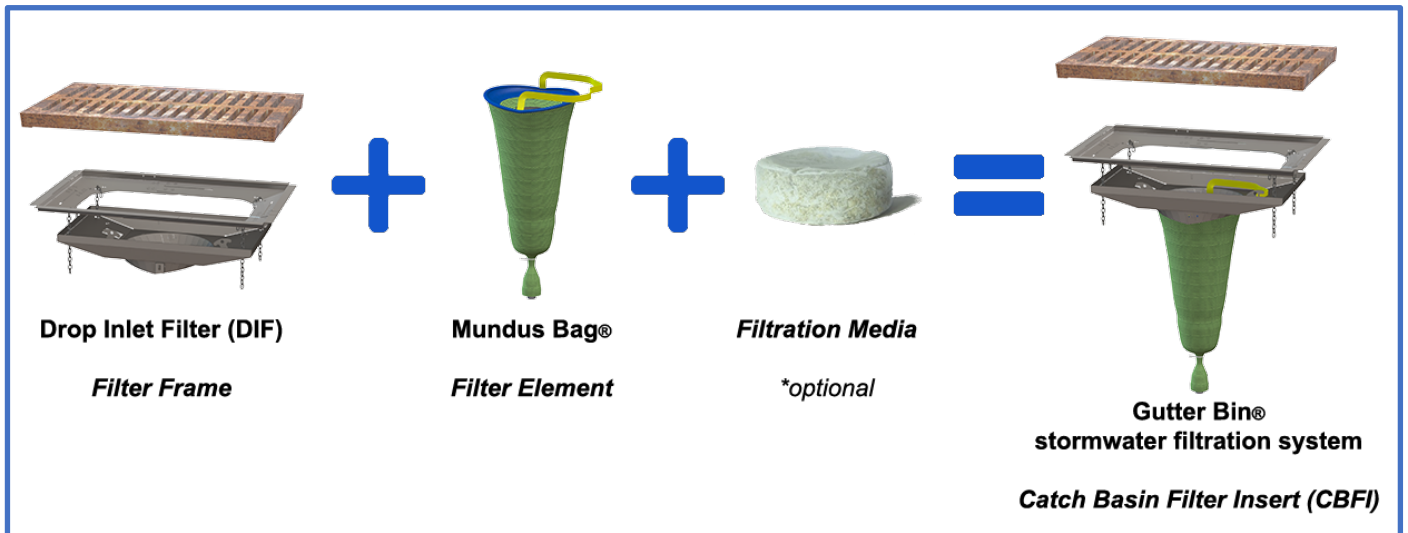
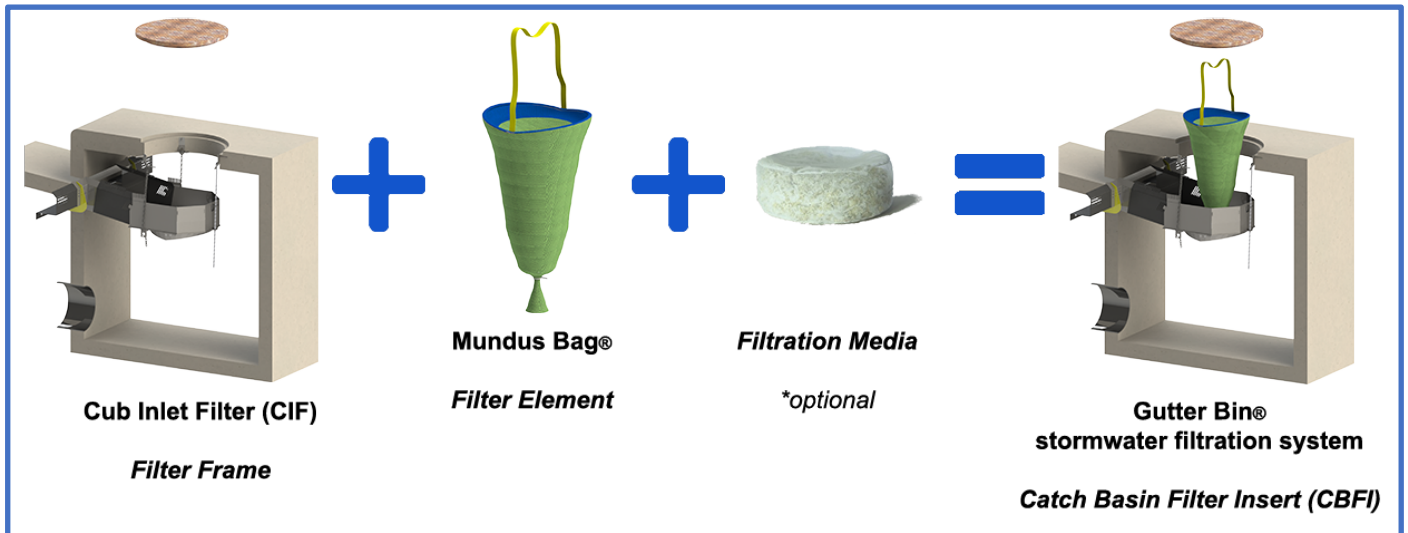


