

Simple, Low Cost, Robust

The advantages of the MarineFAST® systems keep the vessel in compliance, reduce sludge, and require no enzymes or other additives. Available in several different models based on space allowed and crew size, every system is functionally tested for water-tightness with clean water to ensure a long service life. Built to handle extreme environments, the fully-certified MarineFAST® MSD systems handle any combination of fresh/saltwater sewage:

- SELF-REGULATING OPERATION
- SUPERIOR CORROSION PROTECTION
- WORLDWIDE TECHNICAL SUPPORT
- EASY-TO-UPGRADE OR RETROFIT
- LONG, RELIABLE SERVICE LIFE
- CERTIFIED, PROVEN PROCESS

MarineFAST® LX-SERIES SEWAGE TREATMENT SYSTEMS

The LX-Series are certified Type II Marine Sanitation Devices (MSDs) ideal for small vessels. These lightweight systems use strong, DOT-certified, HDPE and XLPE tanks that lower costs with no compromise in performance, strength or reliability. Easy installation, this Series have capacities ranging from crew sizes of 1 to 39 people.

MarineFAST® M- & MX-SERIES SEWAGE TREATMENT SYSTEMS

Standard in epoxy-coated steel tanks and with capacities ranging from 11 to 80 people, the M- and MX-Series are certified Type II MSDs ideal to be installed wherever space is available. The M- unit will fit through a 28" X 60" watertight door with 6" radius corners and will do so without disassembly. The MX-Series are combined/welded media tank and wetwell versions of the M-Series.

MarineFAST® DV SERIES SEWAGE TREATMENT SYSTEMS

The DV-Series are certified Type II MSDs ideal for larger populations. The DV-Series use "vee-crimp" technology running from top to bottom of the bulkhead plates. This structure meets applicable requirements for ABS deep tanks without the need for welded stiffeners.

1. A clean, strong and rigid structure
2. A substantial reduction in fabrication cost
3. Tanks shipped in ISO std. high cube containers



**Mighty Tough
on Cleaning!**



Use Mighty Mike® environmentally-friendly maintenance products!
Call 1-866-652-4539 or email solutions@sciencofast.com

With over 50,000 installations in more than 60 countries, our Fixed Integrated Treatment Technologies (FITT®) are the result of decades of experience, research & development, and real world operating history.

