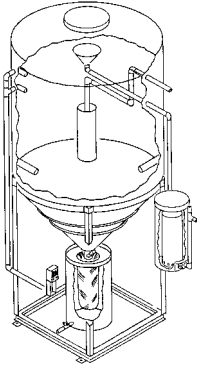
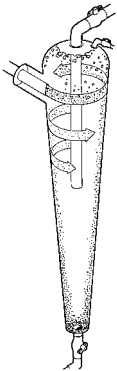


I. Clarifiers



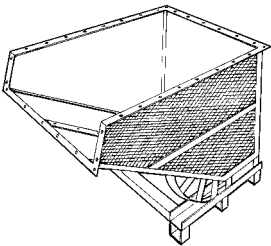
A basic principle of gravity filtration based on suspended solids settling. Efficiency depends on dwell time, particle size, and weight. Generally, clarifiers are for removal of suspended solids greater than 10 microns. The use of ozone or filter aids can enhance the efficiency.

II. Centrifugal Separators

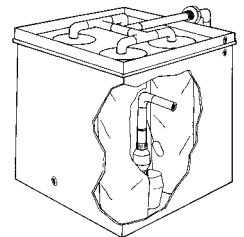


Most centrifugal separators for removing suspended solids from a waste stream contain no moving parts. It consists of a vertical cylinder, a tangential inlet near the top, an outlet for large suspended solids at the bottom, and an outlet for clear liquid at the top. The outlet pipe is extended into the cylinder to prevent shortcircuiting of liquid from inlet to outlet. The incoming solid-laden liquid is imparted with a rotating motion on entrance to the cylinder. The vortex, so formed, develops a centrifugal force. This force throws the suspended solid radially toward the wall. The centrifugal separator is a settling device in which a strong centrifugal force, acting radially, is used in place of a relatively weak gravitational force acting vertically. The centrifugal force in a separator can approach 600 times the force of gravity, forcing separation of particles one micron or greater in diameter, an ideal low maintenance pre-filter to reduce loads on final filtration.

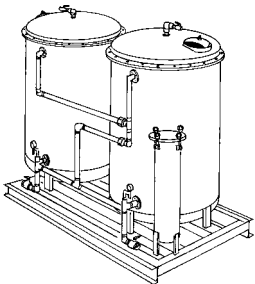
III. Screen and Bag Particle Filtration



Generally used for gross particle filtration over 100 microns. Used primarily as a pre-filter to reduce maintenance of secondary filtration.

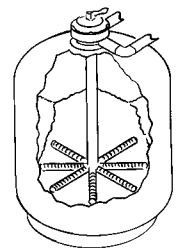


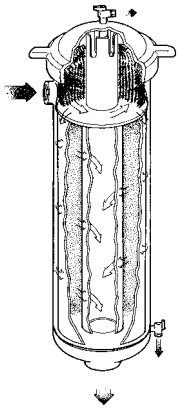
IV. Filter Media



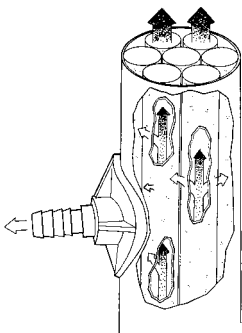
The choice of filter media is often the most important consideration in assuring satisfactory operation of a filter. The medium should be selected primarily for its capability to retain the solids that must be separated from the waste stream. This media must also possess an acceptable length of life in the environment in which it must perform. For an optimal media, the selection turns out to be the best compromise among the following attributes:

- A. Minimum resistance to filtrate flow
- B. Resistance to chemical attack
- C. Sufficient strength to support the filtering pressure
- D. Ability to retain solids
- E. Ability to plug slowly
- F. Minimum cost

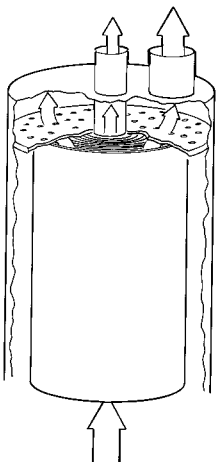


V. Cartridge Filtration

Cartridge Filtration are units which consist of, or use one or more, replaceable or renewable cartridges containing an active filter element. Cartridge filters are typically used when particulate loads in fluids are low and are not suitable for when the solids content is high. This filter can remove particles that range in size from submicron to 40 μm . Cartridge filters have a cylindrical configuration made of disposable or cleanable filter media. This media is inert to the fluid in contact and does not contribute any material from its component to the effluent liquid. The commonly used materials are cotton, wool, rayon, cellulose, fiberglass, nylon, acrylic, and spun-wound polypropylene. The choice of porosity or micron rating will result in the production of a specified quality of filtrate. To illustrate this point, consider the following comparison. A filter medium with a finer size (1 micron) will produce filtrate of high quality; however, it will be less economical because of its ability to foul quickly, which will require frequent cleaning or replacement. A larger micron filter (50 micron) will lead to a longer filter life, but may not produce the desired product quality.

