

# McHenry

**PRESSURE CLEANING SYSTEMS**

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## Water Treatment Systems

# BIO Series



With enhanced design technology, the BIO Series Water Treatment Systems utilize fixed-film bacteria in conjunction with coalescing media at manageable costs. These biological recycle and discharge water treatment systems include a variety of cone-shaped tank sizes, submersible sump pump, bio-film generative media and a Mazzei Venturi air injection system.

Perfect for rental yards, golf courses, trucking facilities, military bases, diesel repair facilities, and municipalities, the BIO Series Water Treatment Systems provide quality recycled wash-water right where it's needed.

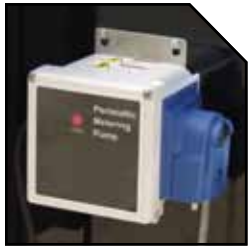


# Biological Recycle Systems/Clarifier

This popular BIO Series Systems utilize fixed-film bacteria in conjunction with coalescing media. Various tank sizes and flow rates are used to create retention time for the treatment of wastewater streams. Oxygen is supplied to the bacteria in the waste stream by venturi injection.



CSA listed NEMA-4 rated corrosion-proof control panel for safe and reliable operation



Peristaltic pump is self priming for passive automatic liquid microbe injection. This feature drastically reduces the amount of hands-on operation time required.



Mazzei® venturi air injection system sustains beneficial aerobic microbes, while preventing bacteria from turning odorous and anaerobic

## The wash-water recycle system with enhanced design technology offering:

- Cone-shaped tank for easy handling of accumulated solids
- Quality recycled wash-water without common odor problems
- Easy operation and maintenance that saves you time and money
- Conveniently located instrument panel and controls (CSA listed)
- Heavy-duty, corrosive-resistant and UV-resistant poly-skid

## System provides efficient handling of tough organic applications, such as:

- Golf Courses – Designed to handle equipment wash-water for various golf course configurations
- Solid-Waste Haulers – Able to effectively treat vehicle wash-water, like that from garbage trucks
- Food Processing Plants – Pre-treatment of a broad range of food processing waste-water before discharging
- Petro-Chemical – Capable of treating waste streams containing multiple, organic particulate matter
- Anything with organic compounds in waste water



BIO-15-OM10 shown with ozone option (WX-0020)

Model Number	Flow Rate	Clarifier Tank	Media	Sump Pump (Included)	Transfer Pump	Power Requirements	Poly Skid Dimensions (LxWxH)	Ship Wt.
BIO-15-OM10*	0-15 GPM	600 gallons	1,300 sq. ft.	1.0 HP	3/4 HP	230V, 1Ø, 20.0A	5 ft. x 8 ft. x 110 in.	1,250 lbs.
BIO-15-OM30*	0-15 GPM	600 gallons	1,300 sq. ft.	1.0 HP	3/4 HP	230V, 3Ø, 15.0A	5 ft. x 8 ft. x 110 in.	1,250 lbs.

\*Includes sump pump and peristaltic pump.

230/208/460V 3-phase available on all models as options.

## ACCESSORIES

Part Number	Description	Fits Models
21-0213	Tank-mount bracket for waterfall filter - aluminum	BIO-15 models
855-0017	Sludge box assembly	BIO-15 models
RC-0003-0002	Biodegradable sludge bags, 5 qty.	BIO-15 models

More accessories listed on page 5.

## OPTIONS

Part Number	Description	Fits Models
WX-0020	Ozone option	BIO-15-OM10
WX-0024	Pit float location	BIO-15-OM10
WX-0030	BIO sump pump swap, converts surface pump to submersible, 1Ø, 230V	BIO-15 models
WX-0041	165-gallon product tank upgrade	BIO-15 models
WX-0064	230V, 1Ø, magnetic drive pump	BIO-15-OM10
WX-0065	208-230V, 3Ø, magnetic drive pump	BIO-15-OM30
WX-0066	460V, 3Ø, magnetic drive pump	BIO-15-OM30

More options listed on page 5.

