



STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
& ENVIRONMENTAL CONTROL
DIVISION OF WATER RESOURCES
20653 DUPONT BLVD
UNIT 5
GEORGETOWN, DE 19947

January 29, 2014

Director of Regulatory Affairs
Bio-Microbics, Inc
c/o Jim Williams
94 Veeco Blvd.
Camden, DE 19934

RE: Approval of the BioSTEP screened pump vault system

Dear Mr. Williams,

The Division of Water Resources has received and reviewed your request to approve the Bio-Microbics BioSTEP screened pump vault pre-engineered lift station; to be used in conjunction with Class B designed on-site wastewater treatment and disposal systems in Delaware. . We are pleased to inform you that we are able to approve the lift station referenced above, provided that they are installed in accordance with the manufacturer's requirements and specific permit conditions.

Additionally, as a condition of this approval, no substitution of components is permitted without pre-approval from the Department

If you have any other questions please contact me at 856-4561.

Sincerely,

A handwritten signature in blue ink, appearing to read "Jim Cassidy".

James Cassidy
Program Manager I
Ground Water Discharges Section

Cc: file

Delaware's good nature depends on you!

Application for Approval

**BioSTEP®
Model # 1618**

1. Applicant Information

a) Manufacturer's name: **Bio-Microbics, Inc.**

Address: **8450 Cole Pkwy, Shawnee, KS 66227**

Contact person(s), telephone and fax numbers:

Allison Blodig

Director of Regulatory Affairs

Or

James Bell

Executive Vice President

(913)422-0707 (phone) (913)422-0808(fax)

E-mails: ablodig@biomicrobics.com jbelle@biomicrobics.com

b) Executive Summary

The BioSTEP® is a screened pump vault system, designed to transfer screened liquids in small-diameter, decentralized collection applications. The housing is 16 inches in diameter with $\frac{1}{8}$ inch slots that protects the pump solids larger than $\frac{1}{8}$ inch. The BioSTEP® ScumGuard® protects the pump from FOG (fats, oils and grease)-laden scum and provides flexible installation options for most tank, manhole and riser configurations.

The BioSTEP® contains a solids-handling effluent pump capable of passing $\frac{3}{4}$ " solids. The pumps come in $\frac{1}{3}$, $\frac{1}{2}$, $\frac{3}{4}$, 1, $1\frac{1}{2}$ and 2 HP models and are sized by the engineer for the application necessary

c.) Life span and specifications of materials used

All of the materials used for the BioStep® are noncorrosive. The housing and ScumGuard® are plastic. The pump is a wastewater pump with a cast iron housing and stainless steel shaft, silicon carbide seals, and a cast iron impeller. Any hardware (nuts and bolts) used is stainless steel. The pump life is estimated to be over 5 years. Further information on materials can be found in our drawings found in **Appendix A**.

d.) Summary of literature and published research

The literature used for the BioSTEP® can be found in **Appendix B**. There is no published research specific to the BioSTEP®

e) Other State approvals

The BioStep® has not been required to go through a state approval in other areas where it has been used. It has been used it in Virginia and Florida and in a few engineered systems in other states.

g) Operation, maintenance and Monitoring procedures:

The Installation and Service Manual is found in **Appendix A**.

h) Proprietary information notification

None

i) Local distributor information:

Freemire & Associates, Inc. Contacts: Jim Williams and Ben Miller

Main office:

1215 Old Dorsey Road
Harmans, MD 21077
(410)768-8500

Delaware Office:

94 Veeco Boulevard
Camden, DE 19934
(302)387-1235



Better Water. Better World.™

BioSTEP® Screened Pumping System Installation & Service Manual

FOR USE WITH BioSTEP® 1618



BioSTEP Manual © Bio-Microbics, Inc. Revised June 2013.
BioSTEP is a registered trademark owned by Bio-Microbics, Inc.

INSTALLATION & SERVICE

FOR USE WITH

BioSTEP® 1618

GENERAL INFORMATION

All BioSTEP® products are ETL certified for safety (electrical, environmental, etc.). One or more of the following patents protects this process: 3,966,599; 3,966,608; 3,972,965; 5,156,742. These directions DO NOT apply to the use of any parts that are substituted for Bio-Microbics parts.

DELIVERY INSPECTION

The BioSTEP® system has been designed and inspected to meet stringent quality assurance standards prior to shipment. Check the packaging for signs of shipping damage before and after uncrating the unit. If there is evidence of damage or abuse, or questions regarding any Bio-Microbics products, please contact Bio-Microbics, Inc. at:

800-753-FAST (3278) or (913) 422-0707

e-mail: onsite@biomicrobics.com

The BioSTEP® Screened Pumping System is designed to transfer screened liquids in numerous small-diameter, decentralized collection applications. It performs two functions:

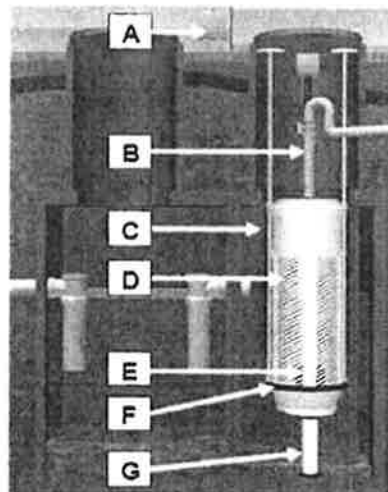
- screens large solids from wastewater (processed or unprocessed)
- pumps the screened waste into a pressurized collection system for disposal or transport to a treatment plant.

The BioSTEP® Screened Pumping System acts as a "sewer-like" transfer system to provide land developers with innovative treatment options. The BioSTEP® package consists of a robust solids-handling effluent pump capable of passing $\frac{3}{4}$ " solids (most STEP pump systems only handle $\frac{1}{8}$ " solids), a control panel, and level controls.

Additionally, the BioSTEP® ScumGuard® acts as a shield to protect each BioSTEP® from FOG (fats, oils and grease)-laden scum and provides flexible installation options for most tank, manhole and riser configurations.

GENERAL LAYOUT

A. Control Panel
B. Discharge Line
C. ScumGuard®
D. Screen
E. Pump
F. Screen Cleaning Swab
G. Support Leg



LOCATION



Always have all utility lines and equipment marked by a locating service prior to performing any work. Failure to do so could result in severe bodily injury or death.

The BioSTEP® system(s) may be located in the same position relative to the house and water supply as any conventional septic system. However, some basic guidelines should be followed:

- Avoid locating the tank in high groundwater areas where the tank could possibly float up and become dislodged.
- The BioSTEP® unit should be placed in the manhole as close as possible to the tank's outlet end. This manhole should have a minimum diameter of 18". The BioSTEP® unit should be placed in the center of this manhole.