VI. Molecular Separation and Ultrafiltration Membranes

The primary role of the ultrafiltration membrane is to allow the passage of water and low molecular weight solutes, but retain macromolecules whose size is larger than the pore size of the membrane. The ultrafiltration membrane enables concentration, purification, and fractionation of macromolecules in solution to be carried out at temperatures close to ambient temperature and without a phase change or addition of solvents. Ultrafiltration utilizes permeable membranes to separate macromolecules and suspended solids from solution, on the basis of size, separation compounds with molecular weights from 10,000 to 500,000. The application of high pressure to the feed side of the membranes enables the passage of water through the membrane. This makes the larger sized (suspended solids) compounds to concentrate on the high pressure side, while the concentration of smaller sized compounds (dissolved solids) remain the same on both sides of the membrane.

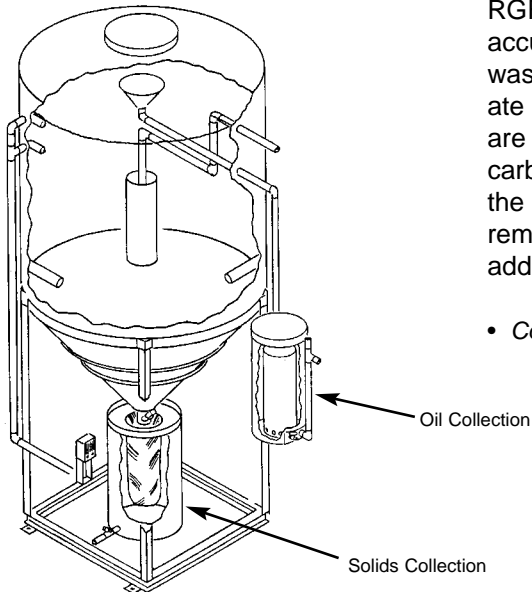
VII. Nanofiltration and Reverse Osmosis Membranes

Reverse Osmosis is a separation technique involving the passage of water molecules through a semipermeable membrane due to the application of pressure, and involves no change in either phase or temperature. Thus, the membrane has the quality of allowing the passage of water while preventing the passage of up to 99% of the dissolved solids and virtually all the suspended solids. Reverse osmosis follows the wellknown phenomenon of osmosis. Osmosis is the flow of water from an area of low concentration to an area of high concentration of dissolved solids. Osmotic pressure is a property particular to the solution and is independent of the membrane.

In reverse osmosis, an external pressure (pump pressure) is exerted on the concentrated solution in the tube, forcing fresh water back through the membrane, leaving dissolved particles behind.

An example of reverse osmosis occurs when we drink sea water rather than fresh water. Our small intestines are semipermeable membranes, which have a low concentration when we drink fresh water. Osmosis allows water to flow freely from our intestines to our bloodstream, from low concentration to high concentration, to hydrate our bodies.

Centrifugal Coalescing Clarifier (CCC)



RGF's Centrifugal Coalescing Clarifier has a unique hydrocarbon accumulator system, which involves the process of injecting the oily wastewater along the circumference of the coneshaped tank to initiate the centrifugal separation of the heavier particles. The free oils are skimmed off the surface of the cone tank and stored in the hydrocarbon accumulator. The precipitated particles settle to the bottom of the cone tank where they are drained into a gravity bag filter for easy removal. Optional ozone, pH, or chemical feed treatments can be added to enhance oil flotation and solids separation.

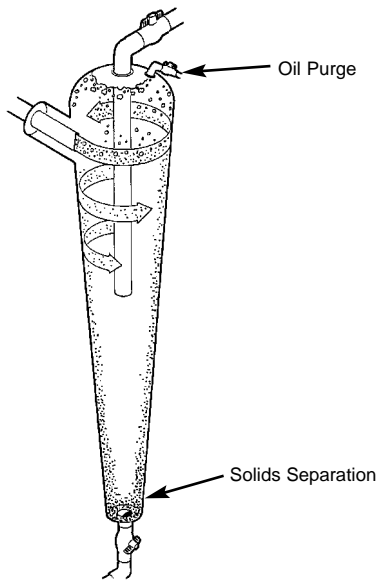
- *Construction:* Polyethylene Tank / Carbon Steel Stand / PVC Piping

