

## Protecting your VorTech

Protect the pump from water

The VorTech's motor housing and driver are NOT WATERPROOF. Any water allowed into these components can damage them enough to require replacement. This kind of damage is NOT covered in the VorTech's warranty. Protect these components from splashes of any kind.

## Maintenance

Wear of the drive shaft

The VorTech pump features a wear component in the form of the *drive shaft*. This part is designed with a special engineering grade plastic which extends the part's lifetime. The plastic drive shaft can be expected to last for years, depending on the speed, frequency, and alignment of the pump.



Normal

Oxidized

The wet magnet and drive shaft should be observed periodically to monitor wear. If the magnet begins to show signs of rapid oxidation in the form of bubbles on the magnet surface, they may need to be replaced. Replacements can be purchased directly from EcoTech Marine.

**Cleaning your VorTech**

The VorTech may need thorough cleaning of the components periodically to keep it running optimally. This can be accomplished by disassembling the wet half of the pump and gently brushing the components with a soft brush under running water. Soaking these parts in a mild acid solution such as vinegar may be necessary if there is an extreme amount of calcium buildup. Do not use strong acids as this may damage the components.

## Troubleshooting

**Break-in**

The VorTech pump is engineered to adapt to its aqueous environment. During the first week of use, your pump may run noisier or stall. The noise should quiet dramatically over night and any stall conditions can safely be reset by manually cycling the power to your pump.

## Driver Error Codes

Error Codes:



**Over Temperature Condition**

In the event of a motor overheating, the pump will automatically shut down for a period to allow for cooling. Once the motor has cooled, the driver will automatically restart and resume normal operation. You may experience an overheating error from a misalignment.

**Stall Condition**

In the event of a motor stall, the pump may have stopped for a few possible reasons. You should first check that there is not something blocking the propeller from spinning. Next, check to make sure the magnets are not rubbing on either the pin spacer or the frame cover.

**Miscellaneous Error**

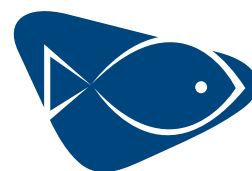
This error could be attributed to a communication error between pumps or an unidentified error in the wave driver.

## FCC Warnings:

Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference including interference that may cause undesired operation of the device. Changes or modifications not expressly approved by EcoTech Marine could void the user's authority to operate the VorTech Wireless Wave Driver.

## Customer Support

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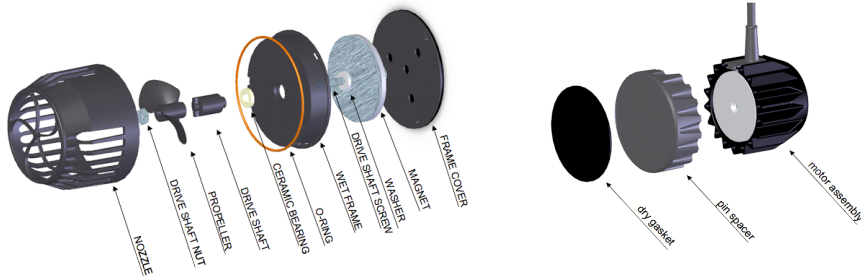
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**VorTech**  
propeller pump

Instruction Manual  
MP40w

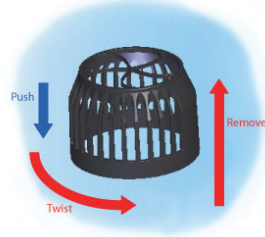
## Your VorTech propeller pump



To remove the nozzle from the wet-frame, remove the entire wet-half of the pump from the aquarium and place it on a non-metallic surface. Gently but firmly press down on the nozzle with your palm and twist counter clockwise. The nozzle should become free of the wet-frame. It may then be cleaned of any obstructions

### Specifications and Operating Parameters

**Flow:** 200-3,000 gallons/hour, **Power:** 12-23 watts,  
**Maximum Motor Temp:** 50-60 degrees C  
Aquarium Wall Thickness: 3/16" to 3/4"



## Before you start

### Preparation

- Once you have chosen the location where you wish to install your VorTech pump, clean away any algae, calcified or otherwise, using a razor blade.