# Custom Biological Combination Units

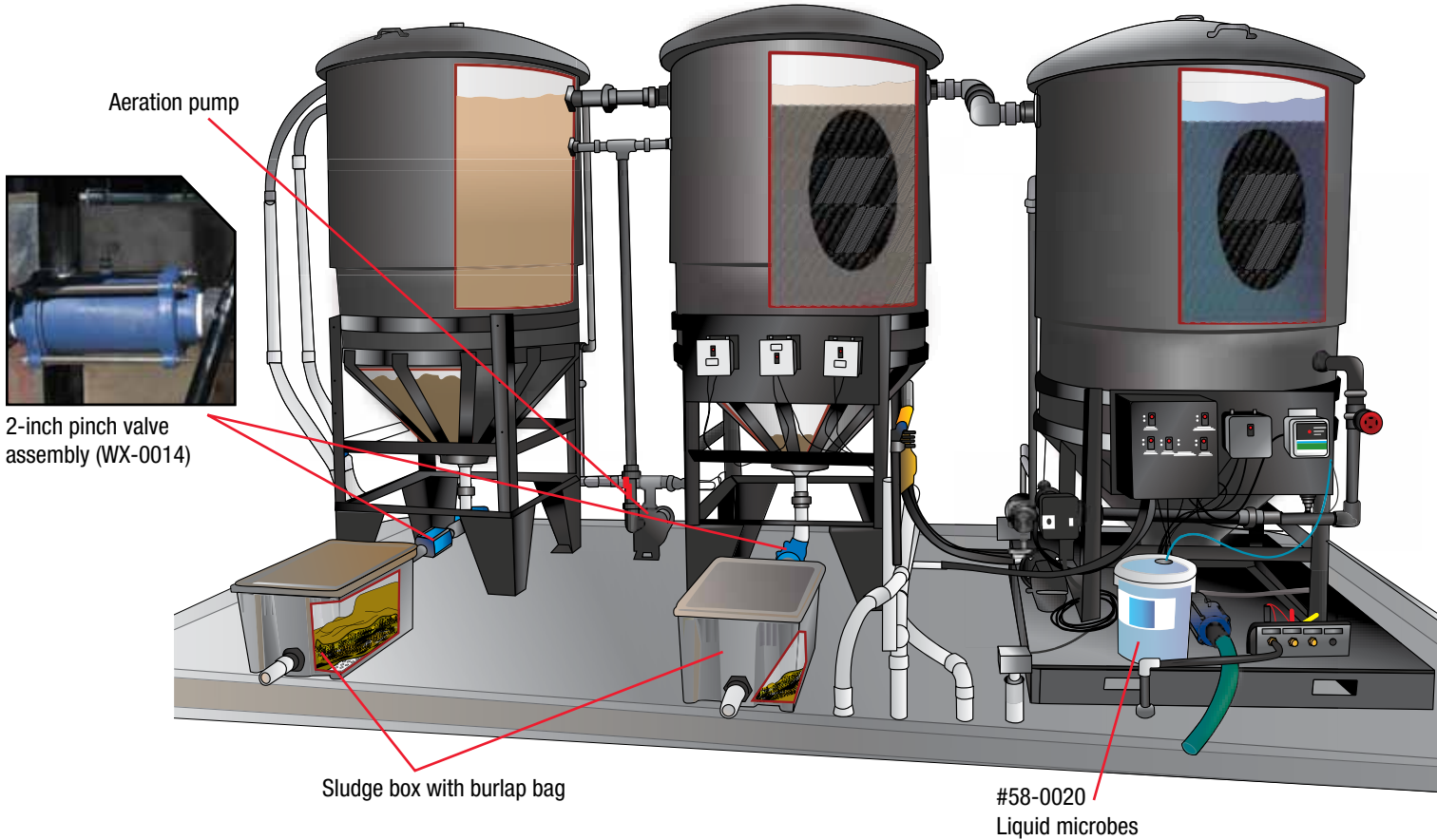
Optional custom biological units are available within the BIO Series family to satisfy your specific application needs. These set-ups offer your choice of 600-gallons or 300-gallon tank(s). Please contact McHenry for more information about available BIO Series combinations, or how we can custom-build a water treatment system to meet your requirements.