CATCH BASIN FILTER INSERT – SPECIFICATION SHEET

Version 2.0

Thank you for considering the patented Gutter Bin® stormwater filtration system and Mundus Bag® water filter as a best management practice for your project. Please specify Frog Creek Partners products into your next project that needs a solution to stormwater pollution.

Product Specification Reference Map:



Frog Creek Partners, LLC
800 West Yellowstone Highway
Casper, WY 82601
307-439-9570 or 307-797-7720
support@frogcreek.partners
<https://frogcreek.partners/>
Brian Deurloo - President





Section [_____]
Stormwater Quality - Best Management Practice
Catch Basin Filter Insert - Standard Specification

1. GENERAL INFORMATION

1.1 The purpose of this specification is to establish generally acceptable criteria for devices manufactured to remove pollution from stormwater within a catch basin.

1.2 California Specific: California passed a law in 2017 called the Trash Amendments. The State of California State Water Resources Control Board (SWRCB) requires that all catch basin filter inserts (CBFI) inserted into California storm drains must be certified as full trash capture and be certified vector control accessible by the Mosquito Vector Control Association of California (MVCAC). This CBFI and its components specified below are certified full trash capture and vector control accessible by the SWRCB and MVCAC. To comply with the law, the CBFI must be on the California State Water Resources Control Board certified full capture system list of trash treatment control devices.

1.3 A Catch Basin Filter Insert (CBFI) is a manufactured device that filters target pollutants from stormwater runoff within a catch basin. The CBFI includes a Filter Frame, an overflow bypass, and a Filter Element designed to remove target pollutant(s) through screening, separation, or Filtration Media. A Drop Inlet Filter (DIF) is a CBFI that fits within a round, square, or rectangular drop inlet type or a combination drop inlet type catch basin. A Curb Inlet Filter (CIF) is a CBFI that fits within a curb inlet type catch basin. The CBFI shall remove sediment, trash, microplastic, hydrocarbons, from dry weather and wet weather runoff entering the project catch basins.

1.4 The contractor shall furnish and install the CBFI as specified herein, in accordance with the requirements of the plans and contract documents. The water quality treatment flow shall be as determined and approved by the Engineer of Record.

1.5 The manufacturer of the CBFI is one that engineers, designs, and constructs stormwater filtration systems in the United States of America for at least the past four (4) years. The manufacturer is acceptable to the Engineer of Record and/or the approving jurisdiction. The Manufacturer of the Gutter Bin® stormwater filtration system CBFI shall be, without exception:

Frog Creek Partners
800 W. Yellowstone Hwy
Casper, WY 82601
Phone: 307.797.7720
Email: support@frogcreek.partners
Website: <https://frogcreek.partners>

Catch Basin Filter Insert - Standard Specification



1.6 The Submittals & Deliverables:

- 1.6.1 The Manufacturer shall provide the installation, maintenance, and operating manuals (IMOM) with each order to the contractor and/or the Engineer of Record upon request.
- 1.6.2 The Manufacturer shall provide submittal drawings that detail the CBFi, its components, and dimensions upon request.
- 1.6.3 The IMOM will include drawings and information that details:
 - CBFi components and overview
 - Installation instructions
 - Maintenance & Operating Manual
 - Troubleshooting considerations
- 1.6.4 The Manufacturer shall provide inspection and maintenance documentation upon request.

1.7 Substitution: The Engineer of Record must review and approve any proposed equal alternative product substitution to this specification at least 10 days prior to bid opening. The system must be certified full trash capture and vector control accessible by the California State Water Resource Control Board.

