

Marine operators today find themselves in a “tide” of environmental laws and compliances being passed to ensure and protect the very waters they depend on for their livelihood! The environmental issues facing marine operators worldwide can be met in many different ways. Individualized management and pollution control are key factors in planning clean marine practices that result in long lasting benefits. Many issues can be handled inexpensively and effectively while producing the wanted end result of a cleaner, safer environment for all to enjoy.

Wash Water Recycling - can save a marina money in water usage and disposal, as well as permitting requirements by local EPA and government agencies. The impact wash water has on the marine environment can be devastating! Marine fish and plant life can be threatened due to the oxygen demand required to combat the contaminants created by pressure washing. With the installation of a wash pad equipped with a pit or trough, a marina operator can collect wash water and other substances such as bottom paint and barnacles, which otherwise would return to ground water or the waterway as needlessly contaminated runoff. The water collected can be processed through the wash water recycling system for reuse resulting in zero discharge. These systems eliminate the need for runoff permits and reduce the possibility of a contaminated release.

Bilge Water - will produce a visible sheen on the water and is identified by the EPA as a reportable discharge. Clean up costs can result, which are in addition to the fines! Offenders identified as chronic can face more serious consequences in the form of civil and possible criminal actions brought by state or federal agencies. A portable oil/water separator can convert contaminated bilge water into clean water before it is discharged overboard. Coalesced oils and hydrocarbons trapped by a nonclogging filter cartridge rise and are discharged to a clear plastic collector. While refueling a boat, the marina can offer to pump out the bilge for a fee. The marina will be encouraging the boater to practice good environmental sense as well as increase profits for the marina. This service can also be offered to the boaters who store their boats within the marina as an added bonus for utilizing the facility. Discharge of bilge water must be below 15 ppm of fuel, oils, and grease.

Water Volume vs. 15 ppm of Oil Contamination

OIL		WATER
1 Drop	in	1 Gallon
3/4 Pint	in	4,000 Gal. Tanker Truck
4.5 Quarts	in	50 gpm flow over 24 hrs. (72,000 Gals.)

Spill Response - is required by the EPA with the ruling that the marina operator must have an emergency plan, as well as the needed equipment, to respond to a spill, in place. “Kits” are available to marinas that can be mounted dock side containing all equipment necessary to contain a spill in the marina effectively. Where several marinas are located in a reasonably close proximity, it may be possible to develop a joint plan and share the equipment to minimize the overall cost and still have adequate hardware on hand. All employees should be trained to deploy the needed equipment to contain a spill until needed assistance can respond. This equipment and training can save a marina thousands of dollars in fines and clean up costs in the event of a spill.

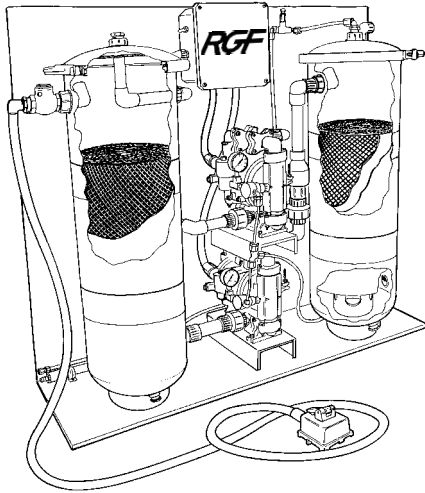
Refer to the following sections for additional products for marine applications:

- Oil / Water Separators
- Flocc Systems
- Recycle Systems
- Ozone Air Treatment Systems
- Ozone Water Treatment Systems



Bilge Filter Model 4000-C Fully Automatic Bilge Mounted Oil / Water Separator

I.M.O., Transport Canada & U.S. Coast Guard Approved!



