



MarineFAST® M- & MX-Series Units available in 5 models rated to treat 200 to 1500 GPD (800 to 5700 LPD):

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



# MarineFAST®

M- & MX-SERIES SEWAGE TREATMENT SYSTEMS



M- & MX-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® M- & MX-Series Sewage Treatment Units** are ideal where access to available space can be extremely limited. The M-Series consist of separate tanks and components that can be located in different compartments or decks if necessary. The MX-Series are a fully assembled version with the tanks combined into a single compact unit. All MarineFAST® sewage treatment units are factory tested for proper operation prior to shipment.

For more information on MarineFAST® Systems:

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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.



# M- & MX-Series Applications

The M-Series were originally developed to fit into the rope lockers and shaft alleys of small towboats. These are modular units with tanks and other components that can be installed wherever space is available.

Each unit will fit through a 28" X 60" watertight door with 6" radius corners and (with only one exception) will do so without disassembly. The M Series continues to find applications in various types of vessels.

There are five models with epoxy coated steel tanks and with capacities ranging from 11 to 80 persons.

Originally developed as an assembled version of the M-Series, the MX-Series provides extremely compact units that have found a range of applications in various types of vessels and small offshore platforms. As with the M-Series, these are epoxy coated steel units with capacities ranging from 12 to 72 persons.

The MarineFAST® M- & MX-Series self-regulates, handling surges, overloads and light loads without problems up to 1700 gallons (6400 liters) per day. Fully certified, each MarineFAST® handles any combination of fresh or seawater sewage.

## STANDARD SPECIFICATIONS:

### Complete System

Assembled and tested at the factory, the M- & MX-Series 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.

### M-Series

Modular system furnished as factory-built components with interconnecting piping and wiring by others. Each module will fit through a USCG standard 28 inch X 60 inch watertight door with 6 inch radius corners.

### MX-Series

Media tank/wetwell combined before shipment.

### Certification

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

### Sewage Treated

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

### Rated Capacity

Any population from zero to maximum.

### Overload Capacity

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

### Operating Conditions

Maximum air temperature 50° C., minimum water temperature 10° C., maximum roll ±30°.

### Machinery

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

### Electrical Equipment

TEFC motors, class F insulation, NEMA Type 4/4X rainproof/dusttight motor starters, armored cable secured per ABS requirements, certified by USCG for uninspected vessels.

### Construction

Welded steel construction per ABS Section 13 Deep Tanks,

externally reinforced, minimum section thickness 1/4 inch (6 mm), tank penetrations and seams full welded both sides, welding per ABS requirements, lifting lugs.

### Corrosion Protection

Grit blast to white metal (SSPC-SP-5%), two coats polyamide epoxy 6-8 mils DFT, brush welds before spraying, 3/16 stainless steel (SS) threaded tank penetrations and assembly hardware.

### Consumables

Chlorine tablet consumption for continuous operation 1.9 lb. per year per person with conventional toilets, 0.2 lb. per year, per person with vacuum toilets, add 2.5 lb. per year per person for gray water.

## OPTIONS:

**Roots Blower** - V-drive, belt guard, electric motor, inlet silencer, vibration isolators, normally furnished for separate installation, can be installed on MX-2 and larger MX-Series units.

**Discharge Pump** - dry pit end suction centrifugal with stainless steel shaft and hardware, normally furnished for separate installation.

**Duplex Discharge Pumps** - each pump 100% duty, either pump can be duty pump, standby pump starts when high level float switch energized, normally furnished for separate installation.

**Electrical Engineering** - electrical equipment per 46 CFR Subchapter J for USCG Certification Inspected Vessels.

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

**Special Construction for Exterior Installation** - full welded external seams; special coating system using inorganic zinc, epoxy and urethane; exterior duty motor; 316SS exterior piping, valves and sight glass.

**Secondary Treatment** - tank modified to produce effluent containing 30 mg/l BOD<sub>5</sub>, 30 mg/l SS.

**Other Options** - custom designs, systems built into ship's tanks, high head discharge pumps, explosion proof electrical equipment, extended sludge storage.



## 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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