## Just one of several examples of a custom biological set-up.

WTA-600-0M10  
Optional Settling Tank –  
Shown with optional tank stand  
extension legs (#20-0596A01)

WTA-600SA-0M10  
Optional Tank includes  
Coalescing Aeration Media  
and Peristaltic Pump –  
Shown with optional tank stand  
extension legs (#20-0596A01)

BIO-15-0M10



### WTA-600-0M10 (Single phase)

Part Number	Includes	Qty.
12-0069*	600-gallon tank	1
20-0595A01	Tank stand	1

\*Includes manual dump valve.

### WTA-600CL-0M10 (Single Phase) WTA-600CL-0M30 (Three phase)

Part Number	Includes	Qty.
12-0069*	600-gallon tank	1
20-0595A01	Tank stand	1
3-0328	Sump pump	1

\*Includes manual dump valve.

### ACCESSORIES

Part Number	Description	Fits Models
20-0596A01	Tank stand extension legs, 4 required	WTA tanks
855-0039	Connection plumbing for 600-gallon tanks	WTA-600EXP/SA
855-0040	Inlet plumbing for tanks	WTA tanks
855-0041	Outlet plumbing for tanks	WTA tanks
RC-0016-0001	Replacement media, 600-gallons	WTA-600EXP/SA

### WTA-600EXP-0M10 (Single phase) WTA-600EXP-0M30 (Three phase)

Part Number	Includes	Qty.
12-0069*	600-gallon tank	1
20-0595A01	Tank stand	1
21-0203	Coalescing main media frame	2
21-0204	Coalescing side media frame	2
3-0331	Aeration pump	1
55-0015	1-inch Mazzei venturi injector	1

\*Includes manual dump valve.

### WTA-600SA-0M10 (Single phase) WTA-600SA-0M30 (Three phase)

Part Number	Includes	Qty.
12-0069*	600-gallon tank	1
20-0595A01	Tank stand	1
21-0203	Coalescing main media frame	2
21-0204	Coalescing side media frame	2
3-0220	Peristaltic pump	1
3-0331	Aeration pump	1
55-0015	1-inch Mazzei venturi injector	1

\*Includes manual dump valve.

### OPTIONS

Part Number	Description	Fits Models
WX-0011	230V electric dump valve, 1½-inch	WTA tanks
WX-0012	115V electric dump valve, 1½-inch	WTA tanks
WX-0013	1½-inch pinch valve assembly, 230VAC, single phase (may be accommodated as 115VAC, single phase)	WTA tanks
WX-0037	pH control system, 230V	WTA tanks
WX-0038	1½-inch pinch valve assembly, 120V	WTA tanks
WX-0039	2-inch pinch valve assembly, 120V	WTA tanks
WX-0102	ph control system, 120V	WTA tanks

# Biological Recycle Discharge System

Mi-T-M's popular BIO Series Systems utilize fixed-film bacteria in conjunction with coalescing media. Various tank sizes and flow rates are used to create retention time for the treatment of wastewater streams. Oxygen is supplied to the bacteria in the waste stream by venturi injection.



CSA listed NEMA-4 rated corrosion-proof control panel for safe and reliable operation



Hose connectors are designed for easy accessibility and quick installation; the connectors are clearly marked



Mazzei® venturi air injection system sustains beneficial aerobic microbes, preventing bacteria from turning odorous and anaerobic

This system offers models available for either Recycle or Discharge operations.

Each unit offers added benefits, such as:

- Lower maintenance than any recycle system on the market today
- Low operating costs
- Simple equipment operation
- CSA approved control panel meets the requirements of the US and Canadian standards for an Industrial Control Panel



BIO-25R-1M10 with ozone option (WX-0005)