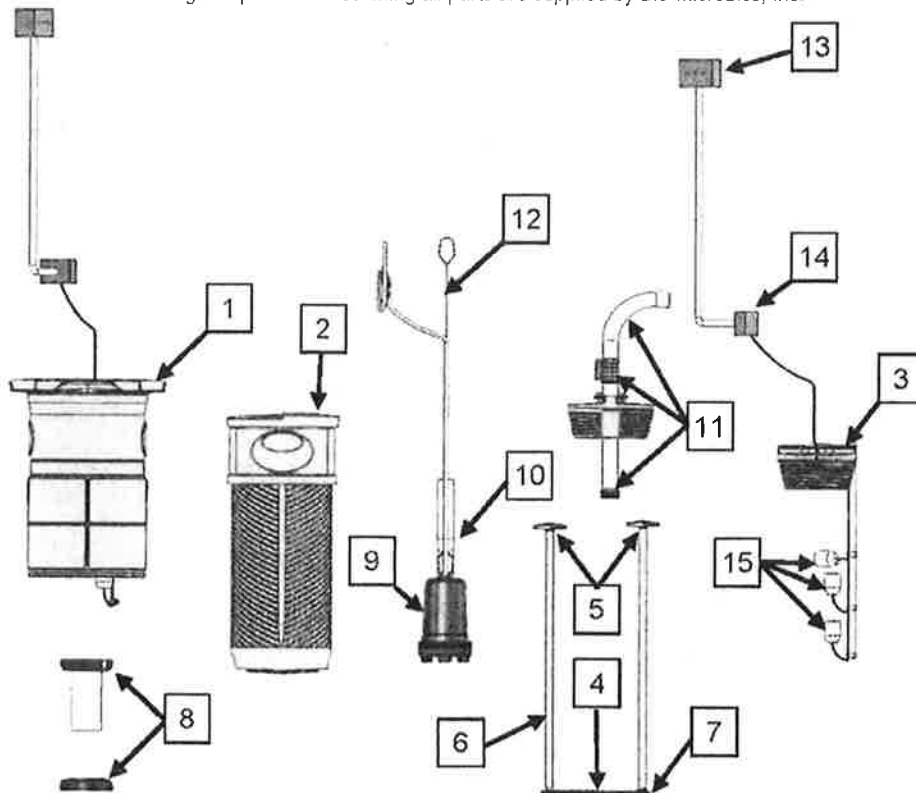
MATERIALS REQUIRED CONTRACTOR SUPPLIED FOR INSTALLATION

Materials/tools required for installation: (Note: other tools may be needed to complete installation)

1. Septic tank that meets all applicable requirements and standards including manhole access >18" [46 cm] diameter for the BioSTEP® unit.
2. 3/4" [19 mm] schd 80 PVC pipe is required if manhole is >22" [56 cm] and/or if swab handles are to be extended.
3. 4" Ø [101 mm] schd 40 pipe for leg support
4. Safe lifting mechanism (pump weighs 55-85 lbs [25-39 kg])
5. PVC saw
6. PVC primer and glue (weather appropriate)
7. Mounting screws for control panel
8. All electrical conduit, fittings, specified wires and other supplies per applicable codes

SYSTEM COMPONENTS

Includes the following components: *assuming all parts are supplied by Bio-Microbics, Inc.



SUPPLIED EQUIPMENT

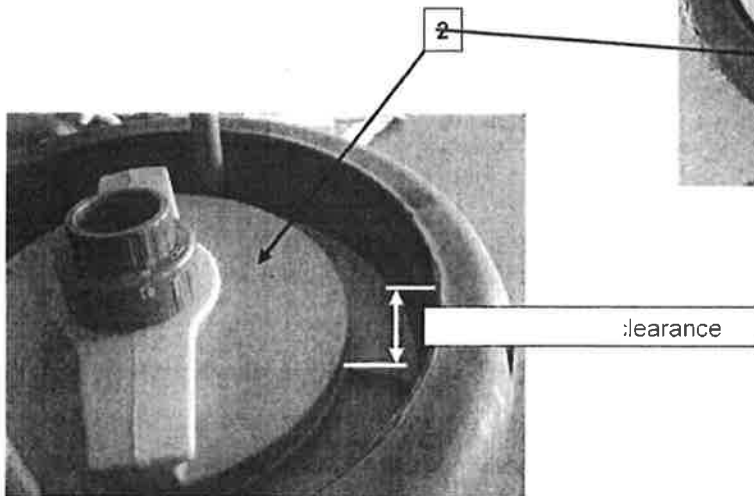
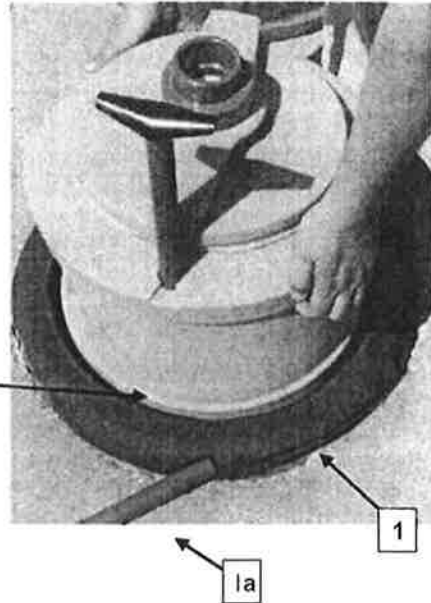
	COMMON NAME	PART NUMBER
SCREENING - All Packages		
1	ScumGuard®	180-SG1624
2	BioSTEP® filter (1/8" slots)	180-SANSPMB1618
3	BioSTEP® Screen Cap	180-CAPSANSTM16
	BioSTEP® Cleaning Swab	
4	Wiper Blade	180-SWBREXT16
5	Handles	(2) 180-HAN3/4
6	¾" Pipe	(2) 090-PIPE34SCH80
7	Retainer Parts	(2) 180-STCP3/4 (2) 180-SBCP3/4
8	Foot (4" pipe not included)	Top 010-FT Bottom 010-FB
PUMP & DISCHARGE PIPING - Complete System		
9	Pump	dependant on model
10	MPT x Slip ftg	062-FTGMIP1
	2" L x 2" Ø Pipe	090-PIPE2
	Check Valve	059-VLV CHK
	4"L x 2" Ø Pipe	090-PIPE2
	Street Elbow	065-ELPCS40
	Elbow	065-ELP2
	33.5" L x 2"Ø	090-PIPE2
11	Union	059-UNION
	Ball Valve	059-VLVBALL
	2" Ø Flex Hose	090-PIPEFLX2
12	Lifting Cable	096-CABLESS18
LEVEL CONTROLS		
13	Control Panel	035-CPS2201
14	Junction Box	090-BOXJ
	Cord Grips	(4) 096-GRIPSCORD
15	Floats	(4) 040-FLSWT

INSTALLATION - SCREENING

WARNING

Hazards exist in confined spaces such as a septic tank. All confined space precautions must be followed if entering a tank. Always keep tank openings covered during storage and installation.