### Notes on placement

The VorTech creates over 3,000 gallons per hour of low velocity flow within your aquarium. Take care to place the VorTech in a suitable location where corals are not directly in the line of flow. Place the pump sufficiently high enough above a fine sand bed so that sand is not blown around by the output or undertow created by the VorTech.

## Adjust the pin spacer

The VorTech pump is designed to operate with a constant gap between both halves of the device. The pin spacer is used to ensure the proper spacing for various aquarium wall thicknesses.

- Make sure to measure your aquarium's glass thickness using a ruler or contact the aquarium manufacturer in order to determine the exact thickness.
- To adjust for the proper aquarium thickness, pull the pin spacer from the motor housing. Then align the VorTech's power cord emerging from the motor with your aquarium's wall thickness to achieve the proper offset from your aquarium.

Note: 5/8" and 3/4" thick aquariums do not use the pin spacer at all.

**IMPORTANT:** When adjusting the pin spacer, be sure not to bend the pins as they are inserted into the holes within the heat sink as this may permanently damage your VorTech. Bent pins WILL NOT be covered under warranty.



## Slave Modes

### Sync Mode

When a slave pump is entered into sync mode, it will replicate exactly what the master pump is doing. This function can be used with a master pump that is currently in any general mode of operation.

### Anti-Sync Mode

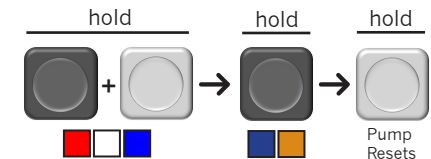
When a slave pump is entered into Anti-Sync Mode, it will inversely replicate the master pump. For example, when the master pump is at high speed, the slave pump will be at low speed. This function can be used with a master pump that is currently in lagoon, reef-crest, or pulse modes. In constant speed mode, the anti-sync pumps will operate at the same speed as the master pump.

## Programming Multiple Pumps

A pump group consists of one master pump and at least one slave pump. There can only be one master pump per group which can include an unlimited number of slave pumps. It is possible to have up to eight groups in one area each with a unique master pump.

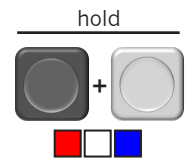
### Step 1: Clear Driver Memory

The internal memory of each unit must be cleared before setting up a group.



### Step 2: Enter Configuration Mode

All pumps in a group must then be set into configuration mode before the assignment of slave or master status. This configuration must be performed with the drivers in close proximity to ensure proper assignment. The drivers will blink red, white and blue in this mode.



### Step 3: Assign the Master

Set the master pump by pressing the mode button. The LED will then blink blue and green.



### Step 4: Assign the Slaves

Set all the slave pumps by pressing the set button on each driver. The LED will then blink blue and yellow.



### Step 5: Cycle the Power

Pull the power cord from the driver box to reset each pump. They will restart in their respective slave or master modes. Alternatively, hold mode on any one pump to rest them all.



### Step 6: Program Subsequent Groups

Now that the first group is programmed, repeat steps 1-5 on then next group of pumps if so desired.

**NOTE:** The subsequent pump groups must be programmed near the original group. For example, if running two different groups in separate areas of your house, the second group must be programmed near the first group to ensure proper communication.

## Warnings

- The VorTech utilizes very powerful magnets and can cause severe personal injury.
- NEVER connect the two halves of this device without a proper spacer in-between.
- NEVER place either half of this device near magnetically attractive surfaces or sensitive electronics.
- The motor and driver can become HOT. Be cautious around these surfaces.
- Never run the pump dry as the heat buildup may cause damage to your components.

## Attach the VorTech

### Attach the motor assembly

- Apply the rubber gasket at the chosen location for the VorTech pump, on the outside of your aquarium.
- Apply the cord mounting tab approximately 2" above this location. **Make sure the glass is clean and free of any grease or dirt prior to applying this tab.**
- Place the VorTech motor, with or without the pin spacer attached, upon the black gasket, and secure the cord to the mounting tab using one of the provided wire-ties.
- The cord must be positioned pointing upwards so that if the VorTech were to fall off the aquarium, it does not swing and damage your aquarium. When operating, make sure the gasket is properly recessed within the pin spacer.