Model Number	Flow Rate	Biological Media	Tank Capacity	Material of Construction	Sump Pump (Included)	Transfer Pump	Power Requirements	Dimensions (LxWxH)	Ship Wt.
BIO-20D-0M10	0-20 GPM	2,304 sq. ft.	890 gallons	Marine Aluminum	1/2 HP	—	230V, 1Ø, 20.0A	8 ft. x 4 ft. x 4 ft.	950 lbs.
BIO-20D-1M10	0-20 GPM	2,304 sq. ft.	890 gallons	Stainless-steel	1/2 HP	—	230V, 1Ø, 20.0A	8 ft. x 4 ft. x 4 ft.	950 lbs.
BIO-20R-0M10	0-20 GPM	2,304 sq. ft.	890 gallons	Marine Aluminum	1/2 HP	2.0 HP	230V, 1Ø, 30.0A	8 ft. x 6 ft. x 4 ft.	1,000 lbs.
BIO-20R-1M10	0-20 GPM	2,304 sq. ft.	890 gallons	Stainless-steel	1/2 HP	2.0 HP	230V, 1Ø, 30.0A	8 ft. x 6 ft. x 4 ft.	1,000 lbs.
BIO-25R-0M10	0-25 GPM	3,456 sq. ft.	1,434 gallons	Marine Aluminum	1/2 HP	2.0 HP	230V, 1Ø, 30.0A	12 ft. x 6 ft. x 4 ft.	1,680 lbs.
BIO-25R-1M10	0-25 GPM	3,456 sq. ft.	1,434 gallons	Stainless-steel	1/2 HP	2.0 HP	230V, 1Ø, 30.0A	12 ft. x 6 ft. x 4 ft.	1,680 lbs.
BIO-35R-0M10	0-35 GPM	6,480 sq. ft.	2,244 gallons	Marine Aluminum	1/2 HP	2.0 HP	230V, 1Ø, 30.0A	12 ft. x 7 ft. x 5 ft.	1,900 lbs.
BIO-35R-1M10	0-35 GPM	6,480 sq. ft.	2,244 gallons	Stainless-steel	1/2 HP	2.0 HP	230V, 1Ø, 30.0A	12 ft. x 7 ft. x 5 ft.	1,900 lbs.

D – Designates Discharge / R – Designates Recycle

230V/208V/460V 3-phase available.

# BIO Series Accessories & Options

## ACCESSORIES

Part Number	Description	Fits Models
21-0152	Tank-mount bracket for waterfall filter - stainless-steel	BIO-20, BIO-25 & BIO-35 models
21-0153	Wall-mount bracket for waterfall filter	BIO-20, BIO-25 & BIO-35 models
21-0213	Tank-mount bracket for waterfall filter - aluminum	BIO-20, BIO-25 & BIO-35 models
3-0216	Submersible sump pump; 1/2 HP, 230V, 1Ø, 5.0A (3-phase available)	BIO-20, BIO-25 & BIO-35 models
3-0220	Peristaltic pump	All BIO models
3-0328	1.0 HP sump pump	All BIO models
32-0918	Buck booster (mounted on unit)	All BIO models
33-0491	6-inch trap and basket	All BIO models
5-0200A01	Cone bottom tank, waterfall filter bracket, 300-gallons	Consult Factory
55-0068	2-inch air fine-bubble injector	All BIO models
56-0069	Aluminum round sump pit	Consult Factory
56-0070	Aluminum sump grating	Consult Factory
RC-0004-0001	Grass cart	All BIO models
RC-0004-0001	Towable grass cart	All BIO models
RC-0008-0001	Waterfall filter	All BIO models
RC-0009-0001	BIO system filter; includes filter housing, filter, mounting bracket and wrench	All BIO models
RC-0010-0120	Timed peristaltic pump, 120V	All BIO models
RC-0010-0208	Timed peristaltic pump, 208V	All Bio models
RC-0010-0230	Timed peristaltic pump, 230V	All BIO models

## OPTIONS

Part Number	Description	Fits Models
WX-0005	Ozone	BIO-25R-1M10
WX-0014	2-inch pinch valve assembly, 230VAC, single phase (may be accommodated as 115VAC, single phase)	All BIO models
WX-0015	Ozone	BIO-35R-1M10
WX-0029	550-gallon product tank expansion	All BIO models
WX-0031	Tank heater	BIO-25R & BIO-35R
WX-0037	pH control system	C/F
WX-0040	Ozone	BIO-20D-1M10
WX-0089	Ozone	BIO-20R-1M10
WX-0100	BIO sump swap/converts submersible pump to surface-mount sump pump	BIO-20R, BIO-25R & BIO-35R models

Ozone is not available on Marine Aluminum Models.