Item #	Installed Options
OI-007	Peristaltic Chemical Injection Pump
OI-008-1	pH Controller - Installed
OI-010	XL- TurboHydrozone® Ozone Oxidation System

Item #	Description	Flow Rate	Capacity	Dimensions	Ship Wt.
CCC-400-Q	Centrifugal Coalescing Clarifier-400	1- 25 g.p.m.	400 gallons	4'W x 4'L x 12'H	521 lbs.
CCC-600-Q	Centrifugal Coalescing Clarifier-600	1 - 40 g.p.m.	600 gallons	4'W x 4'L x 14'H	593 lbs.

j Specification Sheet Available j

High Efficiency Centrifugal Separator (H.E.C.S.)



RGF's High Efficiency Centrifugal Separator (H.E.C.S.) is designed to separate, by centrifugal acceleration, free oils and solids before entering the recycling system, thereby decreasing maintenance loading on system filters. The H.E.C.S. comes in a low pressure version and a high pressure version to suit your application. Unit comes with inlet and outlet connections, oil and solids purge valves, and a stainless steel wall mounting bracket.

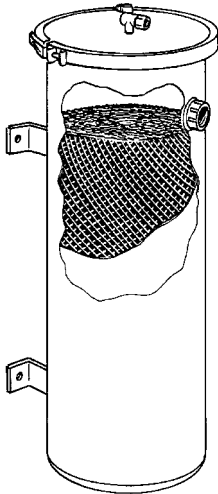
- *Dimensions:* 7'H x 2'W
- *Oil Purge Connection:* 1/4" hose
- *Inlet / Outlet / Drain Connections:* 1 1/2" NPT
- *Mounting:* Stainless Steel Wall Bracket

Item #	Description	Flow Rate	Max. Pressure	Construction	Ship Wt.
OP-066	Low Pressure H.E.C.S.	1 - 50 g.p.m.	20 psi	UV protected polyethylene	25 lbs.
OP-093	High Pressure H.E.C.S.	1 - 50 g.p.m.	150 psi	316 Stainless Steel	100 lbs.

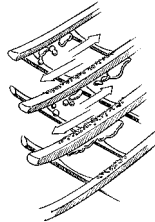
j Specification Sheet Available j



RGF Micro-Matrix Coalescor Low Micron Oil Coalescing Filter



RGF's Micro-Matrix Coalescor is designed to coalesce and remove free hydrocarbons from your waste stream. The filter utilizes a tight matrix of 60° poly grids designed to attract low micron oil particles. The coalesced particles are then purged off at the top of the unit. This innovative design is selfcleaning and requires RGF's Hydrocarbon Accumulator (OP-074) for accumulated oil storage. If large quantities of oils are expected in the waste stream, then RGF's Model OWS-10 oil water separator is required. Filter comes complete with mounting bracket, inlet/outlet/drain and purge fittings, filter lid, and matrix filter.

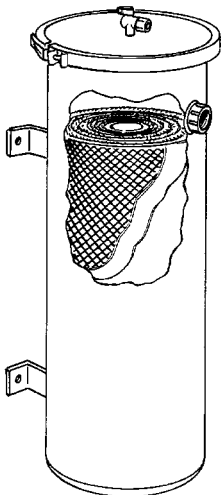


Coalescing Action

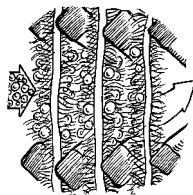
- *Inlet / Outlet Connections:* 1 1/2" N.P.T
- *Purge Connection:* 1/4" Poly Hose
- *Drain Connection:* 3/4" N.P.T.
- *Operating Pressure:* 0-10 p.s.i. Max.
- *Max. Oper. Temp.:* 110° F
- *pH Range:* 2-10
- *Dimensions:* 14" O.D. x 40"H
- *Filter Housing Material:* Polyethylene

Item #	Description	Filter Type	Flow Rate	Max. Pressure	Ship Wt.
FP-070	Micro-Matrix Filter Housing	60° poly grid coalescor	1 - 15 g.p.m.	10 p.s.i.	21 lbs.
FL-059	Replacement Matrix Filter	---	---	---	8 lbs.
OP-074	Optional 7 gal. Accumulator	---	---	---	18 lbs.

