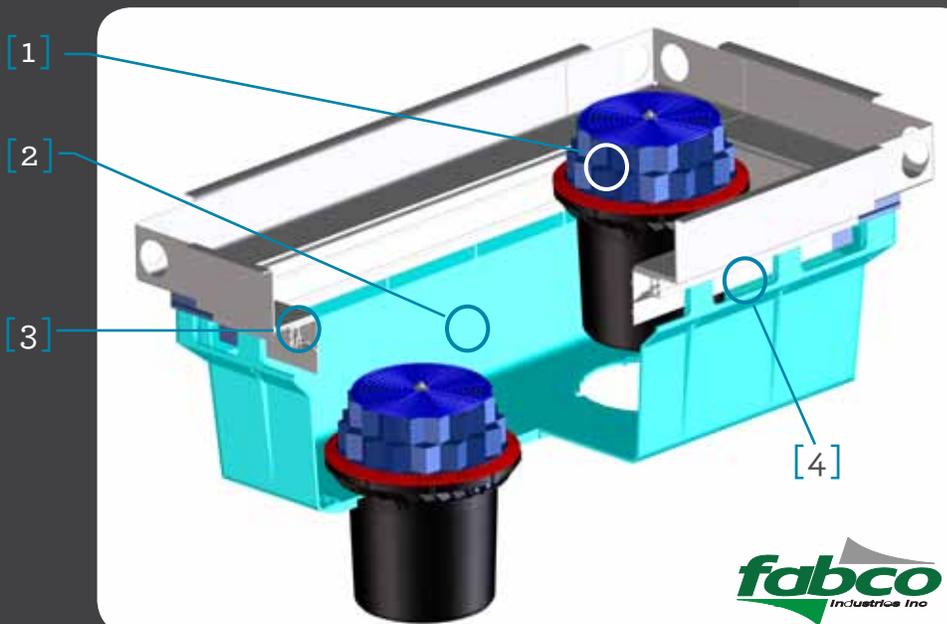


| APPLICATION | REGULATORY ISSUE | TARGET POLLUTANTS |
|--|--|---------------------------------|
| Municipal storm drain retrofits | MS4 Permits | Sediment, trash, O&G, nutrients |
| Fuel/oil storage and handling facilities | EPA SPCC (Spill Control Rule) | Hydrocarbons, oily sediments |
| Scrap metal/solid waste/power plants/etc | Industrial Multi-Sector General Permit | Solids, hydrocarbons, metals |
| Pre-treatment BMP for new development | Municipal Stormwater Permits | Sediment, O&G, nutrients |
| Coastal/lake beaches, WWTPs | Bacteria TMDLS | Bacteria, pathogens |
| Retail/gardens centers | Phosphorus/nitrogen/pesticides | Fertilizers, pesticides |



FEATURES/BENEFITS

1. Easily replaced lightweight cartridges customized for specific treatment needs
2. Durable, UV safe co-polymer basin with aluminum mounting flange has a 15 year service life
3. Patented dovetailed flange - allows 5" of length/width field adjustment
4. Baffled bypass traps floatables

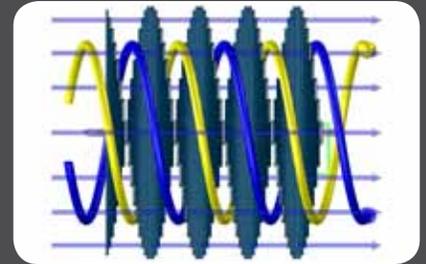


Note: Also available in round configurations.

StormSafe Helix

A sub-surface, radial flow filter technology that uses a dual helix filter to provide high flow rate treatment with minimal clogging. This scalable filtration solution can treat flows up to 9 CFS with three standard models (custom designs are also available). The StormSafe Helix can be configured for two treatment scenarios:

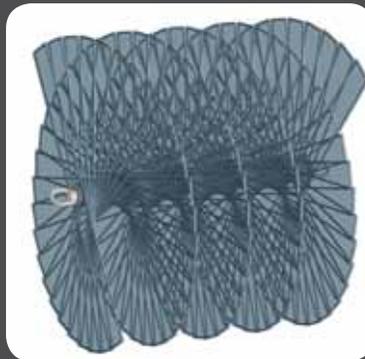
- Pathogens/bacteria (E coli, fecal coli form and enterococcus)
- Hydrocarbons



| APPLICATION | REGULATORY ISSUE | TARGET POLLUTANTS |
|--|--|------------------------------|
| Fuel/oil storage, handling, fueling facilities | EPA SPCC (Spill Control Rule) | Hydrocarbons, oily sediments |
| Scrap metal/solid waste/power plants/etc | Industrial Multi-Sector General Permit | Hydrocarbons |
| Coastal/lake beaches, WWTPs | Bacteria TMDLS | Bacteria, pathogens |