## pH Control System - WX-0037

A desired pH set point is selected by the user and a pH adjustment chemical is metered into the waste water, by a peristaltic pump, until the pH set point is achieved by either lowering or raising the pH.



## CSS Series - Clipping Separation System

Looking to separate grass or other solids from your water? The Clipping Separator System is a perfect option. The CSS Series will remove grass and particles and allows you to discharge to a sanitary sewer. Our CSS Series tank also contains coalescing media for effective oil/water separation. The CSS Series can be implemented as a pre-treat for future recycle systems, or as a stand alone discharge option, where the oil decanter is added.

### Ideal for:

- Golf courses
- Municipal yards
- Maintenance facilities
- Manufacturing plants



## Waterfall Filter - RC-0008-0001

The Waterfall Filter is designed to separate grass clippings, leaves and other vegetation from the wastewater.

The grass clippings and water are pumped from the wash catch pits to the Waterfall Filter. The Waterfall Filter is equipped with a wedge wire screen that separates the grass from the water entering the Biological Water Treatment System. The water from the pit flows through the wedge wire screen and the grass cascades down the screen and is captured by the grass cart below.

The water from the pit is then directed to the first weir in the Biological Water Treatment System, and continues through the system for further treatment. The wedge wire screen is designed to be easily removed for proper maintenance and cleaning.

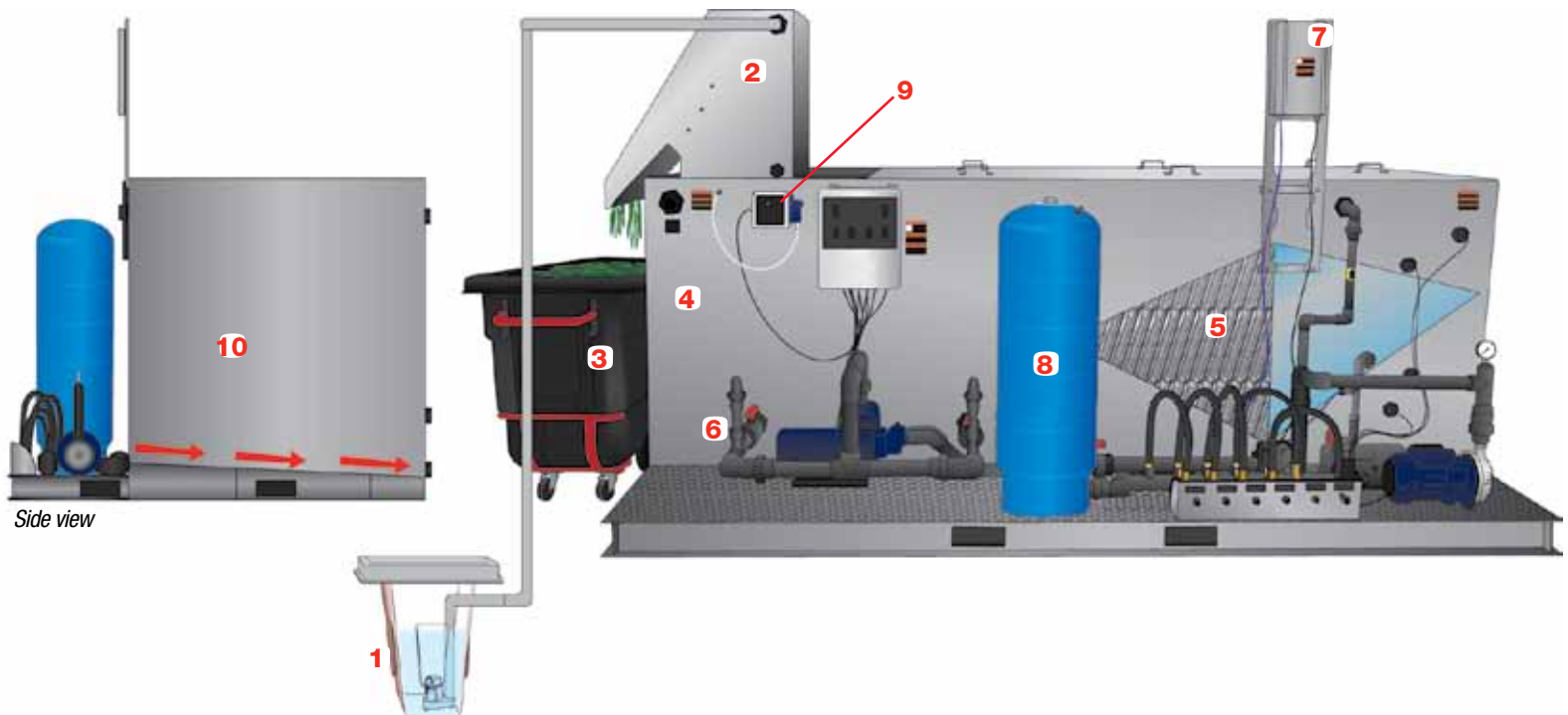
### Typical applications include:

