



**SCIENCO/FAST**  
a division of Bio-Microbics, Inc.



- 6 MODEL SIZES TO TREAT  
100-800 GPD (378-3026 LPD):
- Media Tank and Wetwell
  - Aeration Blower
  - Tablet Chlorinator
  - Effluent Pump
  - Manual Motor Starters

# MarineFAST<sup>®</sup>

## LX-SERIES SEWAGE TREATMENT SYSTEMS



LX-Series - Ideal for Small Crew Vessels

- Fits in small/limited spaces
- Corrosion resistant
- Easy installation
- Modular/ Lightweight design
- Custom Units
- Economical

## Adaptable. Affordable. Proven.

MarineFAST<sup>®</sup> LX-Series Sewage Treatment Units are ideal for small crew sizes. They provide the same robust treatment as the larger steel MarineFAST<sup>®</sup> units. The lightweight modular design of the LX-Series provides ease of installation in smaller limited spaces with no overhead lifting devices required. All MarineFAST<sup>®</sup> Sewage Treatment units are factory tested for proper operation prior to shipment.

For more information on MarineFAST<sup>®</sup> Systems:

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**SCIENCO/FAST**  
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Internationally recognized for quality products and top-notch field services, **Scienco/FAST** is a manufacturer of innovative, proven solutions for marine sewage devices, water treatment systems, biological tablets, and other industrial technologies.



# LX-Series Typical Applications

The MarineFAST® LX-Series was originally developed for small harbor tugs, vessels that required all of the performance and reliability of larger FAST® units but didn't have the budget for high quality epoxy coated steel tanks. The answer was to use DOT certified salvage drums and overpacks.

The cost is only a fraction of that for epoxy coated steel. But, these HDPE and XLPE tanks are so strong that they are used to transport hazardous waste on common carriers. As a result, we have been able to offer units at lower cost but with no compromise in performance, strength or reliability.

One great advantage is that these lightweight units can be installed without cranes or hoists and the Series has now grown to include six models with capacities ranging from 4 to 39 persons

The MarineFAST® LX-Series self-regulates, handling surges, overloads and light loads without problems from up to 780 gallons (2900 liters) per day. The LX-Series is engineered with reliable FAST® technology requiring no special training or expensive spare parts. Fully certified, each MarineFAST® handles any combination of fresh or seawater sewage.

SEWAGE SERVICE FACTORS	
Type of waste	factor
blackwater (bw)	1.00
laundry - greywater (gw)	0.36
personal washwater (gw)	0.32
dishwashing (gw)	0.80
<b>total bw &amp; gw above</b>	<b>2.48</b>
(+) ground food waste	1.06
<b>total of all domestic waste</b>	<b>3.54</b>

## STANDARD SPECIFICATIONS:

### Complete System

Assembled and tested at the factory; the LX-Series MarineFAST® System includes blower, pump, chlorinator, valves and controls required for automatic operation.

### Process

Fixed Activated Sludge Treatment (FAST®) employs fixed media as the site for microbial growth.

### Certification

Certified by USCG under 33 CFR Part 159 and IMO rules for both inspected and uninspected vessels.

### Sewage Treated

Any combination of standard and vacuum toilets, fresh & salt water, showers, laundry, galley.

### Rated Capacity

Any population from zero to max.

### Operating Conditions

Max air temperature 50° C., min water temperature 10° C., max roll ±30°.

### Overload Capacity

Up to 150% rated capacity for up to 24 hours.

### Machinery

Regenerative turbine blower, stainless steel submersible effluent pump, tablet chlorinator.

### Electric Service Required

115 VAC 1 phase 60 Hz power.

### Construction

Heavy duty salvage drums meet DOT 49 CFR Part 173.3.

### Consumables

Chlorine tablet consumption:  
 • standard toilets - 1.9 lb/year, per person  
 • vacuum toilets - add 0.2 lb/year, per person  
 • gray water - add 2.5 lb/year, per person

## OPTIONS:

**Secondary treatment tank** modified to produce effluent containing less than 30 mg/l BOD5, 30 mg/l SS.

**Electric Service** 208-230/460 VAC 3 phase 60 Hz blower motor, 50 Hz power.

**Chlorine Pump** using liquid chlorine bleach instead of tablets.

**Dechlorination Device** for MARPOL 2010 Certification.



## SIZING & SELECTING UNITS:

To select the correct model, follow the steps below. After determining the Service Factor from the table to the left, use this number to multiply the number of persons to obtain the equivalent black water persons. This will help to determine the effluent requirements and select the correct model size. For further assistance, e-mail [solutions@sciencofast.com](mailto:solutions@sciencofast.com).

### Step One

**Live-On Persons** - Rated capacity is shown for treatment of black water and hand sinks only from persons working and living aboard the vessel. If persons work but do not live aboard, count each of these persons as one-half a person to obtain the equivalent number of live-on persons.

**Service Factor** - If other types of sewage (i.e. greywater) are to be treated in addition to blackwater, add the appropriate factors from this table to obtain a total service factor, starting with blackwater as 1.0.

### Step Two

**Figuring Equivalent Crew Size** - Multiply crew size by service factor for equivalent crew size.

$$\text{No. of persons} \times \text{Service factor} = \text{Equivalent Crew size}$$

### Step Three

**Effluent Standards** - Listed below are three rating standards. Check which of the two effluent requirements you must meet.

- USCG 33CFR159** - Minimum 33CFR159 / MEPC.2(VI) rated capacities for units certified by U.S. Coast Guard installed aboard vessels and not subject to effluent sampling in service not required by regulations.
- MARPOL 2010** - 25/35 effluent for USCG certified units and recommended for general marine use with 2 months internal sludge storage and dechlorination of effluent. Secondary treatment may be required for vessels operating in restricted waters, barges meeting local or harbor regulations, and offshore applications that are subject to state or other regulations.
- USEPA Secondary Treatment** - Fixed platforms and land applications requiring secondary treatment, 3 months internal sludge storage, de-rate by 10% for dilute sewage

### Step Four

**Select your model size** from the Reference Data sheet.



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