1. Place ScumGuard® (black) in center of manhole.
 - a. If manhole is larger than 22" diam then ¾" diam Schd 80 PVC pipe should be used to hang the ScumGuard® in the manhole by drilling a hole in the ScumGuard® in the designated location and running the pipe through the hole.
2. Place the screen (w/ exterior swab) inside the ScumGuard®. The screen **MUST** rest as far down in the ScumGuard® as possible.



3. **SUPPORT LEG** The support leg (if needed) is meant to support the pump. Cut a piece of 4"Ø [101 mm] schd 40 PVC pipe to the desired length (be sure length is correct). Glue the pipe to the two leg ends. Attach the leg to the bottom of the BioSTEP® screen using stainless steel screws.

4. **EXTENDING SWAB HANDLES** -The exterior cleaning swab pipes may be easily extended using ¾" schd 80 pipe and matching couplings. Cut ¾" pipes to the desired length, glue and connect each extension pipe to the existing pipes using slip-to-slip couplings. When completed, glue the supplied swab handle to each pipe end.

INSTALLATION - PUMP & FLOATS

⚠ WARNING

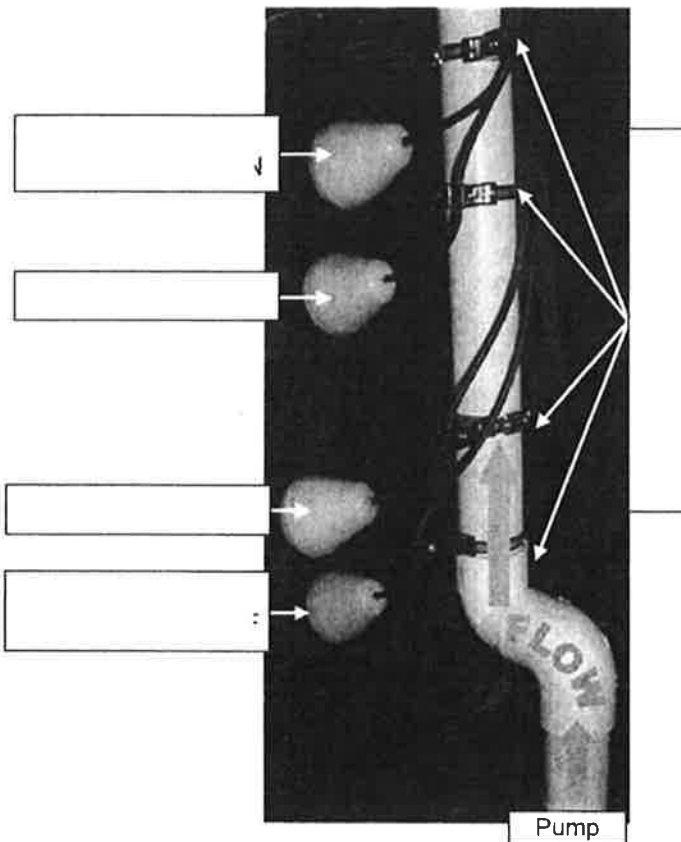
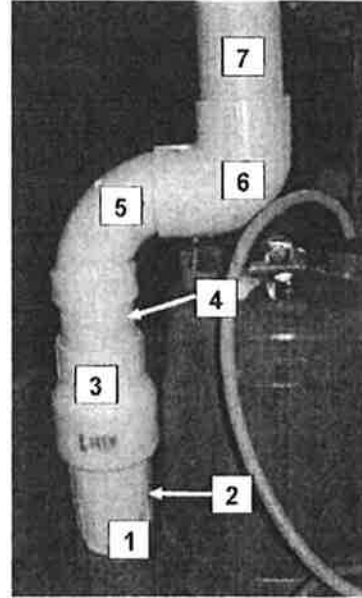
Hazards exist in confined spaces such as a septic tank. All confined space precautions must be followed if entering a tank. Always keep tank openings covered during storage and installation.

⚠ CAUTION

Use safe lifting techniques to set components in tank. Be sure all lifting equipment is clear of obstructions such as power lines and trees.

1. **LIFTING CABLE** Attach a lifting cable to the pump making sure that it is long enough to extend to the top of the manhole riser.
2. **DISCHARGE PIPING** Dry fit (DO NOT GLUE) the provided outlet piping (pieces should be numbered) starting with piece #1 at the outlet of the pump. It is **IMPORTANT** to arrange pieces # 1 – 7 so that the piping exits the screen through the hole in the BioSTEP® screen's cap.

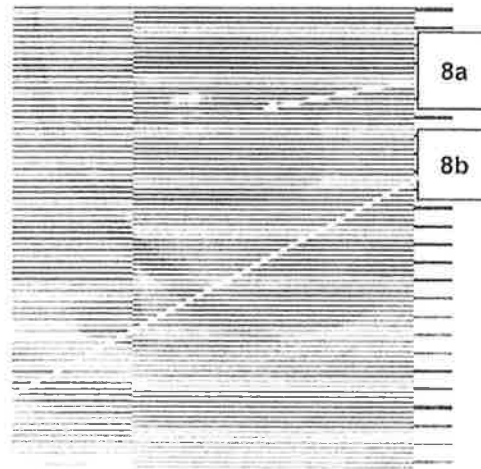
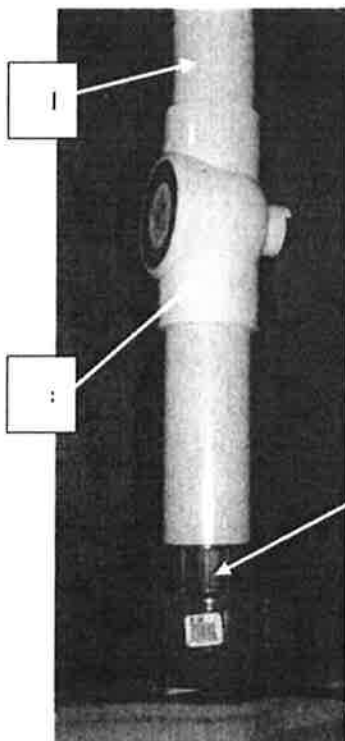
STEP 2 PARTS		
	NAME	PART NUMBER
1	MPT x slip ftg	062-FTGMIP1
2	2"L x 2"Ø pipe	090-PIPE2
3	Check valve	059-VLV CHK
4	4"L x 2" Ø Pipe	090-PIPE2
5	Street Elbow	065-ELPCS40
6	Elbow	065-ELP2
7	33.5" L x 2"Ø	090-PIPE2



3. Once the piping is properly positioned, permanently glue the parts in place (piece #1 screws into the pump outlet). Be sure to use a primer and solvent that is appropriate for schd 40 PVC and your weather conditions. Carefully follow all directions for the primer and solvent.