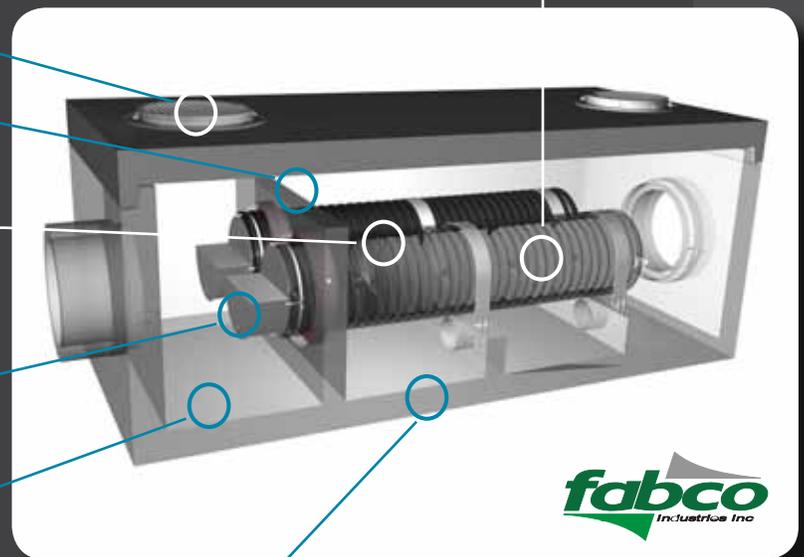
30" diameter corrugated plastic pipe houses filter elements



The StormSafe filter element is constructed using 80 individual steel frames which are attached to a central rod to form the dual helix shape. The helical shape creates three distinct flow paths through the media, functioning like a multiple disk filter with significant surface area.

FEATURES/BENEFITS

1. Dual Helix filters can also be retrofitted into existing stormwater outfall pipes
2. Access manholes allow filter elements to be removed for replacement
3. Full flow hydraulic bypass over internal weir wall
4. Dual Helix filter provides direct and radial flow paths for optimal effectiveness and filter life
5. Trash/debris separators keep floatables in forbay
6. Sediment forbay settles out solids prior to filters
7. HS20 concrete vault



Specifications & Details



STORMSACK

PART 1.00 GENERAL DESCRIPTION

This technology is a post developed stormwater treatment system. The StormSack provides effective filtration of solid pollutants and debris typical of urban runoff, while utilizing the existing or new storm drain infrastructure. The StormSack is designed to rest on the flanges of conventional catch basin frames and is engineered for most hydraulic and cold climate conditions.

PART 2.00 PRODUCTS

2.1 Material and Design

- A. Adjustable Flange and Deflector: Aluminum Alloy 6063-T6
- B. Splash Guard: neoprene rubber
- C. Stormsack: woven polypropylene geotextile with US Mesh 20
- D. Corner Filler: Aluminum Alloy 5052-H32
- E. Lifting Tabs: Aluminum Alloy 5052-H32
- F. Replaceable Oil Boom: polypropylene 3 inch (76 mm) diameter
- G. Mesh Liner: HDPE, diamond configuration
- H. Support Hardware: CRES 300 Series

2.2 Typical Performance Characteristics

- A. Debris capacity: 8.5 cu. ft. (0.24 m³)
- B. Filtered flow rate: 7.3 cfs (207 lps)
- C. Primary baffled bypass flow rate: 4.2 cfs (119 lps)
- D. Secondary bypass flow rate: 0.4 cfs (10 lps)
- E. Total bypass flow rate: 4.6 cfs (130 lps)
- F. Oil boom sorption capacity: 376 oz (11 L)

2.3: Recommended minimum clearance from bottom of StormSack to inside bottom of vault is 2 inches (50 mm)

2.4: Typical frame adjustability range of 5 inches (127 mm) in each direction

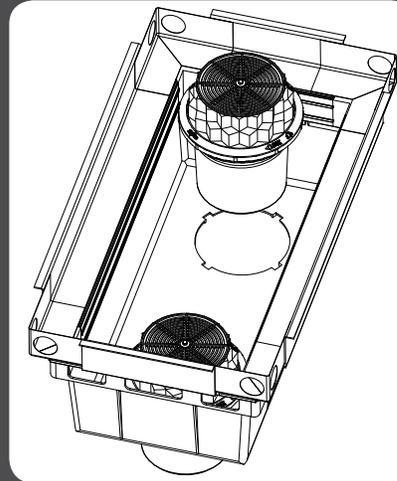
PART 3.00 INSTALLATION AND MAINTENANCE

Installation procedures shall include removing the storm grate, cleaning the ledge of debris and solids, measuring catch basin clear opening and adjust-

ing flanges to rest on grate support ledge. Install StormSack with splash guard under curb opening so the adjustable flanges are resting on the grate support ledge. Install corner filler pieces. Reinstall storm grate directly on support flanges [rise shall be no more than 1/8 inch (3 mm)].