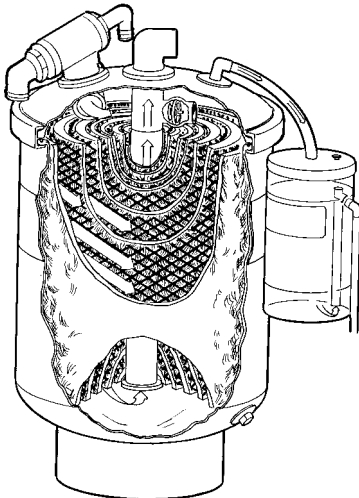
The Model 4000-C Bilge Mounted Oil / Water Separator is an advanced, fully automatic bilge water filtration system designed for commercial vessels. The system is designed to prevent oil / water discharge overboard by removing the oil from the bilge water down to less than 15 p.p.m. free oils. An optional oil collection tank is available if an onboard vessel oil storage tank (slop tank) is not avail-

- **Approval #'s:** U.S.C.G. # 162.050/1211/0
I.M.O. Resolution MEPC.60(33)
T.C. #15/0148
- **Filtration Capacity:** < 15 p.p.m. free oils
- **Material:** Polyethylene / PVC / 316 S.S.
- **Dimensions:** 15"W x 48"L x 42"H
- **Filter Types:** Permanent Micro-Matrix Coalescor - (Item # FL-003M)
Replaceable HCA-3 Absorber Filter - (Item # FL-002M)

Item #	Description	Daily Capacity	Suggested Vessel Size	Power Requirements	Ship Wt.
MAR-003M	Model 4000-C/Air Pumps	1,100 g.p.d.	Work Boats/Freighters	120 VAC / 1.0 Amps*	218 lbs.
MAR-004M	Model 4000-C/A.C. Pumps	1,100 g.p.d.	Tugs/Ferries/Fishing ves-	120 VAC / 15 Amps	218 lbs.
MAR-014M	Model 4000-C/D.C. Pumps	1,100 g.p.d.	sels	12 VDC/ 10 Amps	218 lbs.
	Oil Collection Tanks for 4000-C	---	Small Fleet Boats	---	25 lbs.

* System requires an air compressor to operate the air diaphragm pumps (Max. pressure 100psi @ 20 SCFM)

Bilge Filter Model 1500 & 4000 In-line Bilge Mounted Oil / Water Separators



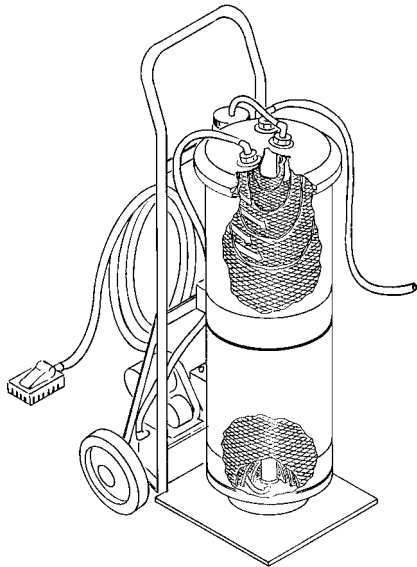
The Model 1500 and Model 4000 Bilge Filters are bilge bulkhead-mountable and are plumbed in-line on the pressure side of the existing bilge pump. The systems are designed to remove normally accumulated free oils from the bilge during bilge dewatering cycles.

- **Dimensions:** Model 1500: 13"W x 21"H
Model 4000: 13"W x 42"H
- **Filtration Capacity:** < 15 p.p.m. free oils
- **Max. Pressure:** 5 psi
- **Material:** Polyethylene / PVC/ Stainless Steel
- **Filter Type:** Replaceable HCA-3 Absorber Filter
Model 1500: (Item # FL-001M)
Model 4000: (Item # FL-004M)

Item #	Description	Max. Flow Rate	Suggested Vessel Size	Ship Wt.
MAR-001M	Model 1500 In-line Bilge Filter	6 g.p.m.	Small Pleasure Crafts	24 lbs.
MAR-002M	Model 4000 In-line Bilge Filter	10 g.p.m.	Medium Pleasure Crafts	37 lbs.