4. **FLOAT SWITCHES** The BioSTEP system is supplied with four (4) normally open float switches. Determine the proper level for each float switch in the tank. Install each float switch clamp with cord snubber at the desired levels on the pump discharge piping.
5. Place each float switch in its appropriate clamp with snubber being careful not to strip the nut out of the plastic snubber. Place the floats so that they **CAN NOT** get hung up on any other piece of equipment. Mark the float wire ends so that the person performing the electrical portion of the installation can easily determine which wires go to which float.
6. Remove the screen's top cap (left hand/CCW thread). Using the pump's lifting cable (**DO NOT HANDLE THE PUMP BY ITS ELECTRICAL CORD**) lower the pump with discharge piping and floats into the screen. Be sure to place at least one of the pump's feet in the groove on the bottom of the screen.
7. **SCREW THE SCREEN TOP CAP** on to the screen being sure to bring ALL wires, outlet piping and pump lifting cable through the top cap's ~2 1/2" hole.
8. **INSTALL THE REMAINING DISCHARGE PIPE AND FITTINGS.**
 - a. Glue the male half of the pipe union to the 33.5" L x 2"Ø pipe from step 2.
 - b. Glue the remaining parts of the pipe union to a proper length of 2"Ø pie (contractor supplied).
 - c. Glue the ball valve to the other end of the 2"Ø pipe from step b.
 - d. Glue the 2"Ø flex hose piping into the other end of the ball valve.
 - e. Glue the other end of the 2"Ø flex hose piping to the collection system piping.

STEP 8 PARTS		
Step	NAME	PART NUMBER
8a & b	Union	059-UNION
8c	Ball Valve	059-VLVBALL
8d	2" Ø Flex Hose	090-PIPEFLX2



INSTALLATION-ELECTRICAL



WARNING

All electrical work shall be performed by a qualified electrician per all applicable codes. Failure to do so may result in severe bodily injury or death.



CAUTION

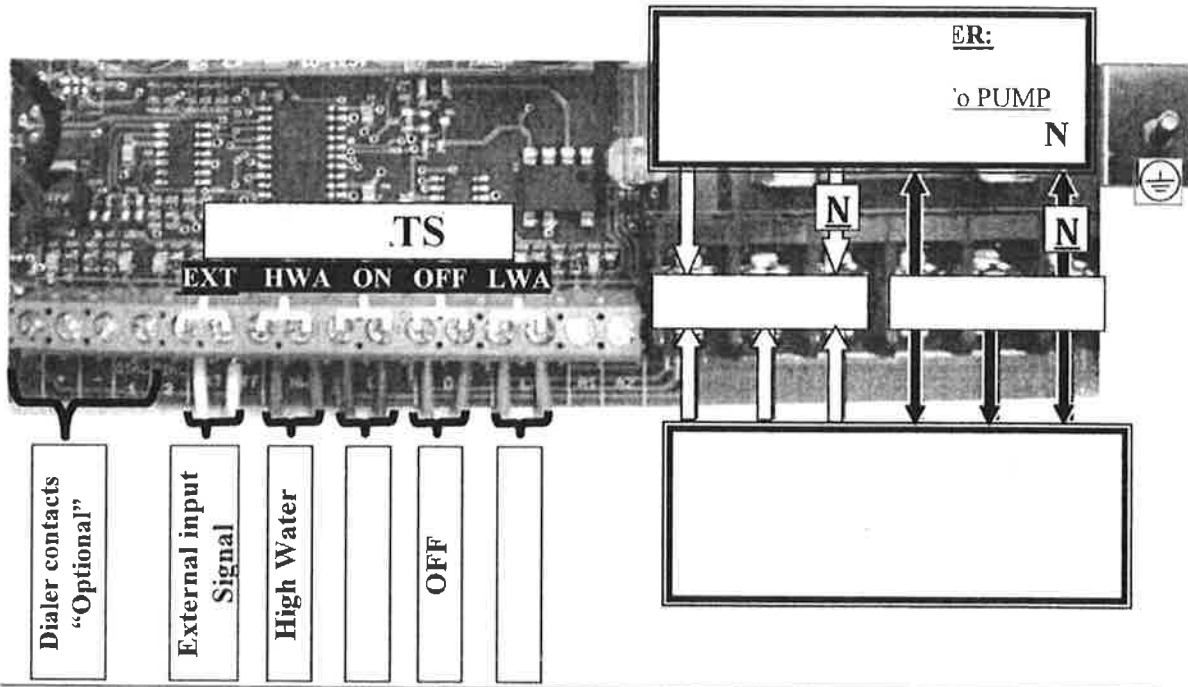
Always have all utility lines and equipment marked by a locating service prior to performing any work. Failure to do so could result in severe bodily injury or death.

1. **BEFORE STARTING** Check the electrical specifications of the supplied components. If you have ANY questions please call Bio-Microbics, Inc. at 800-735-3278 or (913)422-0707. It is the **responsibility of the contractor/ electrician** to use proper installation materials for compliance with all codes and prevention of any electrical problems such as interference, transients (spikes), conduit transmission of moisture and sewer gasses, etc.
2. **JUNCTION BOX** Bio-Microbics recommends mounting the junction box outside of the BioSTEP® tank and access riser. The pump and each float switch will have a set of wires coming from the BioSTEP® into the junction box(es). The float switch wires and pump wires **MUST** be run in separate conduits and junction boxes UNLESS each float switch uses class SJ00W insulation or better. Use the supplied cord grips (or other fittings as appropriate) to bring each set of wires into the junction box(es). The supplied cord grips require a 3/4"Ø hole in the junction box. Use appropriate exit fitting(s) and conduit(s) for running the wires to the control panel. The junction box's water tight integrity must be maintained.
3. Mount the control panel at a suitable location. Some factors when considering location are: accessibility for different peoples (or not), flooding/wetness potential, code requirements, access for system repair, voltage drop, to name a few. Run all wires to and from the panel using the appropriate fitting(s) and conduit(s). Incoming and pump power wires may be run in the same conduit (provided code requirements are met). Make all wire connections inside the panel using the picture below as a guide. Always maintain the watertight integrity of the control panel.
4. **DO NOT TURN POWER ON YET** (this will cause the pump to run dry). To turn the pump ON and OFF manually use the HOA switch inside the control panel (see picture on right).



ELECTRICAL WIRING DIAGRAM

BioSTEP® Control Panel Detail:



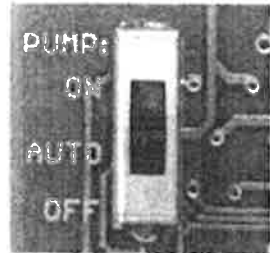
FINAL INSPECTION & START UP

It is the responsibility of the installer to ensure that the tank will not float due to hydraulic conditions at the site. Your local Bio-Microbics distributor may provide installation inspection services. If you have questions, call Bio-Microbics at 800-753-FAST (3278) or (913) 422-0707.

