

Power used by the Aeration Pump

Power consumed (continuous operation):

Nominally 3.50 amps @12 volts:
Approx 42 amp-hours (12/24 hour cycle)

Capacities:

Aeration Tank
Chlorine Tank
Holding Tank
Collection Tank (if fitted):

250 to 500 litres:
Approx 10 litres
60 to 125 litres
60 to 125 litres

Tank Construction:

Polyethylene: minimum of 8 mm thick

Oxidizing agent:

Commercial liquid chlorine (10% Cl₂)

Weight (approx) – full:

Aeration Tank
Chlorine Tank:
Holding Tank:
Collection Tank (if fitted)

300 – 600 kg
10 kg
70 - 140 kgs
70 - 140 kgs

Dimensions (approx):

Aeration Tank (standard size tank – 250 litre)
Electrode Cell Tank (rectangular: H x W x D):
Holding Tank (cylindrical: Dia x Length – 60 l):
Holding/Collection Tank incl feet, fittings, etc

1200mm H x 600 W x 400 D
300mm H x 200 W x 200 D
400mm D x 600mm L
550mm D x 750mm L

Person Capacity:

A 250/60 litre system is suitable for use by up to 20 persons under short-term charter conditions or 5 persons for permanent 'live-aboard' use.

More Information:

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AQUA-MARE



MARINE SEWAGE TREATMENT SYSTEM

The **AQUA-MARE Marine Sewage Treatment System (MSTS)** uses aerobic bacteria to consume organic matter in on-board toilet waste, followed by an automatic disinfection and sanitising process, to produce a clean disinfected effluent that can be safely discharged in most marine areas.

The initial treatment of the macerated toilet waste involves forcing air through the waste solution to generate an 'activated sludge'. This 'activated sludge' solution contains millions of 'good' bacteria that consume the raw waste, breaking the waste material down into its constituent elements.

In the process of breaking down the raw waste, the 'good' bacteria also:

- destroys many harmful viruses and bacteria,
- de-nitrifies much of the remaining nutrients contained in human waste,
- deodorises the treated waste, and
- eliminates the build-up of dangerous gases.

Subsequently, during the 'settling cycle', the remaining solids sink to the bottom of the aeration tank, allowing the clarified liquid remaining at the top of the tank to be decanted into the integrated sanitisation system.

The sanitisation system uses commercially-available liquid chlorine solution to disinfect and sanitise the clarified waste. Liquid chlorine is a strong oxidising and disinfecting agent (Hypochlorous Acid) and the system uses that agent to disinfect and oxidise the treated toilet wastes.

In a simple system, when an on-board toilet is activated, the macerated toilet waste is pumped into the Aeration Tank. There it mixes with the existing tank contents, and during the aeration process, it is attacked and consumed by the aerobic bacteria. The waste may initially be pumped into a Collection Tank, prior to transfer to the Aeration Tank, in larger installations

During the subsequent 'settling cycle', the clarified liquid at the top of the tank is drained off. This liquid is sanitised and disinfected by a safe but effective chlorine solution and subsequently held in the Holding Tank until discharge is permitted.

When the Holding Tank is approximately 80% full, a light comes on and a buzzer sounds to warn the operator that the system is reaching capacity and needs to be discharged.

In general, after several hours, the treated effluent in the Holding Tank should be almost chlorine-neutral and should have no negative effects on the environment when discharged.

However, we do recommend that the Holding Tank effluent is discharged into the marine environment only when the vessel is underway or when the vessel is positioned/anchored in an area of strong tidal flow.

Commercial Hypochlorite Solution e.g. liquid pool chlorine, readily reverts to relatively safe components once used and is not known to be harmful to the surrounding environment in the concentrations remaining when discharged.

The AQUA-MARE System operates at around 3.5 amps per hour at 12 volts when aerating, which normally requires at least 12 hours per day in total. Both 24 volt and 240 volt versions are also available.

NWS also manufactures and markets the **SANI-TANK**, a simplified Grade C Marine Sewage Treatment System primarily for the charter and bare-boat industry, and the **AQUA-SAN II** Grade C Marine Sewage Treatment System targeted at the environmentally-conscious private vessel owner.

Please contact Barry on 0411 598 306 for further information about these products.

All **NWS Marine Sewage Treatment Systems** are designed to comply with the existing Queensland Government legislation for the treatment of on-board toilet waste.

Please note that areas where discharge of any form of treated toilet waste (including that from Category A systems) is NOT allowed include all marinas, boat harbours, most residential canal areas, and certain declared areas e.g. Butterfly Bay in the Whitsundays.

Like all of our systems, the AQUA-MARE MSTS is being constantly re-engineered to ensure that it continues to satisfy the clean-water proposals being considered by various State Water Authorities for cleaner Australian waterways and for the retention of waste on board until discharge is permitted.

Tests undertaken by the Scientific Services Division of Queensland Health (a NATA approved laboratory) confirm that the AQUA-MARE system meets all existing Queensland Government legislative requirements for A Grade systems.

There is no better way to treat effluent and keep our waterways clean than with an AQUA-MARE STS. It provides the owner/operator with complete control of the on-board sanitisation process and pump-out operation, allowing him or her to readily comply with all legislative discharge requirements for commercial or larger recreational vessels.