Maintenance: Typically the StormSack is serviceable from the street level, and therefore maintenance does not require confined space entry into the catch basin structure. The unit is designed to be maintained in place with a vacuum hose attached to a sweeper or a vactor truck. The oil boom is also designed to easily be replaced from the street level. Use only FABCO replaceable parts.

STORMBASIN



PART 1.00 GENERAL DESCRIPTION

This technology is a post developed stormwater treatment system. The StormBasin provides effective filtration of stormwater pollutants that include sediment, hydrocarbons, nutrients, pathogens and metals, while utilizing the existing or new storm drain infrastructure. The StormBasin is designed to rest on the flanges of conventional catch basin frames and is engineered for most hydraulic and cold climate conditions.

PART 2.00 PRODUCTS

2.1 Material and Design

- A. Adjustable Flange and Deflector: Aluminum Alloy 6063-T6
- B. Basin Plastic: polypropylene/polyethylene copolymer
- C. Corner Filler: Aluminum Alloy 5052-H32
- D. Support Hardware: CRES 300 Series

2.2 Typical Performance Characteristics (Refer to Details)

- A. Debris capacity: 6.0 cu. ft. (0.17 m³)
- B. Filtered flow rate of standard cartridge: 0.51 cfs (14 lps)
- C. Primary baffled bypass flow rate: 4.3 cfs (122 lps)
- D. Secondary bypass flow rate: 0.7 cfs (20 lps)
- E. Total bypass flow rate: 5.0 cfs (142 lps)

2.3: Recommended minimum clearance from bottom of cartridge to inside bottom of vault or resting water surface is 2 inches (50 mm)

2.4: Typical frame adjustability range of 5 inches (127 mm) in each direction

PART 3.00 INSTALLATION AND MAINTENANCE

Installation procedures shall include removing the storm grate, cleaning the ledge of debris and solids, measuring catch basin clear opening and adjusting flanges to rest on grate support ledge. Install StormBasin so the adjustable flanges are resting on the grate support ledge. Install corner filler pieces. Reinstall storm grate directly on support flanges [rise shall be no more than 1/8 inch (3 mm)].

Maintenance: Typically the StormBasin is serviceable from the street level, and therefore maintenance does not require confined space entry into the catch basin structure. The unit is designed to be maintained in place with a vacuum hose attached to a sweeper or a vactor truck. The filter cartridges are also designed to easily be replaced from the street level. Use only FABCO replaceable parts.



Fabco and Operation SPLASH help clean up Long Island's South Shore Bays

Home to 1.5 million people, storm water from the entire southern half of Long Island, New York ultimately drains into over 100 streams, shallow coastal bays and sensitive wetlands that are known as the South Shore Estuary Reserve. Over the past 20 years, local residents have witnessed a dramatic deterioration of coastal water quality largely due to the polluted storm water runoff that results from paved roads, parking areas and land development. In response, a group of concerned boat captains, divers and bay men rallied together in 2000 to highlight the problem and its highly negative impact on the marine environment.

Challenged with how to address storm water pollution in the high density urbanized area where he lived, Robert Weltner, president of Operation S.P.L.A.S.H. (Stop Polluting Littering

and Save Harbors) searched for practical solutions to battle storm water pollution using the existing infrastructure. Local agencies suggested using "green infrastructure" (e.g., rain gardens) as a solution to the storm water problem.

Mr Weltner's response was:

**"WHERE THE HECK DO I PLANT
A RAIN GARDEN? I'VE GOT NO ROOM!"**

Weltner eventually found the answer in Fabco filter technology that had been installed in local storm drain catch basins. Years in the making, the success of Weltner's local solution has resulted in a large scale deployment of Fabco solutions in a growing number of communities in the South Shore Estuary Reserve and other major coastal watersheds including the Long Island Sound.



About FABCO INDUSTRIES INC.

Fabco Industries Inc. was established in 1997 by people with a commitment to improving the quality of our water resources through engineering, manufacture and maintenance of patented filtration technology and delivery systems. Originally an industrial wastewater filtration company, Fabco is now successfully deploying this same proven technology for storm water treatment applications. Working closely with clients and partners, the company develops solutions for storm water remediation that can be effectively applied to a broad range of scenarios. Fabco is an invaluable resource to all storm water professionals looking for answers to the challenges of non-point source pollution.

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