Awards, Technology Approvals, and Certifications

- 2015 Ingenuity Award Winner, Ingenuity Central @ K-State Olathe, Ingenuity Central (IC) showcases innovative companies that exemplify the newest thinking driving our community & growing our economy.
- 2015 Innovation in Marine Environmental Technology Offshore Excellence Award, based on environmental impact of marine sanitation devices and technology.
- 2014 "BEST of GreenBuild" Editor's Choice Award, U.S. Builders Review, "Creating Better Water Treatment Solutions for a Better World..." article.
- 2012 President's "E" Award for Excellence in Exports, granted by the President of the United States, presented by the U.S. Department of Commerce
- 2011 Technology Innovation Award (Decentralized Commercial Outlets) – Frost & Sullivan – FAST® Technology
- 2011 New Product of the Year Award – Recycling Category, Environmental Protection Magazine (EPonline.com) "The financial, environmental and social benefits of 'recycling' are indisputable." – BioBarrier® MBR Technology
- 2011 Kansas Governor's Exporter of the Year – presented by the Governor of KS, KS Dept. of Commerce
- 2010 North American Technology Innovation Award (Water/Wastewater) – Frost & Sullivan – FAST® Technology
- 2009 Technology Merit Business Achievement Award Water/Wastewater – Environmental Business Journal (EBJ) – BioBarrier® MBR Technology
- 2002 U.S. Export Achievement Certificate, US Dept. of Commerce, US & Foreign Commercial Service
- 2000 U.S. EPA Environmental Technology Innovator Award – U.S. EPA, Region 1 – SeptiTech® Technology
- Australian Dept of Transportation & Royal Australian Navy - Technology Approval
- Canadian Great Lakes (CGL) Maritime Certification – Canadian Coast Guard
- Canadian Standards Association (CSA) International Electrical Certification
- CE – European Electrical Systems (including a "Tropical Certification Rating")
- China Classification Society (CCS) 中国船级社 – FAST® Technology Approval
- EN 12566-3, Packaged and/or site assembled domestic wastewater treatment plants for up to 50 People, PIA GmbH tested - BioBarrier® MBR 0.5, 1.0, & 1.5 & FITT®-ee
- GreenSpec® (BuildingGreen.com Directory) listed...Provides unbiased information to improve environmental performance, and reduce the adverse impacts of buildings
- IMO (International Maritime Organization) MARPOL Annex IV (2010) – provides guidance for the Navigation and Vessel Inspection Circular (NVIC) No. 1-09, US EPA and other effluent standards as may be required – FAST® Technology
- Massachusetts Title 5 Innovative/Alternative System - Technologies Listed under "General Use Permit for Nitrogen Reduction", "Provisional Use," & "Remedial Use"
- NSF/ANSI Std 40, class 1 Certified – MicroFAST®, BioBarrier® MBR and SeptiTech® Systems up to 1500 GPD – Recognized in domestic and international trade by regulatory agencies at the local, state/province, and federal levels.
- NSF/ANSI Std 245 (Nitrogen Reduction) Certified – MicroFAST®, BioBarrier®-N MBR, BioBarrier® MBR and SeptiTech® Systems up to 1500 GPD
- NSF/ANSI Std 350 class R (Water Reuse) Certified – BioBarrier® MBR 0.5, 1.0, & 1.5
- Poland – Aprobata Techniczna (Technology Approval) ze Instytut Ochrony Srodowiska (Institute of Environmental Protection)
- România – Avizează Favorabil – Consiliul Tehnic Permanent Pentru Constructii – Ministerul Dezvoltării Regionale Si Turismului
- Russia – Technology Approval – Федеральная Служба По Надзору В Сфере Защиты Прав Потребителей И Благополучия Человека (Federal Service of Environmental Protection)
- Russia – CPT Свидетельство о Российских Стандартах (Certification of Russian Standards) – BioSTORM® – All sizes
- Russia – РМРС (Russian Maritime Register of Shipping) МЕЖДУНАРОДНОЕ СВИДЕТЕЛЬСТВО О ПРЕДОТВРАЩЕНИИ ЗАГРЯЗНЕНИЯ СТОЧНЫМИ ВОДАМИ - International Sewage Pollution Prevention Certificate
- SASO (Saudi Arabian Standards Organization) Certified
- ETL (UL) – Listed to US electrical certification requirements
- U.K. – United Kingdom Department of Trade – FAST® Technology Approval
- U.S. Coast Guard – 33CFR159, MEPC.159(55) – FAST® Technology Approval for Type II MSD (Marine Sanitation Devices)
- U.S. EPA-ETV (Environmental Technology Verification) – validates the performance of technology that may improve the protection of the environment. – RetroFAST®, Report No. 03/08/WQPC-SWP – SeptiTech®, Report No. 02/04/WQPC-SWP

...and MORE!

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MarineFAST® SEWAGE TREATMENT SYSTEMS



Marine Wastewater Treatment • Cleaners

SCIENCO/FAST
a subsidiary of Bio-Microbics, Inc.

“Let us help bring your system into compliance and keep it there at the lowest total cost for treatment.”



MarineFAST[®] SEWAGE TREATMENT SYSTEMS

Scienco/FAST takes pride in the fact that these certified, Type II Marine Sanitation Devices (MSD) and Systems are installed on some of the ‘greenest’ ships in the world. These MSDs treat sewage from the facilities and help lessen the environmental impact of contaminants to keep the vessel in compliance through changing regulations, including gray water discharges from commercial vessels.

Certified to 33CFR159 to EPA “Secondary Treatment” Effluent Standards, these pre-engineered, automated advanced wastewater treatment systems use proven FAST[®] Technology to better manage blackwater/greywater for new builds or retrofits of:

- towboats
- tugs
- drill ships
- fireboats
- tankers
- icebreakers
- cruise ships
- harbor tugs
- pilot boats
- crane barges
- semi-submersibles
- container ships
- survey ships
- school ships
- offshore platforms
- offshore supply vessels
- diving support vessels
- shop and office barges
- bulk carriers
- research vessels
- float homes, etc.