1.8 American Society for Testing and Materials (ASTM) Reference Specifications:

ASTM A 240	Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications
ASTM A193	Standard Specification for Allot-Steel and Stainless-Steel Bolting for High Temperature of H
ASTM D4632	Standard Test Method for Grab Breaking Load and Elongation of Geotextiles
ASTM D4533	Standard Test Method for Trapezoid Tearing Strength of Geotextiles
ASTM D4833	Standard Test Method for Index Puncture Resistance of Geomembranes and Related Products
ASTM D3786	Standard Test Method for Bursting Strength of Textile Fabrics—Diaphragm Bursting Strength Tester Method
ASTM D4355	Standard Test Method for Deterioration of Geotextiles by Exposure to Light, Moisture and Heat in a Xenon Arc-Type Apparatus
ASTM D4751	Standard Test Methods for Determining Apparent Opening Size of a Geotextile
ASTM D4491	Standard Test Methods for Water Permeability of Geotextiles by Permittivity
ASTM D5261	Standard Test Method for measuring Mass per Unit Area of Geotextiles
ASTM F1554	Standard Specification for Anchor Bolts, Steel, 36, 55, and 105-ksi Yield Strength

1.9 Work Included:

- 1.9.1 Specification requirements for installation of CBFi.
- 1.9.2 Manufacturer to supply CBFi components:
 - Filter Frame = Gutter Bin® stormwater filtration system
 - Filter Element = Mundus Bag® water filter
 - Filtration Media = MYCELX

Catch Basin Filter Insert - Standard Specification



- 1.9.3 At least one Filter Elements shall be provided with each Filter Frame. Optional Filtration Media shall be made available hydrocarbons and heavy metals are a pollutant of concern for the project.
- 1.9.4 Manufacturer shall provide written or visual instructions for custom orders if the CBF I is unique from the standard products upon request.
- 1.9.5 Manufacture shall provide guidance to the end user to correctly choose the size and model CBF I (DIF or CIF). The Manufacturer shall provide guidance to the end user to correctly choose the size and model of Filter Element for the project. The Manufacturer make three (3) types of bags: 1. Trash, Debris and Sediment (TDS) 212-micron filtration; 2. Total Trash Capture (TTC) 5mm filtration; 3. Vacuum Truck Friendly (VTF) 600-micron filtration.

2. COMPONENTS

2.1 Filter Frame Components: All CBF I Filter Frame components must be made of stainless-steel, per these specifications. Filter Frame components containing plastics will not be accepted. The CBF I Filter Frame is manufactured to fit a drop inlet, combination drop inlet, or curb inlet type catch basin.

2.1.1 **Drop Inlet Filter Frame Component:** A Drop Inlet Filter (DIF) is a CBF I that fits within a drop inlet or combination drop inlet. The DIF can be configured to fit most rectangular and round type drop inlet or combination inlets (including but not limited to: Type 13 and 16). The clear opening must be greater than 14” and the depth of the catch basin greater than 12 inches.

2.1.2 **Curb Inlet Filter Frame Components:** A Curb Inlet Filter (CIF) is a CBF I that fits within a Type R curb inlet (#14) type catch basins. The CIF can fit any length curb opening greater than 12” with a round or rectangular manhole cover. The cover’s clear opening must be greater than 16” and the depth of the catch basin greater than 12 inches below the curb inlet opening.

2.2 Filter Element Components:

2.2.1 The Filter Element is an insertable and removable filter system designed to capture trash, microplastics, sediment, debris, total suspended solids (TSS), nutrients, metals, and hydrocarbons conveyed in stormwater runoff. The Manufacturer offers multiple Filter Element models and sizes to meet user specifications and requirements.

2.2.2 The Filter Element is made of a propylene or polypropylene fabric to make it durable, flexible, adjustable, recyclable, and able to filter pollutants from water.

2.2.3 Filter Element components shall be purchased from the Manufacturer.

2.3 Filtration Media Components:

2.3.1 Filtration Media is a donut-shaped polypropylene substrate infused with an environmentally safe oleophilic and hydrophobic polymer. The Filtration Media is contained within a polypropylene or propylene mesh bag and inserted within the Filter Element to remove hydrocarbons (oil & grease) and some metals. The Filtration Media permanently removes hydrocarbons from stormwater that

Catch Basin Filter Insert - Standard Specification



contact the Filtration Media. The Filtration Media does not desorb hydrocarbons, absorb water, nor build pressure drop even upon complete saturation with hydrocarbons and solids. The active polymer within the Filtration Media is environmentally safe and approved for use within the Galapagos Islands National Park.