- Golf courses
- Equipment wash pads
- Municipalities
- Rental yards



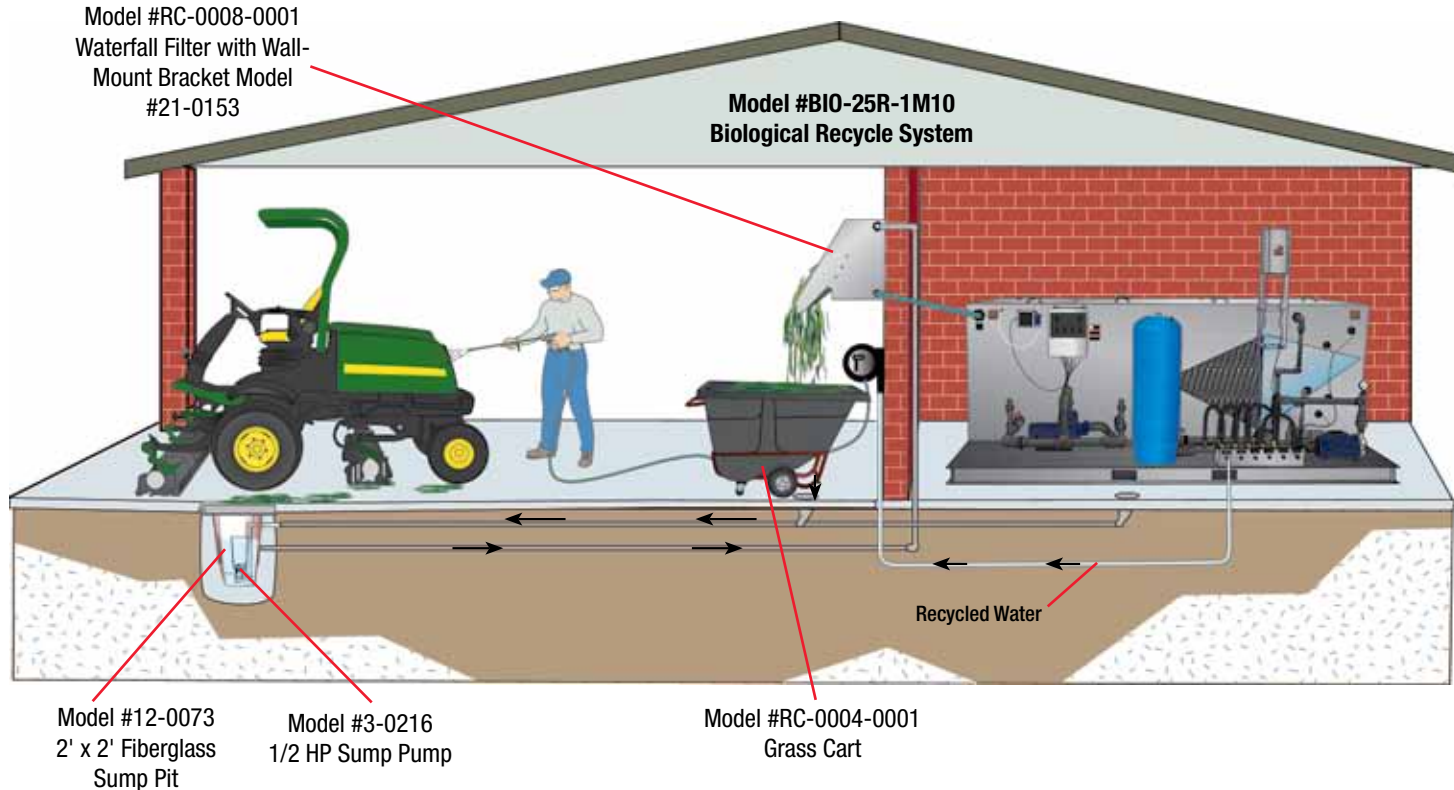
Part Number	Description	Dimensions (LxWxH)	Ship Wt.
RC-0008-0001	Waterfall filter is made from 16 gauge/304L stainless-steel Wedge wire screen is made from 304L stainless-steel, rated to a 40-45 mesh	36 in. x 20.5 in. x 36 in.	100 lbs.