MX



After 30 years, Scienco/FAST continues its commitment to environmental stewardship to provide superior sewage and water management systems that lessen the impacts of wastewater in waterways.

Since the first installation in 1969 on board the M/V Missouri Tugboat, these MarineFAST Sewage Treatment Systems are installed on some of the ‘greenest’ boats and Offshore facilities in the world to provide total sewage treatment, pretreatment, and (in some cases) water reuse opportunities.

Scienco/FAST received an “Offshore Excellence Award” for Innovation in Marine Environmental Technology.



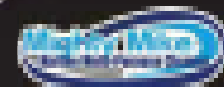
DV



For the prevention or removal of calcium plaque and buildup in pipes and containers that processes hard water and other calcium-containing fluids.



Class 1 bacterium that function in both aerobic and anaerobic conditions to decrease FOG buildup in sewer lines, pump stations, treatment plants and septic systems.



Mighty Mike Cleaners is our proprietary product line of various cleaning solutions created to clean without compromising the environment or harming an onsite treatment system.

GENERAL SYSTEM INFORMATION

*RATED CAPACITY is dependent on **Service Factors** and **Effluent Standards**. Basic configuration below shows the treatment of blackwater. Sized according to project details and amount of water flow, our experienced engineering staff will be pleased to assist you in selecting the best treatment and transfer system for your vessel, e-mail solutions@sciencofast.com for further assistance.

Model	Rated Capacity - Persons*	Media Tank L x W x H (in)	Wet Well L x W x H (in)	Weights (lbs)	
				Shipping	Operation
MarineFAST [®] L-1X	up to 8*	39 (99 cm) x 29 (74 cm) x 44 (112 cm)	26 (66 cm) x 26 (66 cm) x 39 (99 cm)	900 (400 kg)	1300 (600 kg)
MarineFAST [®] L-2X	up to 10*	43 (109 cm) x 32 (81 cm) x 45 (114 cm)	26 (66 cm) x 26 (66 cm) x 39 (99 cm)	900 (400 kg)	1500 (700 kg)
MarineFAST [®] L-3X	up to 15*	40 (102 cm) x 29 (74 cm) x 46 (117 cm) (2)	26 (66 cm) x 26 (66 cm) x 39 (99 cm)	1000 (500 kg)	1900 (900 kg)
MarineFAST [®] L-4X	up to 20*	43 (109 cm) x 32 (81 cm) x 50 (27 cm)(2)	26 (66 cm) x 26 (66 cm) x 39 (99 cm)	1100 (500 kg)	2200 (1000 kg)
MarineFAST [®] L-5X	up to 22*	49 (124 cm) x 41 (104 cm) x 67 (170 cm)	38 (97 cm) x 36 (91 cm) x 51 (130 cm)	1100 (500 kg)	2300 (1000 kg)
MarineFAST [®] L-6X	up to 44*	49 (124 cm) x 41 (104 cm) x 70 (178 cm) (2)	38 (97 cm) x 36 (91 cm) x 51 (130 cm)	1700 (800 kg)	4500 (2000 kg)

Model	Rated Capacity - Persons*	Media Tank L x W x H (in)	Wet Well L x W x H (in)	Weights (lbs)	
				Shipping	Operation
MarineFAST [®] M-1	up to 15*	47 x 27.5 x 64	37 x 27.5 x 52	1500 (700 kg)	2700 (1200 kg)
MarineFAST [®] M-2	up to 23*	63 x 27.5 x 66	38 x 27.5 x 52	1700 (800 kg)	3500 (1600 kg)
MarineFAST [®] M-3	up to 35*	87 x 27.5 x 66	38 x 27.5 x 52	2100 (1000 kg)	4600 (2100 kg)
MarineFAST [®] M-4	up to 47*	63 x 27.5 x 66 (2)	38 x 27.5 x 52	2800 (1300 kg)	6100 (2800 kg)
MarineFAST [®] M-5	up to 70*	87 x 27.5 x 67 (2)	43 x 27.5 x 52	3700 (1700 kg)	8700 (3900 kg)