RGF HCA-3 Absorber Low Micron Oil Coalescing / Absorption Filter



RGF's HCA-3 Absorber is designed to coalesce and absorb free hydrocarbons from your waste stream. The filter utilizes a tight matrix of 60° poly grids designed to attract low micron oil particles, which are then absorbed by a unique oleophilic oil absorption material. The large coalesced particles are purged off at the top of the unit. This innovative design is selfcleaning and requires RGF's Hydrocarbon Accumulator (OP-074) for accumulated oil storage. If large quantities of oils are expected in the waste stream, then RGF's Model OWS-10 oil water separator is required.

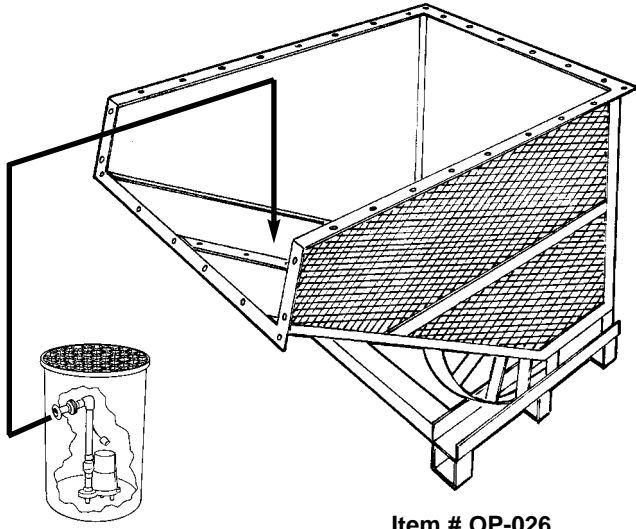


Coalescing / Absorbing Action

- *Inlet / Outlet Connections:* 1 1/2" N.P.T
- *Purge Connection:* 1/4" Poly Hose
- *Drain Connection:* 3/4" N.P.T.
- *Operating Pressure:* 0-10 p.s.i. Max.
- *Max. Oper. Temp.:* 110° F
- *pH Range:* 2-10
- *Dimensions:* 14" O.D. x 40"H
- *Filter Housing Material:* Polyethylene - FP-067
Stainless Steel - FP-003

Item #	Description	Filter Type	Flow Rate	Max. Pressure	Ship Wt.
FP-070	HCA-3 Absorber Filter Housing (poly)	60° poly grid coalescor / absorber	1 - 15 g.p.m.	10 p.s.i.	21 lbs.
FP-003	High Pressure HCA-3 Housing (s.s.)	60° poly grid coalescor / absorber	1 - 15 g.p.m.	90 p.s.i.	43 lbs.
FL-003PX	Coalescing Matrix Filter for FP-070	---	---	---	8 lbs.
FL-003X	Coalescing Matrix Filter for FP-003	---	---	---	12 lbs.

2 Yard Solids Collection & Dewatering Filter



Item # OP-048

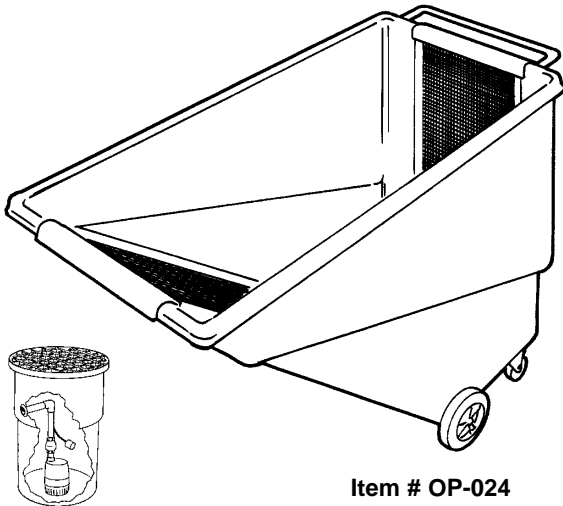
Item # OP-026

RGF's Self-flushing 2 Yard Solids Collection and Dewatering Filter is designed to remove heavy solids from the waste stream and collect for disposal. Filters to 170 micron particle size. System requires lift truck for dumping. Available in two materials: aluminum for light weight material collection, or carbon steel for heavy weight materials. Requires a below grade sump basin to be located under the filter to catch and transfer filtered water.

- *Dimensions:* 4'6"W x 4'4"H x 5'6"L
- *Construction:* OP-026: aluminum frame
OP-047: A-36 carbon steel frame
- *Sump Basin:* Optional OP-048 Heavy Duty Sump Basin
1/2 h.p Sump Pump 115 VAC, 50/60 Hz,
9.8 Amps

Item #	Description	Capacity	Filter	Construction	Ship Wt.
OP-026	2-Yard Dewatering Filter - light weight	2 Cubic Yards	170 micron s.s. mesh	Aluminum	297 lbs.
OP-047	2-Yard Dewatering Filter - heavy duty	2 Cubic Yards	170 micron s.s. mesh	A-36 Carbon Steel	Call
OP-048	Optional Sump Basin Assembly	40 gallons	---	---	12 lbs.

