

ACF GRATEMASTER
INLET PROTECTION SYSTEM GUIDE SPECIFICATION

PRODUCT:
ACF GRATEMASTER

MANUFACTURER:
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1.0 Description of Work

1.1 The work covered shall consist of supplying an inlet protection device. The purpose of the device is to collect silt and sediment from surface stormwater runoff, while removing small particles, hydrocarbons, and other contaminants.

2.0 Material:

2.1 The inlet protection device consists of an adjustable aluminum frame and a replaceable filter bag insert. The filter bag is made out of a combination of HDPE mesh and high flow yellow geotextile fabric.

2.2 The inlet protection bag and frame shall be manufactured in the U.S.A.

2.3 The inlet protection device shall include lifting handles to allow manual inspection of the storm water filter, in addition to 4 overflow holes on 2 sides of the unit. The frame on the unit shall be adjustable in 8" increments.

3.0 Filter Bag Specifications and Capabilities

3.1 High Flow Fabric material properties (taken from manufacturer's average roll value)

Property	Test Method	Units	Test Results
Grab Tensile	ASTM D-4632	Lbs.	255x275
Grab Elongation	ASTM D-4632	%	20x15
Puncture	ASTM D-4833	Lbs.	135
Mullen Burst	ASTM D-3786	P.S.I.	420
Trapezoid Tear	ASTM D-4533	Lbs.	40x50
UV Resistance	ASTM D-4355	%	90
AOS	ASTM D-4751	U.S. Sieve	20
Flow Rate	ASTM D-4491	Gal/Min/Ft2	200
Permittivity	ASTM D-4491	Sec-1	1.50

3.2 Extruded Plastic Mesh material properties (taken from manufacturer's qualities)

Property	Quantity
Hole Opening Size	¼"
Strands (per inch)	4 x 4
Resin	HDPE
Color	Black

3.3 Standard Bag Sizes: There are three different types of drop inlet type protection devices; type A, type B, and type C. Type A is the standard model, Type B is the model with a boom surrounding the top perimeter of the bag, and the Type C is the model with XTEX strips for hydrocarbon removal.

3.4 Below is a chart of the different sizes of the inlet protection device unit(s)

Product Code	Style	Size
GRTMA1927S	Square	19" X 27"
GRTMA2837S	Square	28" X 37"
GRTMA3849S	Square	38" X 49"
GRTMAS2X3R	Rectangular	23" – 31" X 35" X 43"
GRTMAS2X4R	Rectangular	23" – 31" X 41" X 49"

4.0 Tested Filtration Efficiency and Removal Rates

4.1 All testing was performed in general accordance with the ASTM D 7351, *Standard Test Method For Determination of Sediment Retention Device Effectiveness in Sheet Flow Application*, though the protocol was modified to represent a concentrated flow to an inlet. Laboratory TSS analysis results of the Effluent Grab Samples were used along with the measured collection rates to calculate % Removal Rates. Test results concluded that **greater than 80% TSS removal was found for a flow rate of 16 gal/min**. Below is data developed for simulated sediment laden runoff from a 100 ft. long, 3:1 slope exposed to a 4 inch storm event. A sediment concentration of 6% was determined to reasonably represent a "construction phase" runoff condition.

4.2 Removal Rate Chart

Property	Result
Flow Rate (lb/min)	133
Flow Rate (gal/min)	16
Product Tested	Gratemaster
Calculated Water In (lbs)	798
Calculated Soil In (lbs)	47.88
Calculated Soil Captured (lbs)	41.46
Calculated Removal Rate (%)	86.59%

5.0 Identification of Drainage Structures

5.1 The installer shall inspect the plans and/or jobsite to determine the quantity of each drainage structure casting type. The foundry casting number or the EXACT grate size and clear opening size will provide the information necessary to identify the required drop inlet filter part number. This information must be provided by the installer through the Gratemaster sizing worksheet (to be provided by ACF).

6.0 Installation Guidelines

6.1 Installation Procedure: First, remove grate from inlet. Place filter bag and frame into opening and adjust frame so outside edges extend on to the interior lip of the opening. Lock unit into place by tightening thumbscrews on top of frame. Replace grate to its original location.

7.0 Maintenance Guidelines

7.1 Frequency of Inspections: Inspection of inlet protection device(s) should occur following each ½" or more rain event. Post construction inspections should occur three times per year (every four months). Industrial application site inspections should occur on a regularly scheduled basis, no less than three times per year.

7.2 General Maintenance: Upon inspection, the drop inlet filter bag should be emptied if the sediment bag is more than half filled with sediment and debris, or as directed by the project Engineer. Remove the grate, lift the filter bag by the lifting straps, and lift the filter bag and frame from the drainage structure. This process does not require any type of machine or equipment. Dispose of the sediment and/or debris as directed by the project Engineer. If properly maintained, the high flow woven filter bag will last a minimum of 5 years installed.

7.3 Filter Bag Replacement: When replacing a drop inlet filter bag, first remove the bag and frame from the inlet. When the unit is out of the inlet, remove the push pins on the top tabs with the use of a flathead screwdriver, and lift up by use of the lifting strap handles. Take a new sediment bag, place inside the aluminum frame, and push the rivet pins into the pre-cut holes on the top part of the frame.