Model	Rated Capacity - Persons*	Media & Wetwell Tank L x W x H (in)	Weights (lbs)	
			Shipping	Operation
MarineFAST [®] MX-1	up to 15*	67 x 34 x 64	1500 (700 kg)	2700 (1200 kg)
MarineFAST [®] MX-2	up to 23*	84 x 33 x 66	1700 (800 kg)	3600 (1600 kg)
MarineFAST [®] MX-3	up to 35*	84 x 33 x 78	1900 (900 kg)	4300 (1900 kg)
MarineFAST [®] MX-4	up to 52*	86 x 45 x 78	2300 (1100 kg)	5900 (2700 kg)
MarineFAST [®] MX-5	up to 78*	108 x 45 x 78	2800 (1300 kg)	7900 (3600 kg)

Model	Rated Capacity - Persons*	Media Tank L x W x H (in)	Wet Well L x W x H (in)	Weights (lbs)	
				Shipping	Operation
MarineFAST [®] D-1V	up to 52*	71 x 46 x 79	44 x 58 x 55	3200 (1500 kg)	7000 (3200 kg)
MarineFAST [®] D-2V	up to 92*	83 x 58 x 80	44 x 58 x 55	4100 (1,800 kg)	10000 (4500 kg)
MarineFAST [®] D-3V	up to 139*	108 x 58 x 81	61 x 58 x 55	5400 (2400 kg)	14400 (6500 kg)
MarineFAST [®] D-4V	up to 174*	109 x 70 x 81	61 x 58 x 55	6100 (2800 kg)	17100 (7700 kg)
MarineFAST [®] D-5V	up to 209*	109 x 82 x 81	63 x 75 x 55	7200 (3300 kg)	21200 (9600 kg)
MarineFAST [®] D-6V	up to 351*	160 x 82 x 82	63 x 75 x 55	9700 (4400 kg)	31500 (14200 kg)
MarineFAST [®] D-7V	up to 523*	185 x 82 x 94	63 x 81 x 67	12700 (5700 kg)	45400 (20500 kg)
MarineFAST [®] D-8V	up to 700*	235 x 82 x 94	87 x 81 x 67	15300 (6900 kg)	57300 (25900 kg)
MarineFAST [®] D-9V	up to 1,043*	185 x 82 x 94 (2)	87 x 96 x 69	23300 (10500 kg)	86600 (39200 kg)

Systems are Standard with the following components.

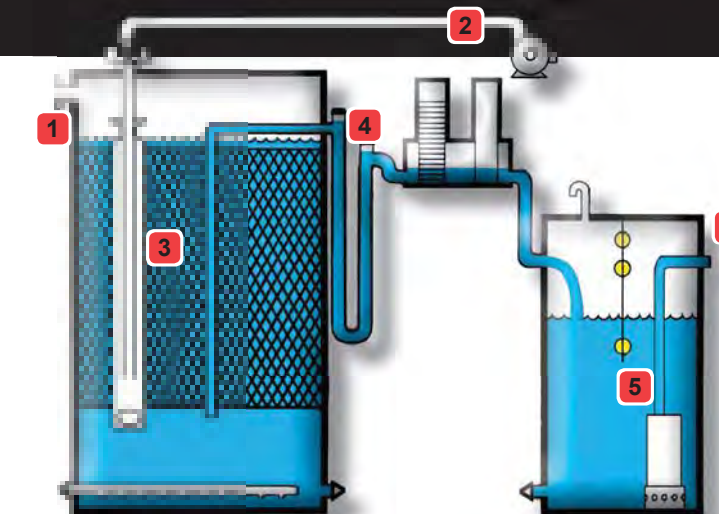
- Media Tank and Wetwell
- Aeration Blower
- Tablet Chlorinator
- Effluent Pump
- Manual Motor Starters

- **LX-Series** are lightweight, biological, flow-through devices (MSDs) to treat all blackwater/greywater generated on board small vessels. Flow: 100-800 GPD (378-3026 LPD) | 1-44 crew

- **M-&MX-Series** to treat all blackwater / greywater generated on board and ideal where access can be extremely limited. Flow: 200-1500 GPD (800-5700 LPD) | 1-70+ crew