1/2 Yard & 1 Yard Solids Collection / Dewatering Filters



Item # OP-044

Item # OP-024

RGF's Self-Flushing 1/2 Yard & 1 Yard Solids Collection / Dewatering Filters are designed to remove light and medium solids from the waste stream and collect for disposal. Filters to 170 micron particle size. Reduces labor costs by avoiding the difficult and unhealthy task of cleaning out below grade sump pits. Requires a sump basin to be located under hopper to catch and transfer filtered water.

- *Construction:* UV Protected Polyethylene & Steel
- *Sump Basin:* Optional OP-044 Standard Sump Basin
1/3 h.p Sump Pump 115 VAC, 50/60 Hz,
7.2 Amps

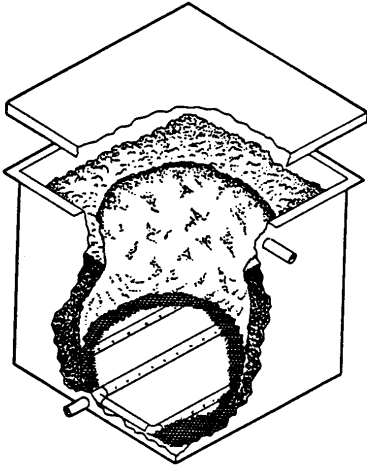
Item #	Description	Capacity	Filter	Dimensions	Ship Wt.
OP-024	1/2-Yard Tilt Dumping Hopper	0.5 Cubic Yards	170 micron s.s. mesh	55"L x 26"W x 38"H	60 lbs.
OP-025	1-Yard Tilt Dumping Hopper	1.0 Cubic Yards	170 micron s.s. mesh	71"L x 30"W x 42"H	112 lbs.
OP-044	Optional Sump Basin Assm.	25 gallons	---	---	35 lbs.



INDUSTRIAL FILTERS

Gravity Flow Carbon System

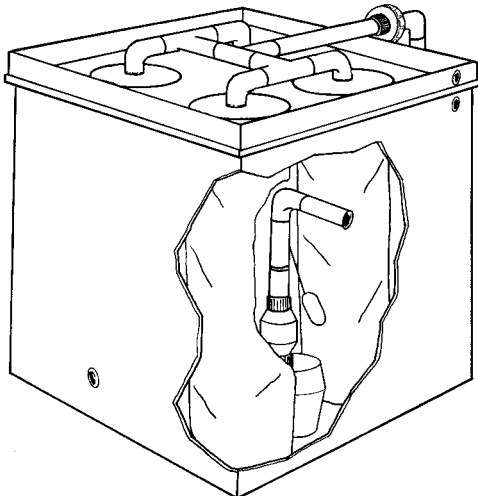
RGF's Gravity Flow Carbon System is designed as a slow flow carbon contact vessel to remove organic matter from wastewater. Ideal for use as a final treatment method in wastewater processing. The system can also be used as a treatment for overflow water from a recycle systems storage tank and treat the water before it is sent to discharge.



- *Construction:* Polyethylene Housing
PVC Pipe
- *Dimensions:* 32" sq. x 36"H
- *Capacity:* 150 gallons max.

Item #	Description	Media	Flow Rate	Ship Wt.
OP-023	Gravity Flow Carbon System	600 lbs. Carbon	1 - 20 g.p.m.	708 lbs.
FL-094	Replacement Media	600 lbs. Carbon	---	600 lbs.

Multiple Bag Solids Filters

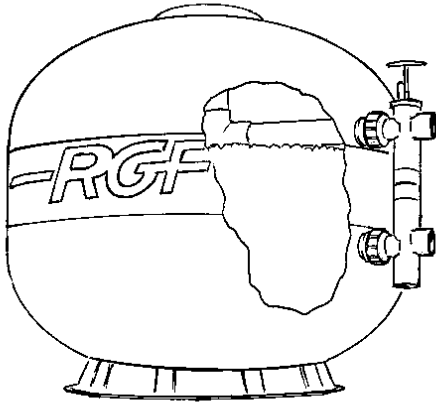


A low maintenance bag filter system designed to remove large solids, dirt, and debris over 100 microns in size from the waste stream. Two styles to choose from: gravity flow or pressurized flow. The four and six bag gravity flow is designed for larger solids removal, whereas the four bag pressurized flow is utilized to filter out fine silts, clays, and biological slime. System comes equipped with a transfer sump pump for discharging or transferring to further treatment.