WARNING

Persons coming in contact with wastewater, must immediately wash all exposed areas with disinfecting cleaner and contact your personal physician. Failure to do so could result in severe sickness or death.

5. Fill the tank with water to prevent floatation so that the BioSTEP® system can be safely tested. **DO NOT** test run the pump if it is not fully submerged. To turn the pump ON and OFF manually use the HOA switch inside the control panel (see picture on right).
6. Check the alarm and pump for proper function. The system automatically goes into ON mode (pump obeys the floats) five (5) seconds after power is supplied to the control panel. Set the floats to test for each of the following conditions: Normal pump ON, normal pump OFF, lower water alarm & emergency pump OFF, high water alarm & emergency pump ON. If the alarm does not sound within 15 seconds after the alarm floats are activated, then review the electrical installation procedures.
7. Backfill the excavation.
8. Lastly, record the BioSTEP® unit's serial number on the back page of this manual.



OPERATION & MAINTENANCE

The BioSTEP® System should be checked and maintained for optimal performance.

- BioSTEP® SCREEN**
The screen should be cleaned periodically according to conditions at each point of use. To clean the screen, simply move the screen's swab up and down vigorously at least 6 times. Be sure to move the two handles evenly.
- ALARM PANEL**
Check the alarm and pump for proper function.
- FLOATS**
Set the floats to test for each of the following conditions: Normal pump ON, normal pump OFF, lower water alarm & emergency pump OFF, high water alarm & emergency pump ON. If the alarm does not sound within 15 seconds after the alarm floats are activated, then review the electrical installation procedures.
- PUMP**
If you need to turn the pump On or OFF manually, use the HOA switch in the panel (see picture above). If you are using a Bio-Microbics supplied Goulds pump, then you should reference the Goulds manual concerning pump operation and maintenance. If you are not using a Bio-Microbics supplied pump then reference the manual supplied with the pump being used.
- PARTS**
Replacement and spare parts can be obtained from your local Bio-Microbics distributor. For assistance in locating a distributor near you call Bio-Microbics at 800-753-3278 or (913) 422-0707.

LIMITED 12-Month WARRANTY

Bio-Microbics, Inc. warrants every new BioSTEP® system against defects in materials and workmanship for a period of one year after installation or eighteen months from date of shipment, whichever occurs first, subject to the following terms and conditions:

During the warranty period, if any part is defective or fails to perform as specified when operating at design conditions, and if the equipment has been installed and is being operated and maintained in accordance with the written instructions provided by Bio-Microbics, Inc., Bio-Microbics, Inc. will repair or replace at its discretion such defective parts free of charge. Defective parts must be returned by owner to Bio-Microbics, Inc.'s factory postage paid, if so requested. The cost of labor and all other expenses resulting from replacement of the defective parts and from installation of parts furnished under this warranty and regular maintenance items such as filters or bulbs shall be borne by the owner. This warranty does not cover general system misuse or any components that have been disassembled by unauthorized persons, improperly installed or damaged due to altered or improper wiring or overload protection. This warranty applies only to the pumping system and does not include any of the house wiring, plumbing, drainage, septic tank or disposal system. Bio-Microbics, Inc. reserves the right to revise, change or modify the construction and/or design of the BioSTEP system, or any component part or parts thereof, without incurring any obligation to make such changes or modifications in present equipment. Bio-Microbics, Inc. is not responsible for consequential or incidental damages of any nature resulting from such things as, but not limited to, defect in design, material, or workmanship, or delays in delivery, replacements or repairs.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES EXPRESS OR IMPLIED. BIO-MICROBICS SPECIFICALLY DISCLAIMS ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

NO REPRESENTATIVE OR PERSON IS AUTHORIZED TO GIVE ANY OTHER WARRANTY OR TO ASSUME FOR BIO-MICROBICS, INC., ANY OTHER LIABILITY IN CONNECTION WITH THE SALE OF ITS PRODUCTS.

Contact your local distributor for parts and service.

Keep for Your Records



BioSTEP Device Serial Number: _____

System Designer Name: _____

Designer Phone: _____

Health Official Name: _____

Health Official Phone: _____

Manufacturer Name: Bio-Microbics, Inc.

Manufacturer Phone: 1-800-753-FAST (3278)

Installed By: _____

Installer Phone: _____

Maintenance Provider Name: _____

Maintenance Provider Phone: _____



8450 Cole Parkway • Shawnee, KS 66227 • USA
Ph: 913-422-0707 • Fax: 913-422-0808
800-753-FAST (3278) • www.biomicrobics.com

BioSTEP®

BioSTEP® Features

Screening Device

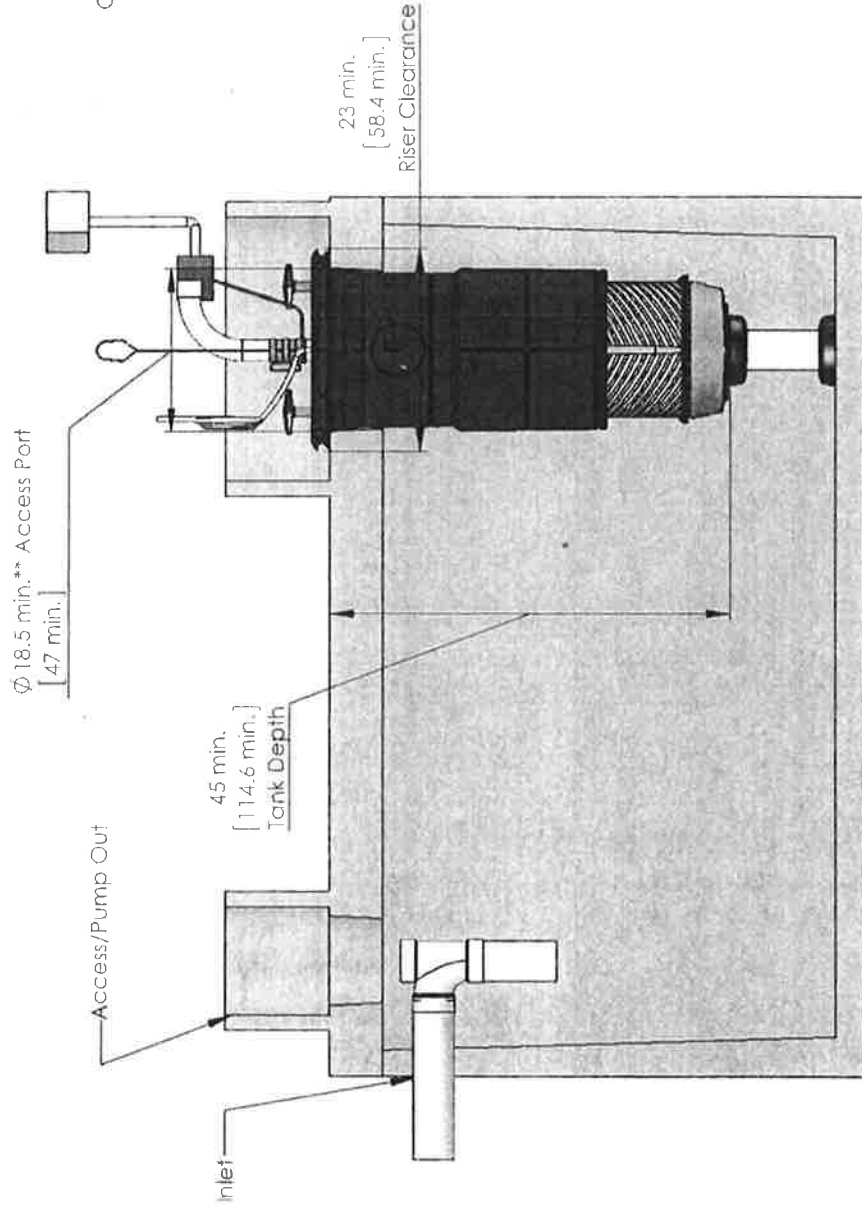
- CIP- Clean In Place (eliminate system removal)
- Integral external swab
- Deflects solids
- 1/8" (3 mm) angled slots
- Overflow protection cap
- **Adaptable to larger openings (consult factory)