j Specification Sheet Available j

Bilge Filter Model P.O.W.S. Portable Oil / Water Separator

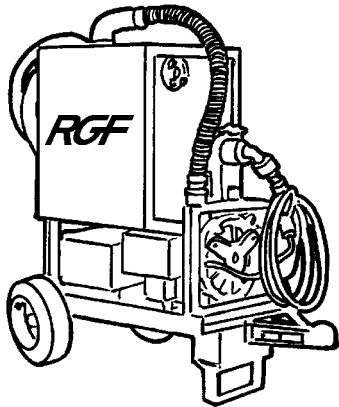


The Model P.O.W.S. is designed to filter oily wastewater in many applications, including marine bilge water pump out and mobile washing operations. After separation, the free oils are discharged to a reservoir for easy disposal.

- *Dimensions:* 46"H x 17"W x 22"L
- *Filtration Capacity:* < 15 p.p.m. free oils
- *Max. Pressure:* 5 psi
- *Material:* Polyethylene / PVC/ Stainless Steel
- *Filter Type:* Replaceable HCA-3 Absorber Filter (Item # FL-004M)

<i>Item #</i>	<i>Description</i>	<i>Max. Flow Rate</i>	<i>Electrical Requirements</i>	<i>Ship Wt.</i>
MAR-007M	Model P.O.W.S.-A/C Pump	5 g.p.m.	120 VAC, 60 Hz, 10 Amps	88 lbs.
MAR-010M	Model P.O.W.S.-D/C Pump	5 g.p.m.	Self Contained 12 VDC System	98 lbs.

RGF Sludge Pump Pump-Out System



RGF's advanced sludge pump-out system utilizes a peristaltic positive displacement pump known for handling solids and heavy materials. This pump can achieve suction and discharge of sludge over 1,000 feet. The portable unit is used to pump out sewage or waste holding tank, then transfers it over to sewer discharge.

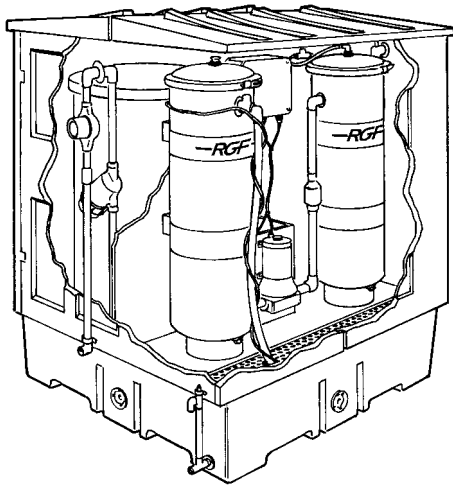
- *Dimensions:* 22"W x 40"D x 36"H
- *Construction:* PVC tank / S.S. Hardware
- *Electrical:* 120 VAC, 60 Hz, 30 Amps

RGF Sludge Pump System Includes:

- PVC construction
- Hand dolly
- 12" pneumatic wheels with 3/4" stainless steel axle
- 3 h.p. electric motor (120 VAC)
- Stainless steel hardware and aluminum frame
- Continuous vacuum - no priming required
- Total vertical head of 90 feet

<i>Item #</i>	<i>Description</i>	<i>Ship Wt.</i>
OP-005M	Sludge Pump-Out System	CALL