- *Dimensions:* 35"sq. x 38"H
- *Sump Pump:* 1/3 h.p. s.s. Sump Pump
115 VAC, 60 Hz, 7.2 Amps
- *Construction:* UV protected polyethylene tank

Item #	Description	Capacity	Filter	Flow (Pressure)	Ship Wt.
OP-027	4 Bag Gravity Flow Filter	150 gallons	100 microns nylon	Gravity (0 - 5 psi)	189 lbs.
OP-059	4 Bag Pressurized Flow Filter	150 gallons	25 microns poly felt	Pressurized (0 - 25 psi)	189 lbs.
OP-056	6 bag Gravity Flow Filter	150 gallons	100 microns nylon	Gravity (0 - 5 psi)	200 lbs.

Multi-Media Filter

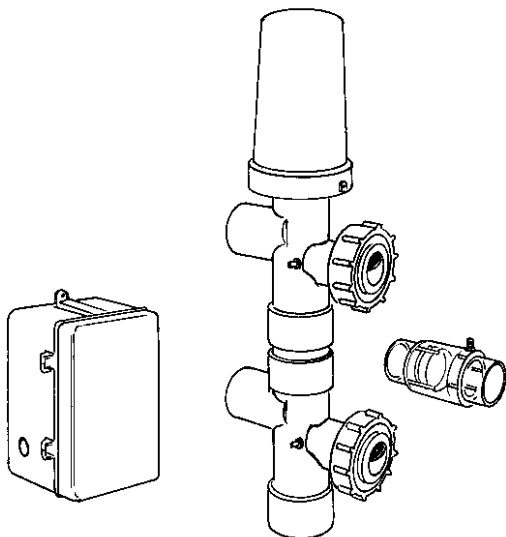


RGF's Multi-Media Filter is a versatile depth penetration filter designed for numerous applications such as pre-filtering, post filtering, and continuous polish filtering. The filter is available in two sizes and comes standard with carbon and silica sand media making it ideal for use as a organic and particulate filter, or custom designed for removal of specific contaminants such as heavy metals or hydrocarbons. Call RGF for details.

- **Tank Construction:** Fiberglass
- **Valve Construction:** High Density Plastic
- **Backflush:** Manual / Auto backflush refer to below
- **Filter Free Board:** FP-089 - 9.25"
FP-090 - 11.25"
- **Media Composition:** FL-078 - 35 lbs. Anthracite, 100 lbs. no. 20 silica sand, 100 lbs. pea gravel
FL-108 - 70 lbs. Anthracite, 150 lbs. no. 20 silica sand, 150 lbs. pea gravel

Item #	Description	Filter Area	Filter media	Flow (Max. Pressure)	Ship Wt.
FP-089	(SM) Multi-Media Filter w/ manual silde valve + media	2.3 sq. ft.	235 lbs. (FL-078)	50 g.p.m. (50 psi)	280 lbs.
FP-090	(XL) Multi-Media Filter w/ manual silde valve + media	4.9 sq. ft.	370 lbs. (FL-108)	100 g.p.m. (75 psi)	420 lbs.
FL-078	(SM) Media	---	---	---	235 lbs.
FL-108	(XL) Media	---	---	---	370 lbs.

Multi-Media Filter Auto BackFlush Valve and Controller Assembly



RGF's Auto Backflush Multi-Media assembly completely eliminates the need to manually backflush the filter media. Ideal for situations that require frequent backflushing of the filter or 24-hour operations that run unattended (i.e., car washes). Fits both large and small Multi-Media Filters. Comes with automatic backflush controller.

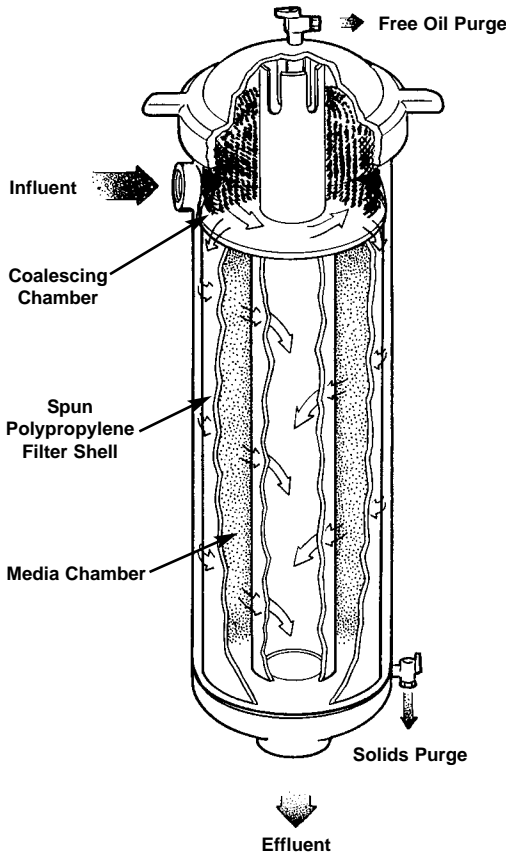
- **Electrical:** 115/220 VAC, 50/60 Hz, 3 Amps
- **Backflush Time Range:** Adjustable Time Sequence Controlled