Pump

- Wide variety of power options
- Designed to use variety of pumps
 - Submersible
 - High head

Control Panel

- Continuously monitors float inputs & flow conditions
- Communicates with external devices
- Trouble shooting LEDs
- Compact size
- NEMA 4X
- UL/ETL/CE/CSA/RoHS Certified



DO NOT SCALE
UNLESS NOTED
DIMENSIONS
ARE IN INCHES
(CENTIMETERS)
TOLERANCES
 $\pm 0.02 \text{ IN/IN}$
 $\pm 0.05 \text{ CM/CM}$

BIO-MICROBICS
INCORPORATED

BioSTEP

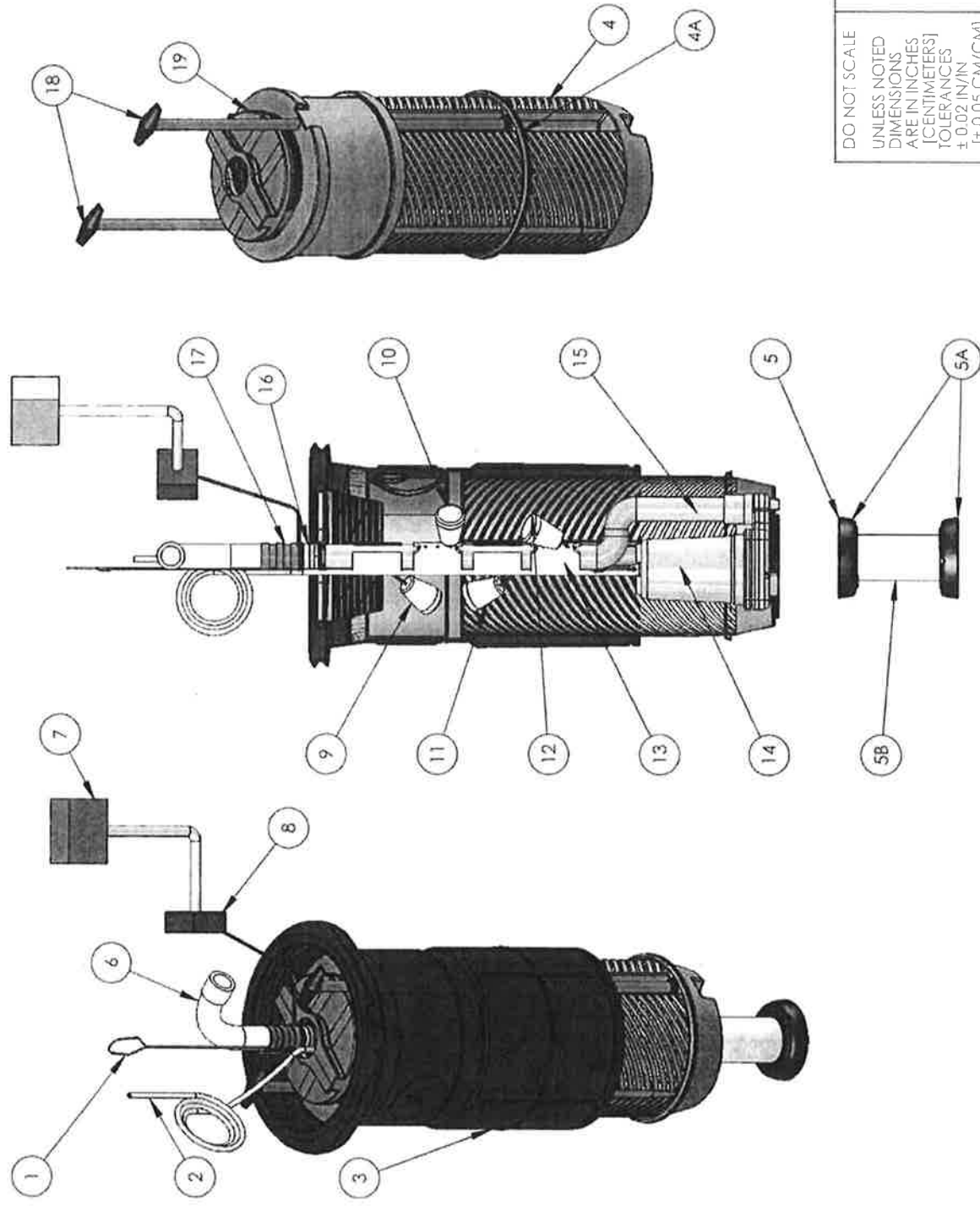
WEIGHT	lb.	SIZE	DRAWING NUMBER
DRAWN	DATE	A	Installation
CHECKED	DATE		
			REVISED: 09/2012 PFC: 00101-JA+

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BIO-MICROBICS © 2012

BioSTEP® Features

1. Lifting Cable
2. Power Cord
3. ScumGuard®
4. SanitEE® Screening Device
5. Base Support
- 5A. Pipe Mount
- 5B. 4" PVC pipe supplied by others
6. Flexible 2 inch PVC Pipe
7. Control Panel NEMA 4X
8. Junction Box NEMA 4X
9. Float high water alarm & overflow protection
10. Float On
11. Float Off
12. Float low water alarm & shutoff
13. Float Clamp
14. Pump
15. PVC Pipe assembly
16. Union, 2 inch PVC
17. Check Valve, 2 inch PVC
18. Swab Handles
19. Overflow Protection Cap



DO NOT SCALE
 UNLESS NOTED
 DIMENSIONS
 ARE IN INCHES
 (CENTIMETERS)
 TOLERANCES
 ± 0.02 IN/IN
 [± 0.05 CM/CM]



BioSTEP

WEIGHT	IP	DATE	DRAWING NUMBER
DRAWN: CTC 5/10/2005			A
CHECKED: PF 10/17/2012			Components
			REV: CA1-01

SHEET 2 OF 3

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1. GENERAL
 The BioSTEP® septic tank effluent pumping system as manufactured by Bio-Microbics, Inc. consists of the following principle items of equipment: (1) ScumGuard® mounting sleeve, (1) SanitEE® wastewater screen, (1) sewage effluent pump, and (1) alarm/controls package.