Bilge Water Processing Center Dock Mounted Bilge Water Processing Center

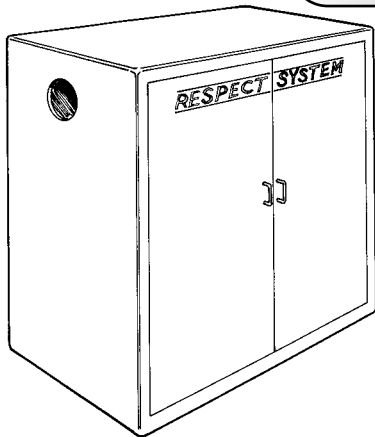


The RGF Bilge Water Processing Center is a dock mountable advanced oil / water separation system for processing bilge water from vessels. The system provides an automatic bilge water pump out service for fleet vessels, private vessels, marinas, and harbors. Bilge water is pumped into the base of the system, which processes the water using an advanced matrix coalescing and absorption filtration system to remove free oils, fuel, and other free petroleum hydrocarbons prior to discharge. The system requires RGF's Optional Pump Out Center for transferring bilge water from the vessels to the system.

- **System Requirements:** Bilge water pump out station
- **Filtration Capacity:** < 15 p.p.m. free oils
- **Max. Pressure:** 5 psi
- **Dimensions:** 55" W x 56" L x 61" H
- **Material:** Polyethylene / PVC/ Stainless Steel
- **Filter Type:** Permanent Micro-Matrix Coalescor - (Item # FL-003M)
Replaceable HCA-3 Absorber Filter - (Item # FL-002M)

Item #	Description	Process Rate	Holding Capacity	Electrical Requirements	Ship Wt.
MAR-015XM	Bilge Water Processing Center (AC)	45 gallons per hour	100 gallons	120 VAC, 60 Hz, 15 Amps	567 lbs.
MAR-016XM	Bilge Water Processing Center (DC)	45 gallons per hour	100 gallons	12 VDC, 10 Amps	567 lbs.
TP-051M	Optional Process Tank	---	325 gallons	--	50 lbs
OP-004M	Optional Pump Out Center	10 g.p.m.	---	--	Call

The RESPECT® System Dockside Emergency Spill Containment



The RESPECT® System is a self-contained dockside system designed for rapid deployment in the event of a fuel spill in a marina. RESPECT®, which stands for Rapid Environmental Spill Protection and Emergency Containment Technologies, has everything needed to contain and absorb petroleum spills of up to 200 gallons.

- **Dimensions:** 36"H x 28"W x 32"L
- **Construction:** PVC Cabinet & Shelves
S.S. Hardware
- **Filter Type:** Oleophilic Absorption Medias

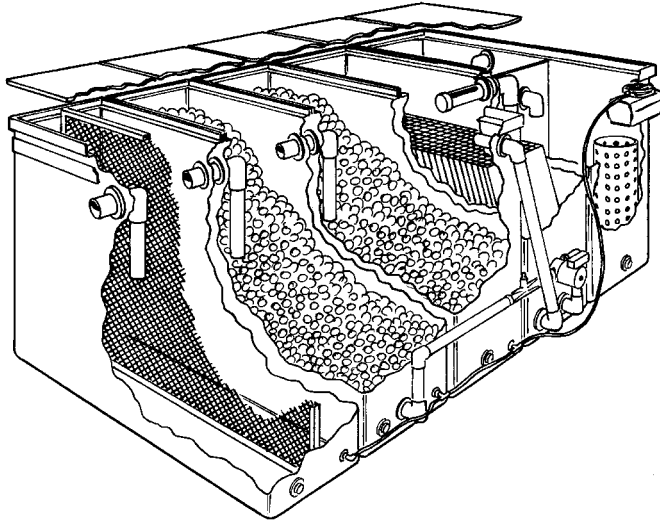
RESPECT® System Standard Inventory

1 - 150' x 5" Oil Absorbent Boom	2 - Rubber "NUKE" Boots
1 - Kedge Deployment System	1 - Broom
100 - 18" x 21" Oil Absorbent Pads	2 - 5 Gallon Plastic Pails
4 - 8" x 18" Oil Absorbent Pillows	2 - Tryvek Disposable Coveralls
2 - Oil Absorbent Mop Heads	1 - Dust Pan
4 - Hazardous Waste Disposal Bags	1 - Eye Wash Station
1 - Mop Ringer Bucket	1 - First Aid Kit
8 - Boom Anchors	6 - Rubber Gloves
2 - Aluminum Handles (4' to 8' length)	4 - Goggles
2 - Handle Extensions(24")	1 - Bag Oil Sorbent
2 - Boat Hook Heads	

Item #	Description	Ship Wt.
OP-002M	RESPECT® System	683 lbs.