Item #	Description	Ship Wt.
FP-075	Multi-Media Filter Auto Backflush Valve and Controller Assembly	20 lbs.
OI-055	Multi-Media Filter Auto Backflush Valve and Controller Assembly Factory Installed	Factory Installed



RGF Multi-Filter Multi-Purpose Filter

RGF's Multi-Filter is a multi-purpose filter designed for numerous water filtration applications. The filter can process up to 75 gpm at a maximum pressure of 90 psi. It has a maintenance-free polypropylene housing with a versatile spun poly filter shell, which contains approximately 400 cubic inches of medias such as clays, sands, carbon, or fiber. Other custom medias can be placed in the filter shell to handle a wide variety of waste stream contaminants. A Coalescing Matrix Filter coalesces free oils, which are then purged at the top. The filter comes standard with the Coalescing Matrix, a Spun Polypropylene Filter Shell containing activated carbon media (OP-087). Also available is the RGF H.I.P. Multi-Filter designed for removal of herbicides, insecticides and pesticides (OP-089).



Standard Features

- Corrosion Free
- Four-stage Process
- Chemically Resistant
- Low Media Migration
- Resists Channeling and Bypass
- Coalescing Pre-filter
- Solids Purge
- Hydrocarbon Purge
- Easy Single Cartridge Change
- Heat Sealed

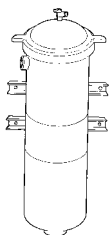
Specifications

- *Max. Flow Rate:* 75 GPM
 - *Max. Operating Pressure:* 90 psi
 - *Max. Operating Temperature:* 110° F
 - *Dimension (w/o stand):* 29"H x 12" D
 - *Weight:* 6.8lbs.
 - *pH Range:* 2 - 11
 - *Color:* gray standard
- Optional Colors for OEM : blue, black, or white (please specify color when ordering)

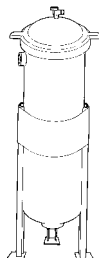
Item #	Description	Filter Type	Flow (Max. Pressure)	Ship Wt.
OP-087	RGF Multi-Filter Assembly	Multi-Filter Cartridge w/ Activated Carbon	1 - 75 g.p.m. (90 psi)	
OP-089	RGF Multi-Filter Assembly w/ H.I.P. Media	Multi-Filter Cartridge w/ H.I.P. Media	1 - 75 g.p.m. (90 psi)	6.8 lbs.
FL-112	Replacement Multi-Filter Cartridge	Multi-Filter Cartridge w/ Activated Carbon	---	6.8 lbs.
FL-113	Replacement H.I.P. Media Cartridge	Multi-Filter Cartridge w/ H.I.P. Media	---	2 lbs.

Mounting Options

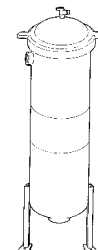
The filter vessel can be custom mounted by attaching to a wall or backboard with our stainless steel wall bracket or base mounted with a bipod or a tripod made of stainless steel, carbon steel, or polypropylene.



**Stainless Steel
Wall Bracket**



**Stainless Steel
or Carbon Steel
Tripod Floor
Mount**



**Poly Bi-pod
Floor Mount**

Item #	Description	Construction	Ship Wt.
FP-081	Stainless Steel Wall Bracket	304 S.S.	CALL
FP-080	Stainless Steel Tri-pod Floor Mount	304 S.S.	CALL
FP-079	Carbon Steel Tri-pod Floor Mount	A-36 Carbon Steel	CALL
FP-078	Poly Bi-pod Floor Mount	Polypropylene	CALL