### Attach the propeller housing

- Apply the wet gasket/cover to the rear of the propeller housing.
- Place this into the aquarium, making sure to allow ALL air to escape from the propeller housing.
- Carefully connect both halves of the pump together and visually align both halves of the pump.

## Protect the Pump From falling

Due to the nature of the magnetically coupled design, it is possible for the VorTech to become dislodged from the aquarium glass and fall to the ground. The cord should be positioned vertically above the pump with the mounting tab directly above the motor to ensure that the motor does not move in the event of a decoupling of the magnets.

- The provided cord-mounting tab MUST be used to prevent damage to the motor or the surrounding environment.
- The motor will shut down automatically if either half of the pump is removed.

## Align the VorTech

- Turn the speed up to the maximum speed by using the speed control knob on the driver.
- Plug the power supply into the driver. If vibration or noise is detected, carefully adjust the propeller housing by moving it VERY slightly left, right, up or down, until the noise/vibration is eliminated or minimized as much as possible.
- After alignment has been ensured, turn the speed control knob to achieve the desired flow rate within your aquarium.

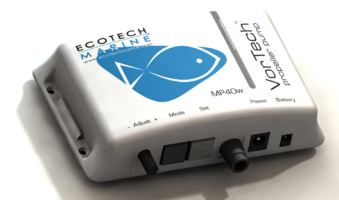


**IMPORTANT:** If the VorTech is not properly aligned, a strong vibration will be heard. If the alignment is not corrected, this can cause increased electrical consumption, excessive wear on the components, excessive heat and excessive noise.

## Your VorTech Wireless Wave Driver

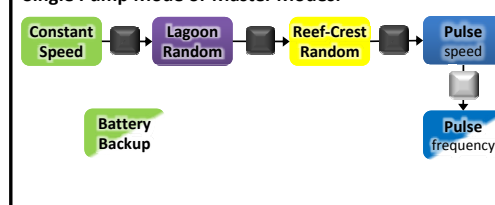
The wireless wave driver has seven different modes of operation, and can be assigned to a master or a slave pump configuration. If you assign a pump to be a master, it will communicate wirelessly with the slave pumps.

There are two buttons and one dial on your driver. Use the mode button to switch between the different modes of operation. The dial and set button will be used to adjust the speeds and frequencies of the different modes.

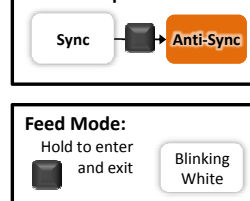


### Operational Modes

#### Single Pump Mode or Master Modes:



#### Slave Pump Modes:



#### Feed Mode:

Hold to enter and exit

Blinking White

## General Operational Modes

### Constant Speed Mode

When a pump is in constant speed mode, the dial is used to set the operational speed. If this pump is a master, the associated slave pumps will replicate the master.

### Reef-Crest Random Mode

When a pump is in Reef-Crest Random Mode, the dial is used to set the maximum operational speed, and the driver will automatically randomize the pumps output to simulate a high energy reef-crest environment. If this pump is a master pump, the associated slave pumps will replicate the master in sync or anti-sync modes.

### Lagoonal Random Mode

When a pump is in Lagoonal Random Mode, the dial is used to set the maximum operational speed, and the driver will automatically randomize the pumps output to simulate a low energy lagoonal reef environment. If this pump is a master, the associated slave pumps will replicate the master in sync or anti-sync modes.

### Pulse Mode

When a pump is first entered into Pulse Mode, you must set the maximum pump speed by adjusting the dial. When the desired speed is achieved, press the Set button to lock this speed. The LED will now begin to blink. This blinking LED represents the pulsing frequency. Now adjust the dial to make the pump pulse faster or slower.

### Feed Mode

To enter Feed Mode, press and hold the mode button for three seconds. The LED will now blink white indicating that the pumps are in feed mode. Regardless of your system's master/slave pump configuration, all pumps will enter feed mode when that mode is selected on any one pump. The pumps will spin very slowly for ten minutes and then resume their prior operating conditions.

### Battery Backup Mode

When a battery backup accessory is added to the VorTech pump the pump will automatically switch to Battery Backup mode during a power outage. The pumps will run at the minimum speed to maximize their run time during this critical period.