RGF BioSorb-Shipboard Modular Sewage Treatment System

RGF modified their proven BioSorb Sewage Treatment System into a modular shipboard unit. The system consists of five individual lightweight tanks designed to permit easy installation on existing vessels. Once on board, the tanks are easily assembled and bolted in place. The RGF BioSorb-Shipboard utilizes a five stage process and multiple technologies to thoroughly process black water from on board septic tanks. These technologies include Solids Prefiltration, Aeration, Activated Sludge, Aerobic Digestion, Sludge Circulation, Clarification, and Final Disinfection. The black water is aerobically digested, clarified, and then disinfected prior to discharge overboard.



RGF BioSorb-Shipboard

Applications

Designed to be coupled with existing shipboard black water tanks to treat septic wastewater for overboard discharge.

Standard Features

- Solids Pre-Screening
- BioSorb Aerobic Media
- Aeration System
- Inclined Plate Clarifiers
- Post Treatment Disinfection (Chlorination)
- Lift Station Discharge Pump
- Options:
 - XL-CO³P Catalytic Oxidation (High Capacity Disinfection)
 - Vent Odor Destruct System (Turbozone[®] Ozone Generator)

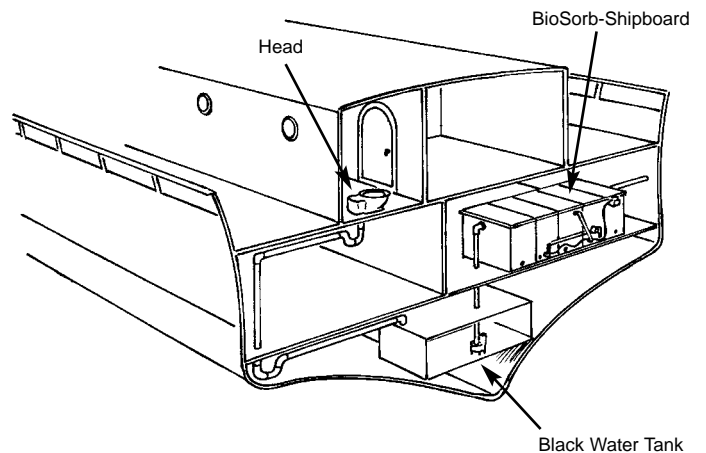
Specifications

- **Max. Flow Rate:** 200 g.p.d.
- **Dimension:** 19"L x 38"W x 38"H - BioSorb Tanks (5)
- **Overall Dimensions:** 8'L x 38"W x 38"H - 290 Gallons
- **Electrical:** 120 VAC, 10 Amps, 50 / 60 Hz
- **Oper. Temp. Range:** 30° - 90° F
- **pH Range:** 4 - 9
- **BioSorb Media:** 14 cubic feet
- **B.O.D./C.O.D. Reduction:** Up to 95%
- **Material:** Polypropylene Bio media, Polyethylene Tank, PVC Piping

Item # Suggested Accessories / Filters

- | | |
|---------|---|
| SA-007T | XL-CO ³ P Catalytic Oxidation (High Capacity Disinfection) |
| HTC-16 | Vent Odor Destruct System (Turbozone [®] Ozone Generator) |