# BIO Series Process & Flow Description



- 1. Submersible Sump Pump** – Untreated water is introduced into the BIO system via ½ HP submersible sump pump.
- 2. Waterfall Filter RC-0008-0001 (Accessory)** – Especially useful in golf course applications, water is typically pumped to a stainless-steel waterfall filter for effective grass and particle separation. Water flows into the system while grass and debris are separated and dropped into the grass cart.
- 3. Grass Cart RC-0004-0001 (Accessory)** – Grass from the waterfall filter is collected in the grass cart. Grass is de-watered through a specially designed stainless-steel screen in the grass cart that allows the cart to be filled with grass and debris without plugging up the screen. Water drains back to the pit, and the grass can be easily transported for disposal.
- 4. Bioreaction Tank** – Untreated wastewater is pumped into the first chamber of the stainless-steel tank, where solids are precipitated and the microbes begin their work. The tank has up to 2,244 gallons of holding capacity to provide maximum treatment time for the biological microbes.
- 5. Biofilm Generative Media** – The bioreaction portion of the system houses literally thousands of square feet of biological media surface area, where the microbe growth is maximized. Water flows through the media and around a series of baffles, changing direction countless times, and maximizing contact with "hungry" microbes. The microbes then treat the water by consuming a broad range of organic constituents (such as herbicides, pesticides, oils, grease, etc.) turning them into carbon dioxide and water. To ensure proper and continued colonization, microbes are added periodically – a process called inoculation.
- 6. Aeration System** – A unique aeration system quietly injects large amounts of oxygen into the wastewater. Generating dissolved oxygen is critical for maximizing the health and activity level of the microbes and the size of the colony.
- 7. Ozone (Option)** – An ozone generator is an option for specialized applications where sterilization of the waste stream is desired. (Please note that ozone injection is not available for aluminum tank systems).
- 8. Pressurized Tank** – Once water is biologically treated, a pressurized tank and pump deliver up to 35 GPM of recycled water to three outlet ports.
- 9. Peristaltic Pump (Option)** – Self-priming for passive automatic liquid microbe injection.
- 10. Sloped Bottom Tanks (Option)** – Makes regular scheduled maintenance easier.

# BIO Sample Equipment Wash Pad Application



## The BIO Series is perfect for the following applications:

- Rental Yards
- Golf Courses
- Heavy Equipment Dealers
- Trucking Facilities
- Military Bases
- Truck Rental Fleets
- Diesel Repair Facilities
- Forklift Washing Operations
- Aircraft Maintenance & Restoration
- Shipyards
- Municipalities/State DOTs
- Oil Fields
- Engine Rebuilders & Manufacturers
- Any many more...

## The Importance of a Proper Pit System

Once equipment is washed, the untreated wash-water flows into your pit system. A proper pit system for your application is the first step in proper wash-water treatment, and a critical element in any wash-water recycle system.

Consult McHenry Pressure Cleaning Systems to determine the pit system configuration that works best with your application.

Our stainless-steel tanks go through a passivation process after the welding phase of production. This ensures a quality product with low maintenance.



Before



After

# BIO Series Accessories & Options

SLOPED BOTTOM TANKS		
Part Number	Description	Fits Models
WX-0092	Sloped bottom tank - aluminum	BIO-25R-0M10
WX-0093	Sloped bottom tank - stainless-steel	BIO-25R-1M10
WX-0094	Sloped bottom tank - aluminum	BIO-35R-0M10
WX-0095	Sloped bottom tank - stainless-steel	BIO-35R-1M10

Make regular scheduled maintenance easier.