2. TANK
 The BioSTEP® system shall be installed in a tank (one or multiple compartments) to be furnished by others. This tank must meet all applicable regulations. The tank must have access port(s) located so that all operation and maintenance functions can be properly performed.

3. SCUMGUARD® MOUNTING SLEEVE
 The Bio-Microbics, Inc. ScumGuard® mounting sleeve serves as the mounting device for the BioSTEP® pumping system and also helps to deflect large debris. The ScumGuard® must be mounted in an access port of at least 18.5 inch [47 cm] Ø utilizing a riser with a minimum internal diameter of 23 inches [58.4 cm]. For access ports greater than 18.5 inches [47cm] diam., 3/4" Ø Sched 80 pipe can be inserted into the ScumGuard® for proper fit (consult factory).

4. WASTEWATER SCREEN and Discharge Assembly
 The Bio-Microbics, Inc. SanitEE® wastewater screen shall be mounted inside the ScumGuard® mounting sleeve. The screen is approximately 16" in Ø with multiple, acutely angled slots having a 1/8" width. The screen shall be supplied with a screw on top for easy access to the system. The screen shall also have a self-contained external cleaning swab to facilitate Clean In Place cleaning of the screen. The discharge assembly is made of PVC sched 40 and shall include: 2" PVC union, 2" flexible pipe, 2" ball valve, and 2" SxMIP adapter. All other piping and fittings shall be supplied by others.

5. Sewage Pump
 The sewage effluent pump shall be mounted inside the SanitEE® Screen. The pump provided by Bio-Microbics shall be capable of passing at least a 3/4" spherical solid. The pump shall also have the following features: cast iron housing, stainless steel shaft, silicon carbide seals, 2" Ø NPT discharge port, cast iron impeller, 20 ft of stainless steel retrieval cable, UL778 listing, and a class B insulated motor capable of withstanding an instantaneous internal temperature up to 140° F. High head pumps are available, consult Bio-Microbics Inc. for recommended options.

6. Controls & System
 The four float switches (high water alarm/overflow protection, On, Off, & low water alarm/shutoff) and clamps are to be mounted on the pump outlet piping and installed to allow free movement and proper operation of each float. The panel shall have the following features: NEMA 4X enclosure, UL listing, 72-95 db alarm with exterior silencing mechanism, exterior alarm light, circuit breakers for the pump, and manual pump run control with status light. Controls can be purchased for most power supplies.

7. ELECTRICAL
 All electrical equipment shall utilize 220VAC, single phase, 60 Hz power standard (most other power supplies are available). A NEMA 4X junction box and 4 cord grips are included. Wiring must conform to all applicable codes. All conduit, wiring and misc. supplies are to be supplied by others.

8. INSTALLATION AND OPERATING INSTRUCTIONS
 All work must be done in accordance with local codes and regulations and installed in accordance with the instructions provided by Bio-Microbics. If at any point during installation or operation there are questions concerning this product, call Bio-Microbics, Inc. at 800-753-3278.

9. WARRANTY
 Bio-Microbics, Inc. warrants all new BioSTEP® units against defects in materials and workmanship for a period of one year after installation or eighteen (18 months) from the date of shipment which ever occurs first, subject to the following terms and conditions:
 During the warranty period, if any part is defective or fails to perform as specified when operating at design conditions, and if the equipment has been installed and maintained in accordance with the written instructions provided by Bio-Microbics, Inc., Bio-Microbics, Inc. will repair or replace at its discretion such defective parts free of charge. Defective parts must be returned by owner to Bio-Microbics, Inc.'s factory postage paid, if so requested. The cost of labor and all other expenses resulting from replacement of the defective parts and from installation of parts furnished under this warranty and regular maintenance items such shall be borne by the owner. This warranty does not cover general system misuse, components which have been damaged due to altered or improper wiring or overboard float have been disassembled by unauthorized persons, improperly installed or damaged due to altered or improper wiring or overboard protection. This warranty applies only to the STEP unit and does not include any of the house wiring, plumbing, drainage, septic tank or disposal system. Bio-Microbics, Inc. reserves the right to revise, change or modify the construction and/or design of the system, or any component part of parts thereof, without incurring any obligation to make such changes or modifications in present equipment.
 Bio-Microbics, Inc. is not responsible for consequential or incidental damages of any nature resulting from such things as, but not limited to, defect in design, material, or workmanship, or delays in delivery, replacements or repairs.
 THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES EXPRESS OR IMPLIED. BIO-MICROBICS SPECIFICALLY DISCLAIMS ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. NO REPRESENTATIVE OR PERSON IS AUTHORIZED TO GIVE ANY OTHER WARRANTY OR TO ASSUME FOR BIO-MICROBICS, INC., ANY OTHER LIABILITY IN CONNECTION WITH THE SALE OF ITS PRODUCTS.
 Contact your local distributor for parts and service.

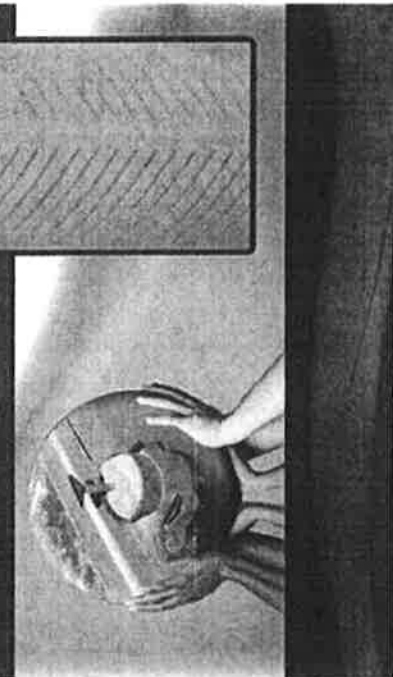
DO NOT SCALE UNLESS NOTED DIMENSIONS ARE IN INCHES (CENTIMETERS) TOLERANCES ± 0.02 IN/IN ± 0.05 CM/CM	REV	DESCRIPTION
	A	Specifications
WEIGHT	DATE	BY
DRAWN	3/10/2005	
CHECKED	8/17/2012	
DRAWING NUMBER		REVISED BY/DATE
BIO-MICROBICS INCORPORATED		
BioSTEP		

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SaniTEE **BIO|STEP**
StormTEE **MyTEE**
Storm™ System

Influent & Effluent Screening Devices



BIO-MICROBICS
 Better Water. Better World.™



Why can't wastewater treatment be simple?