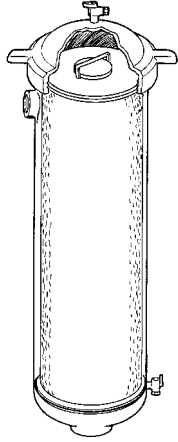
j Specification Sheet Available j



CALL RGF Toll Free 1-800-842-7771
International & FL Call 1-561-848-1826

INDUSTRIAL FILTERS

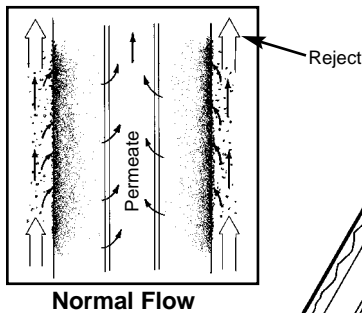
RGF Poly Cartridge and Bag Filters



RGF's Poly Cartridge and Bag Filter is designed for numerous water filtration applications. The filters can process up to 75 gpm at a maximum pressure of 90 psi. The polypropylene housings are maintenance-free and include solids and oil purge valves. The Cartridge Filters are one micron depth penetration spun polypropylene, meaning the cartridges filtering capacity increases with depth. The poly felt bag filters can be ordered in several different micron sizes. The filter housings require a mounting option (refer to RGF Multi-Filter for mounting options).

- *Max. Flow Rate:* 75 GPM
- *Max. Operating Pressure:* 90 psi
- *Max. Operating Temperature:* 110° F
- *Dimension (w/o stand):* 29"H x 12" D
- *Weight:* 6.8lbs.
- *pH Range:* 2 - 11
- *Color:* gray standard

Item #	Description	Filter Type	Flow (Max. Pressure)	Ship Wt.
FP-053	RGF Poly Cartridge Filter Housing	N / A	1 - 75 g.p.m. (90 psi)	6.8 lbs.
FP-054	RGF Poly Bag Filter Housing	N / A	1 - 75 g.p.m. (90 psi)	6.8 lbs.
FL-086	Poly Filter Cartridge	25 micron Spun Polypropylene Depth Filter	---	2 lbs.
FL-088	5M - Poly Bag Filter	5 micron Poly Felt Bag 5" x 20"	---	1 lbs.
FL-089	10M - Poly Bag Filter	10 micron Poly Felt Bag 5" x 20"	---	1 lbs.
FL-090	25M - Poly Bag Filter	25 micron Poly Felt Bag 5" x 20"	---	1 lbs.
FL-091	50M - Poly Bag Filter	50 micron Poly Felt Bag 5" x 20"	---	1 lbs.
FL-092	100M - Poly Bag Filter	100 micron Poly Felt Bag 5" x 20"	---	1 lbs.

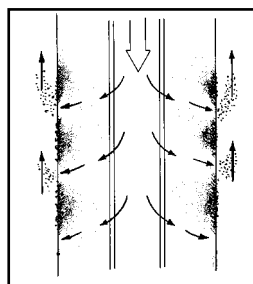
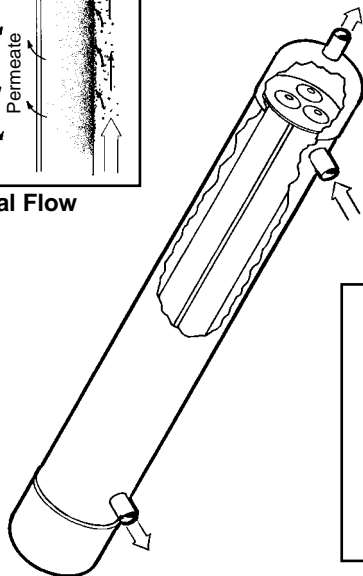


Normal Flow

RGF MS³ Molecular Separation Filtration Membrane

"Saves on Cleaning Chemicals"

RGF has developed the MS³ Molecular Separation Filtration membrane to reduce the total suspended solids in vehicle wash water to the sub micron level, while leaving the soluble detergents in the water for reuse and cost effectiveness. This membrane can be added to existing systems as an upgrade or can be used for special applications. With the capability of a true backflush to restore permeate flow rates, it is the only membrane of its kind!



Membrane Backflush

- *Feed Flow Rates:* Feed - 45 g.p.m. max.
Product - 1- 5 g.p.m. typical
- *Connections:* Inlet / Outlet - 1 1/2" NPT
Product - 3/4" NPT
- *Operating Pressure:* 10-60 psi
- *Max. Oper. Temp.:* 130° F
- *pH Range:* 2-10
- *Dimensions:* 7" O.D. x 60"L

Item #	Description	Filtration Capacity	Product Rate (typical)	Ship Wt.
MP-027	RGF MS ³ Membrane Assembly	0.5 microns / 500,000 molecular range	1 - 5 g.p.m.	51 lbs.

j Specification Sheet Available j