MAGNETIC DRIVE PUMPS		
Part Number	Description	Fits Models
WX-0067	230V, 1Ø	BIO-20 models
WX-0068	208-230V, 3Ø	BIO-20 models
WX-0069	460V, 3Ø	BIO-20 models
WX-0070	230V, 1Ø	BIO-25 models
WX-0071	208-230V, 3Ø	BIO-25 models
WX-0072	460V, 3Ø	BIO-25 models
WX-0073	230V, 1Ø	BIO-35 models
WX-0074	208-230V, 3Ø	BIO-35 models
WX-0075	460V, 3Ø	BIO-35 models

These pumps do not have seals to wear and carry a longer manufacturers warranty.

CONSUMABLES	
Part Number	Description
58-0020	Liquid concentrate hydrocarbon bacteria, to use with peristaltic pump, 5-gallons
58-0021	Liquid microbe for concrete and parts cleaning, removes hydrocarbons, 5-gallons
58-0022*	Liquid microbe cleaner, surface only, 1-gallon container
RC-2001-0001	Hydrocarbons/VOCs mix, microbes, monthly inoculation
RC-2002-0001	Golf course mix, microbes, monthly inoculation
RC-2003-0001	Fats, oils and greases, microbes, monthly inoculation
RC-2012-0002	Grease treat microbes (food grade), 2 lb. solid cube, lasts approximately 2-3 months
RC-2013-0002	Waste treat microbes (animal), 2 lb. solid cube, lasts approximately 2-3 months
RC-2014-0002	Hydrocarbon microbes, 2 lb. solid cube, lasts approximately 2-3 months
RC-2015-0001	Grease treat microbes (food grade), tablet, lasts approximately 15-30 days
RC-2016-0001	Waste treat microbes (animal), tablet, lasts approximately 15-30 days
RC-2017-0001	Hydrocarbon microbes, tablet, lasts approximately 15-30 days
RC-2018-0001	Grease Treat microbes (food grade), 1 quart, monthly inoculation
RC-2019-0001	Hydrocarbons microbes, 1 quart, monthly inoculation
RC-2020-0001	Golf Course microbes, 1 quart, monthly inoculation
RC-2021-0005	BIO enhancer nutrient, 5-gallons

\*Not for use in BIO systems.

FIBERGLASS PITS			
Part Number	Pit Size (ft.)	Description	Ship Wt.
12-0074	3x9x4.5	3-stage collection pit, fiberglass, capacity 600-gallons	480 lbs.
12-0223	3x9x4.5	3-ft. x 9-ft. baffleless pit, fiberglass, capacity 600-gallons	480 lbs.
20-9051	Fits 3x9	Above-ground external brace kit, 12-0074	250 lbs.
56-0032	Fits 3x9	Aluminum hinged diamond plate cover with 3 sections frame	100 lbs.
RC-0001-0003	Fits 3x9	Brace kit for installation of 3-stage collection pit	200 lbs.
12-0071	3x3x4.5	Catch basin, fiberglass, capacity 100-gallons	190 lbs.
20-0480A01	Fits 3x3	Steel grating for pit (2 sections)	250 lbs.
20-0733A01	Fits 3x3	Above ground external brace kit	250 lbs.
56-0031	Fits 3x3	Aluminum diamond plate cover with aluminum frame	30 lbs.
RC-0001-0002	Fits 3x3	Brace kit for installation of 3-ft. x 3-ft. pit	150 lbs.
12-0073	2x2x3	Sump pit, fiberglass, capacity 50-gallons	92 lbs.
20-0479A01	Fits 2x2	Steel grating for pit	100 lbs.
56-0030	Fits 2x2	Aluminum diamond plate cover with aluminum frame	60 lbs.
RC-0001-0001	Fits 2x2	Brace kit for installation of 2-ft. x 2-ft. pit	75 lbs.

Additional product information available in the Fiberglass Pit System Brochure.



Sloped bottom tanks



Magnetic drive pumps



RC-2018-0001 RC-2019-0001



58-0020



3-stage collection pit



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