- **DV-Series** to treat all blackwater/greywater generated on board from medium to large crews. Flow: 990-20000+ GPD (3700-75700+ LPD) | 1-2000+ crew

SEWAGE SERVICE FACTORS	
Type of waste	factor
blackwater (bw)	1.00
laundry - greywater (gw)	0.36
personal washwater (gw)	0.32
dishwashing (gw)	0.50
total bw & gw above	2.48
(+) ground food waste	1.06
total of all domestic waste	3.54



MarineFAST[®] - How It Works:

- 1 Sewage enters the system. No need for a macerator or bar screen to clean or repair.
- 2 Quiet, compact BLOWER provides air through the piping system that connects to the airlift inside the media tank.
- 3 Aeration through the AIRLIFT circulates and aerates the tank contents to promote microorganisms present in sewage to grow and become fixed on Media to digest organic material. Media does not require replacement or cleaning.
- 4 From center line SPILLOVER pipe, treated effluent passes through TABLET CHLORINATOR and dissolves chlorine tablet proportional to the flow rate. Other disinfection methods are available.
- 5 Sized for peak flow periods, the Chlorine Contact Tank or WETWELL provides the chlorine enough time to disinfect treated effluent prior to discharge. Automatic Float Switches (shown in yellow) located in the center line of the tank gauge water levels for on/off operation.
- 6 A submerged EFFLUENT PUMP in the wetwell transfers the treated effluent to discharge out of the tank. Other transfer options available.

EFFLUENT STANDARDS

Check which effluent requirements you must meet.

- **USCG 33CFR159** – 150 TSS, 200 fecal, effluent sampling in service not required by regulations.
- **MEPC.227(64)** – 25 BOD5, 35 TSS, 125 COD, 100 fecal, chlorine residual not to exceed 0.5.
- **USEPA Secondary Treatment** – 85% removal of BOD5 and TSS, 30 BOD5, 30 TSS, disinfection may or may not be required.

Other Systems and Products available to suit your particular needs:

- Water Treatment Solutions**
- SciCHLOR[®] Hypochlorite Generators
 - SciBRINE[®] BrineMakers
 - Mighty Mike[®] CPT Tablets

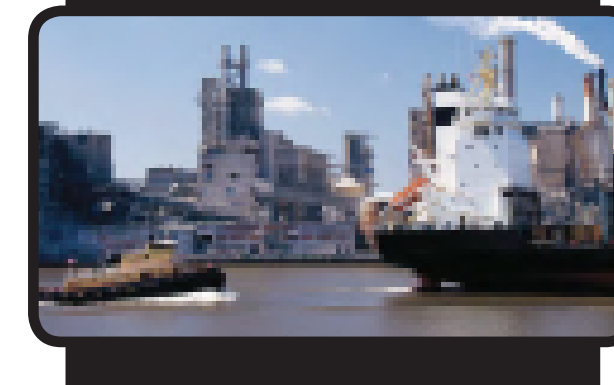
- Environmentally-Friendly Cleaning Solutions**
- Mighty Mike[®] All Purpose Cleaner
 - Mighty Mike[®] Laundry Detergent
 - Mighty Mike[®] Marine Multi-Purpose Cleaner
 - Mighty Mike[®] Marine Liquid Descaler
 - Mighty Mike[®] Industrial Descaler

Why Choose a MarineFAST[®]?

Marine Sewage Devices (MSDs) are required on all vessels with facilities. Even with a marine vessel’s constant movement, small space requirements, variable ship personnel, and flow surges, the MarineFAST[®]s robust treatment process delivers consistent performance to make the innovative, patented FAST[®] system technologically advanced and extraordinarily reliable.

MarineFAST[®] is inherently self-regulating, with no adjustments required. Surge loads at change of watch and temporary changes in crew size do not adversely affect effluent quality. The performance of MarineFAST[®] is not dependent on the skill of the operator:

- Certified, reliable, and proven process
- Strong, custom steel tanks
- Systems customized to specific needs
- Self-starting, self-regulating operation
- Long service life
- Superior protection against corrosion
- Easy to upgrade older units
- Worldwide technical support



Simple...Low-Cost...Robust

www.sciencofast.com