Recommended Installation

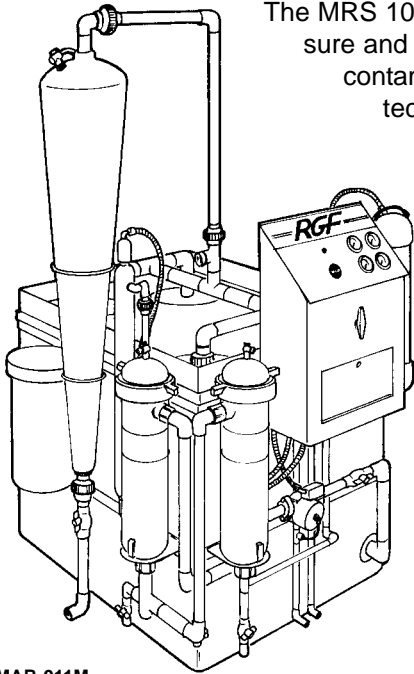


Item #	Recycle System	Daily Capacity	Volume*	Ship Wt.
MAR-015M	RGF BioSorb-Shipboard	200 g.p.d.	290 gallons	Call

* The BioSorb Maintains a constant water volume of 290 gallons



Model MRS-10 Marine Wash Water Recycling System



Item #MAR-011M

The MRS 10 Wash Water Recycling System is designed for light/medium duty pressure and steam cleaning users, processing up to 10 gpm. The MRS 10 collects contaminated water from the wash pad, processes it through 12 different RGF technologies, and returns the clean water to the pressure or steam cleaner for reuse. The standard model contains a TurboHydrozone® for water purification, and the MRS-10 CO³P contains RGF's advanced CO³P Catalytic Oxidation System.

Applications

3 - 4 hours per day closed-loop washing applications for small to medium size vessels and marine equipment.

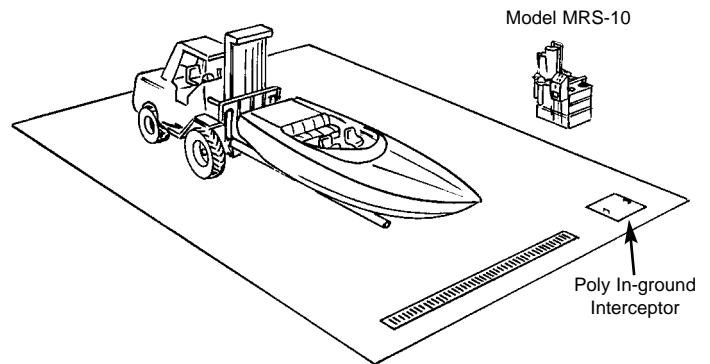
Standard Features

- High Efficiency Coalescing Separator
- Hydrocarbon Accumulator
- Four Bag Pressurized Filter
- Polishing Filtration System (2)
- TurboHydrozone® Ozone System (Item # MAR-011M Only)
- SM-CO³P Catalytic Oxidation (Item # MAR-012M Only)
- CFC System
- Fresh Water Make-up
- Manual Polish Filter Backflush
- Built in Storage Tank
- Overflow Protection

Specifications

- **Process Flow Rate** 10 g.p.m.
- **System Capacity** 250 gallons
- **Dimensions** 4'w x 4'l x 7'h
- **Electrical** 115 VAC, 60 Hz, 10 A
- **Final Filtration Type** Polishing Filter (2)
- **Oxidation System** TurboHydrozone® (MAR-011M Only)
CO³P Catalytic Oxidation (MAR-012M Only)
- **Process / Supply Pump** 1/6 h.p. centrifugal

Recommended Wash Pad Design



Item # Suggested Accessories / Filters

- OI-018 Programmable Auto BackFlush
- OI-021 Detachable Control Panel
- OP-077 Poly In-Ground Interceptor w/ 1/3 h.p. Sump Pump
- FL-005M Polish Filters (2 needed)
- FL-006M 100 M Bag Filters (4 needed)

Item #	Recycle System	Delivery Flow Rate	Storage Capacity	Filtration Capacity	Ship Wt.
MAR-011M	Model MRS-10 Standard	10 g.p.m.	50 gallons	25 Microns	417 lbs.
MAR-012M	Model MRS-10 CO ³ P	10 g.p.m.	50 gallons	25 Microns	450 lbs.