- 2.3.2 Filtration Media components shall be purchased from the Manufacturer or approved alternate source.

3. PERFORMANCE CRITERIA

3.1 General

- 3.1.1 **Function Overview** - Stormwater runoff enters a catch basin from street level through a curb inlet opening and/or grate opening. The CBFi is positioned within the catch basin to remove pollution from stormwater. The Filter Frame directs water into the Filter Element aided by gravity and no moving parts. The Filter Element removes target pollutants from stormwater. Additional Filtration Media can be added to the CBFi to enhance the removal of metals and hydrocarbons. Stormwater enters the inside of the Filter Element from the top and flows downward through the Filter Element. Water flows continuously through the permeable walls of the Filter Element thereby capturing pollutants within the Filter Element and allowing cleaner water to exit the CBFi. Flowing water also makes contact with the Filtration Media (if present) which absorbs free floating oils and greases. The Filter Element processes stormwater flow up to the peak treatment flow rate. Beyond peak treatment flow, water spills out of the overflow bypass above the Filter Element. The Filter Element has a backflow preventer to prevent the loss of captured pollutants during high flow events. The Filter Element is flexible material to allow for its insertion into a variety of catch basin depths. This CBFi shall be positioned directly under the catch basin grate or manhole cover, whichever is present. Removal of the grate or manhole cover will give direct access to the Filter Element to allow for maintenance without disassembly of the Filter Frame. The Filter Element can be removed manually and cleaned or replaced, or the Filter Element can be evacuated with a vacuum truck.
- 3.1.2 **Full Trash Capture Certified** - The CBFi shall be certified as a full trash capture device by the California State Water Resources Control Board. The CBFi shall remove 100% of trash and debris that is 5mm or greater in size.
- 3.1.3 **Vector Control Accessible Certified** - The CBFi shall be certified for vector control accessibility by the California State Water Resources Control Board and the Mosquito Vector Control Association of California.
- 3.1.4 **Adjustable Frame** - The CBFi shall have an adjustable Filter Frame component to account for variability in catch basin configurations.
- 3.1.5 **Adjustable Length Filter Element** - The Filter Element shall be adjustable and flexible to allow for its insertion and functionality within a variety of catch basin depths.

Catch Basin Filter Insert - Standard Specification



- 3.1.6 **Filter Element Position** - The Filter Element shall be positioned directly under the storm grate cover or manhole cover to facilitate the ease of maintenance by a vacuum truck or by manual removal of the Filter Element.
 - 3.1.7 **Backflow Preventer** - The Filter Element shall have a backflow preventer to retain and prevent the loss of captured pollutants during high flow events. To prevent escape of captured pollutants, the CBF I must align the top of the Filter Element in a manner which is level regardless of the slope of the catch basin or road base.
 - 3.1.8 **Pollutant Removal** - The CBF I removes and retains trash, microplastics, debris, sediment, sand, metals, and hydrocarbons with stormwater that enters the catch basin during frequent storm events and specified flow rates.
 - 3.1.9 **Treatment Flow Rate** - The CBF I operates using gravity flow. The CBF I treatment flow rate varies by size and is provided on the drawings for each model.
 - 3.1.10 **Bypass Flow Rate** – The overflow bypass of the CBF I is adjustable to account for variable catch basin configurations and hydraulic capacities. The CBF I is designed to fit within the catch basin in a way that minimally affects the existing hydraulics and treats or bypasses all flows. The CBF I’s bypass cross-sectional area must be equal to or greater than the cross-sectional area of the catch basin outlet pipe.
 - 3.1.11 **Stormwater Pretreatment** - The CBF I shall be installed within the catch basin(s) of a stormwater network that are upstream of stormwater storage feature, biofiltration feature, retention pond, detention pond, water infiltration site, and/or watershed to prevent pollutants such as trash, microplastics, sediment, metals, and hydrocarbons from fouling the downstream stormwater best management practice (BMP).
 - 3.1.12 **Confined Space Entry** - The CBF I does not require a confined space entry permit to replace, remove, or clean out the Filter Element.
 - 3.1.13 **Customizable Filtration** - The Filter Frame shall be able to accommodate a variety of Filter Element types to target different pollutants or accept different maintenance methods preferred by the user.
 - 3.1.14 **Filtration Media** - The Filtration Media shall permanently remove hydrocarbons from stormwater that contact the Filtration Media. The Filtration Media does not desorb hydrocarbons, absorb water, nor build pressure drop even upon complete saturation with oil and solids.
 - 3.1.15 **Environmentally Safe** – The Filtration Media shall be environmentally safe for use in stormwater.
 - 3.1.16 **Conical Shape** - The Filter Element shall have a conical shape to allow for the compaction of captured pollutants and ease of maintenance.
- 3.2 Test Performance
- 3.2.1 The CBF I shall be tested and meet these performance specifications:
 - 3.2.2 100% removal efficiency of trash and other pollutants 5mm or greater in size.