With Bio-Microbics, it is. Our first biological wastewater treatment (BWT) system was the result of decades of experience, research & development, and two world-changing patents.

With over 42,000 installations in more than 40 countries, these technologies are solving real-world problems. And that's just the way we like it.

Awards, Technology Approvals, and Product Certifications

Water Environment Federation (WEF)
 • WEF Technology Award (2010)
 • WEF Technology Award (2011)
 • WEF Technology Award (2012)
 • WEF Technology Award (2013)
 • WEF Technology Award (2014)
 • WEF Technology Award (2015)
 • WEF Technology Award (2016)
 • WEF Technology Award (2017)
 • WEF Technology Award (2018)
 • WEF Technology Award (2019)
 • WEF Technology Award (2020)

BIO-MICROBICS
 CORPORATION

SCIENCE/FAST
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www.biomicrobics.com • www.sciencefast.com

Other Systems and Products available to suit your particular needs:

- FAST Wastewater Treatment Systems**
- **HIPOFAST™**
 - **HIPOSTRENGTHFAST™**
 - **HYPERFAST™**

- Membrane Bioreactor Technology**
- **BIO BARRIER™**
 - **BIO BARRIER™ MSMBR™**

- Stormwater Treatment Solutions**
- **BIOSTORM™**

- Marine Sanitation Technology**
- **BIOMARINE™ LC-Series**
 - **BIOMARINE™ MK-Series**
 - **BIOMARINE™ GP-Series**

- Submerged Aeration Systems**
- **LINEP™**

- Grease Management Solutions**
- **FLOBS™**

- Biological Nutrient Removal Solutions**
- **BIORFAST™**
 - **ABC™-N**

- Water Treatment Solutions**
- **SCICHLOR™** Hydrochloric Gas Strips
 - **SCIBIOL™** Bromination
 - **HIPODIX™** CPT Tanks

- Environmentally-Friendly Cleaning Solutions**
- **BIOWAY™** All Purpose Cleaner
 - **BIOWAY™** Laundry Detergent

Prevent or enhance your system's performance with an easy to install, lamp-to-cation screening device from Bio-Microbics.

Screening Devices

SaniTEE™ Air flow in residential effluents for screening devices to reduce sediment solids and improve water quality.

SaniTEE™ Air flow in industrial effluents for screening devices to reduce sediment solids and improve water quality.

The STREP™ Air flow system with the right-hand design of our efficient filter for handling sediment loads for various applications.

MyTEE™ Air flow system for the ANSI 2010 design of our efficient filter for various applications.

StormTEE™ Ideal for the removal of trash, debris, and other floatables from storm water flows. The patented, polypropylene device screens out 90% of floatables at an installation with the BIO-STEP™ Stormwater Treatment System.



ENVIRONMENTALY-SAFE, MIGHTY TOUGH ON GUNK!

BIOWAY™ ALL-PURPOSE CLEANER, BIOWAY™ LAUNDRY DETERGENT, BIOWAY™ ALL-PURPOSE CLEANER and BIOWAY™ ALL-PURPOSE CLEANER are the most powerful, yet gentle, cleaning solutions you can use to remove the toughest stains and grime from your home or business. TO ORDER, 1-866-637-4539 or solutions@sciencefast.com

Innovative Products. Proven Ideas



No filter technology on the market is easier to maintain than these!

As an important factor in the treatment process, screening devices prevent large solids and coarse material from causing undue wear on water treatment equipment or interfering with treatment processes. These screening devices - physical bar screens, large amounts of FFC, fibs, oils and greases - avoid solids from clogging the tank and/or filter.

- extend the lives of your systems!
- reduce clogging meters
- improve flow capabilities
- allow flexibility in designing the system
- heavy labor costs associated with maintenance

• Easy - "Bar" filter technology and CIP that can be installed directly in the outlet pipe of the plant or the influent tank. These screening devices have standardized self-cleaning features. No. 100 mesh screen (20" x 10" x 10") is standard.

- Clogged filter - resets rotating and cleaning (high speed bar filter housing better than mesh-type screens)
- Filtered material - Weirs (on the SanTEE) provide complete safety of flow outside weirs



• The called water enters the screen by passing through angled slots

• Screened water is discharged for further treatment or disposal

• TO CLEAN any solids that become trapped in the original state can be easily dislodged with a simple pull of the web (see 65)

• Fibro-Strips can easily be added in tandem for a custom fit

SanTEE

SanTEE screens improve performance and simplify the system!

Whether the screen technology is called a bar screen or a fibro-strip, the principle of the SanTEE is to prevent large solids and coarse material from causing undue wear on water treatment equipment or interfering with treatment processes. These screening devices - physical bar screens, large amounts of FFC, fibs, oils and greases - avoid solids from clogging the tank and/or filter.

- Simple installation! Fits with existing equipment
- Quick installation! Easy with heavy equipment
- Filtered material - Weirs (on the SanTEE) provide complete safety of flow outside weirs

SanTEE Specifications	Model	Flow Range
SNT418	18" x 18" x 18"	100-1000 GPM (3.8-38 LPS)
SNT432	24" x 24" x 24"	1000-2000 GPM (38-76 LPS)
SNT436	30" x 30" x 30"	2000-4000 GPM (76-152 LPS)
SNT438	36" x 36" x 36"	4000-8000 GPM (152-304 LPS)
SNT442	42" x 42" x 42"	8000-16000 GPM (304-608 LPS)



SanTEE Screens

BioSTEP

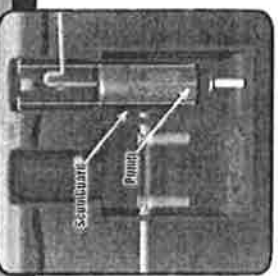
Low-velocity wastewater treatment technology. Screen with built-in pumps.

- Simple installation! Fits with existing equipment
- Quick installation! Easy with heavy equipment

BioSTEP Specifications	Model	Flow Range
BST418	18" x 18" x 18"	100-1000 GPM (3.8-38 LPS)
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BioSTEP Screens



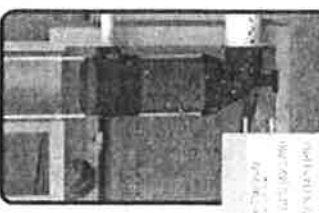
BioSTEP Specifications

Model: BST418

Screen diameter: 18" (46 cm)

Screening level: 1/8" (3.2 mm)

***Pump selection for BioSTEP system ranges from 1/2HP to 3HP**



StormTEE CLEAN, CORROSION RESISTANT

Low-velocity wastewater treatment technology. Screen with built-in pumps.

StormTEE Specifications

Model: STT418

Screen diameter: 18" (46 cm)

Screening level: 1/8" (3.2 mm)

***Pump selection for StormTEE system ranges from 1/2HP to 3HP**

BioSTEP, StormTEE, Fibro-Strip, MyTEE