

Water flow:

Why is it important

Types of water flow

Different Techniques to create water movement?

Why is water flow important

- Keeps detritus (waste) suspended in the water allowing the filtration to remove it more easily
- Currents bring organisms (Corals, feather duster, clams) food, oxygen, and nutrients while remove the waste.
- Provides a more natural environment for the inhabitants.
- Helps reduce algae build up on rocks

Types of water flow on a reef

- Laminar flow: straight unidirectional flow caused by ocean currents, can be reproduced by power heads
- Surge currents, similar to Laminar flow except larger.
- Turbulence: random flow of water in multiple directions, hardest to reproduce.
- Water movement is considered adequate if the flow within a tank is between 5-10 times the tanks volume per hour

Techniques to create water movement

- Wave Makers (Electronic)
- Wave Makers (Mechanical)
- Closed loop system
- Power Heads
- Dump Buckets

Wave makers (Electronic)

- Used in conjunction with power heads to create a more natural environment by creating alternate water current within the aquarium. This helps reduce dead spots (stagnant water) areas, which can create problems within the tank. Additionally it stimulates live coral by providing a more realistic environment



Wave makers (Electro/Mechanical)



Sea Swirl

- External pump is required to supply water. Can be plumbed as part of the return or closed loop system
- Water is supplied to the top fitting, the bottom nozzle slowly rotates back and forth by means of an electrical motor.
- The unit is usually mounted in the back lip of the aquarium

Wave makers (Electro/Mechanical)



- Oceansmotions (4-Way)
- External pump is required to supply water. Can be plumbed as part of the return or closed loop system
- Water is supplied to the bottom fitting, A drum slowly rotates guides the water into the various outlets.
- Revolution can be added at each of the outputs to further enhance water movement

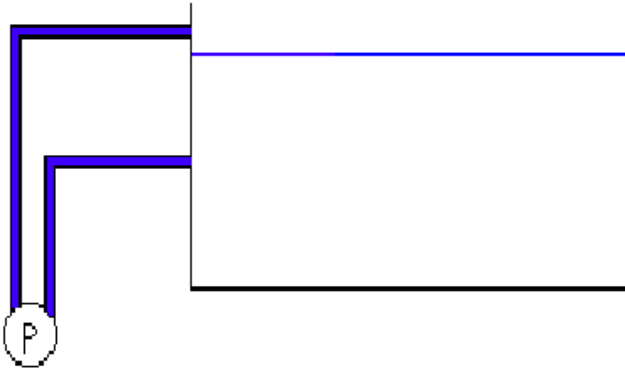
Wave makers (Mechanical)



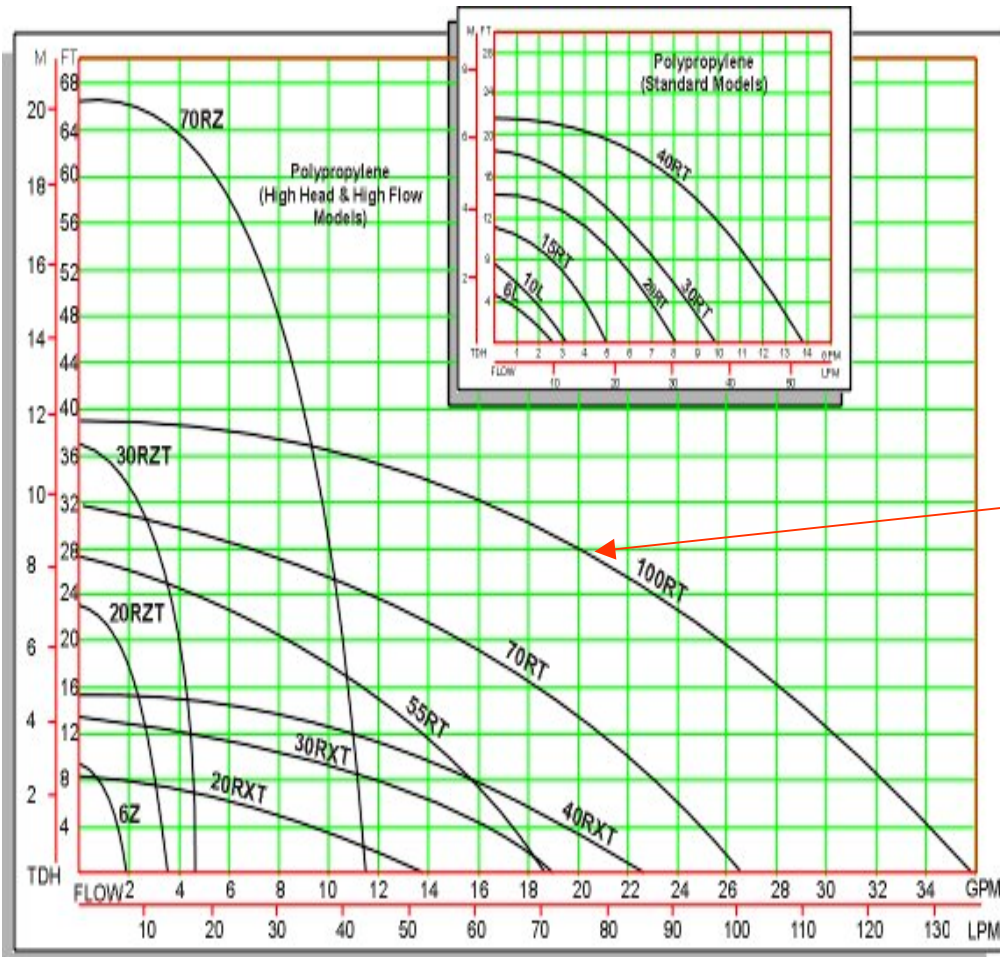
- Ocean Currents Oscillator (Top), Creates a pressure wave with a 100 degree back and forth sweep of water from the power head.
- SCWD - Switching current water director (Bottom), Water enters the bottom inlet, then is redirected to one of the outlets

Closed Loop

- Pump re-circulates water from tank
- No loss of head pressure, pump can be located any height from tank without issue.



Head Pressure



The amount of pressure a pump has to overcome due to gravity by pumping water at a certain height

Example:

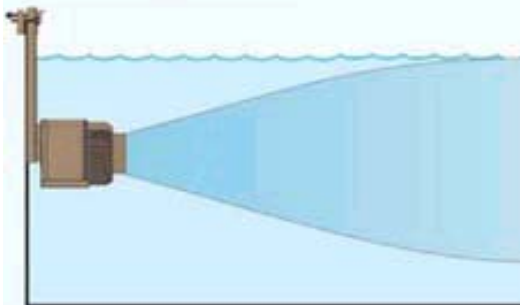
An Iwaki MD-100RT can pump 20 GPM at 28ft

Tunze Turbelle® Stream



- Turbelle® stream pumps produce gentle current speeds at high flow rates of up to 12,000 liters (3,170 US gal.) per hour

Turbelle® stream



Power Heads

- Various power heads can be placed within a tank to create water movement.