Catch Basin Filter Insert - Standard Specification



Stormwater Pollutant	Removal Efficiency
Trash and Debris (5mm or larger in size)	100%

4. EXECUTION

4.1 General

4.1.1 The installation and use of the CBFi shall conform to all applicable national, state, municipal and local specifications.

4.2 Installation

4.2.1 The contractor shall furnish all labor, equipment, materials and incidentals required to install the CBFi device(s) and appurtenances in accordance with the drawings, installation manual, and these specifications. The CBFi may be inspected and approved by the local governing agency. Installation contractor should possess a Confined Space Entry Certification Permit, pursuant to OSHA standards. Any damage to the catch basin and surrounding infrastructure caused by the installation of the CBFi is the responsibility of the installation contractor. The CBFi shall be installed and secured per the Manufacturer's instructions and the Engineer of Record's specifications.

4.2.2 The contractor shall supply the Engineer of Record with information that includes:

1. Project Name
2. Project Location
3. Name of Manufacturer
4. Manufacturer Contact
5. Date of Installation
6. Catch Basin Location
7. Model of CBFi (Filter Frame, Filter Element, and Filtration Media)

4.3 Shipping, Storage and Handling

4.3.1 **Shipping** – CBFi shall be shipped to the purchaser's address (or contractor) and is the responsibility of the contractor to transport the unit(s) to the site of installation.

4.3.2 **Storage and Handling** – The contractor shall exercise care in the storage and handling of the CBFi(s) and its components prior to and during installation. Any repair or replacement costs associated with events occurring after delivery is accepted, and unloading has commenced, shall be borne by the contractor. The CBFi(s) and its components shall always be stored indoors and transported inside the original shipping container(s) until the CBFi(s) are ready to be installed. The CBFi shall always be handled with care and lifted according to OSHA, NIOSH, and/or contractor's workplace safety professional recommendations.

Catch Basin Filter Insert - Standard Specification



4.4 Maintenance and Inspection

- 4.4.1 **Inspection** – After installation, the contractor shall demonstrate that the CBFI was installed at the correct location(s), elevations, and with appropriate supports and fasteners. All components associated with the CBFI and its installation shall be subject to inspection by the Engineer of Record, governing agency, and the Manufacturer at the place of installation. In addition, the contractor shall demonstrate that the CBFI was installed per the Manufacturer’s specifications and recommendations. CBFI(s) shall be inspected regularly in accordance with the Manufacturer’s recommendations, the owner’ Stormwater Pollution Prevention Plans (SWPPP), and other applicable regulations. An inspection record shall be kept by the inspection operator. The record shall include the condition of the CBFI and its appurtenances. The most current copy of the inspection record shall be copied and placed in the owner’s SWPPP.
- 4.4.2 **Maintenance** – The Manufacturer recommends cleaning and/or replacement of the Filter Element and Filtration Media as needed. The maintenance shall be performed by qualified and trained personnel with a vactor truck or by hand. Confined space entry is not required for maintenance of the CBFI. A maintenance manual is available upon request from the manufacturer. The manual has detailed information regarding the maintenance of the CBFI(s). A detailed maintenance record shall be kept by the maintenance operator. The maintenance record shall include any maintenance activities performed, amount and description of pollution collected, and the condition of the CBFI. The most current copy of the maintenance record shall always be copied and placed in the owner’s Stormwater Pollution Prevention Plan (SWPPP) per governing agency.
- 4.4.3 **Material Disposal** - All debris, trash, organics, and sediments captured and removed from the CBFI shall be transported and disposed of in accordance with local and state regulations. Please refer to state and local regulations for the proper disposal of toxic and non-toxic material.

5. QUALITY ASSURANCE

- 5.1 Warranty: The manufacturer shall guarantee the CBFI against all manufacturing defects in materials and workmanship for a period of three (3) years from the date of delivery to the contractor. The manufacturer shall be notified of repair or replacement issues in writing within the warranty period. The CBFI is limited to recommended applications for which it was designed.

[End of This Section]