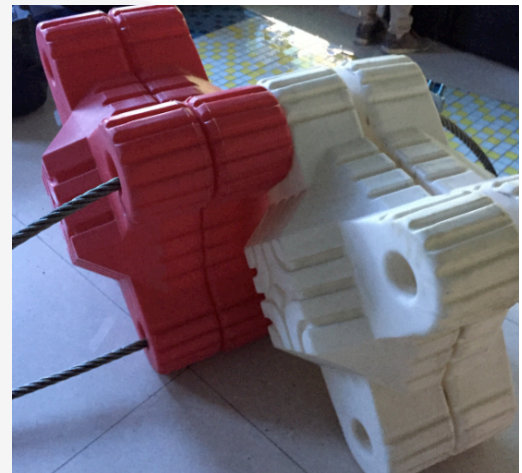
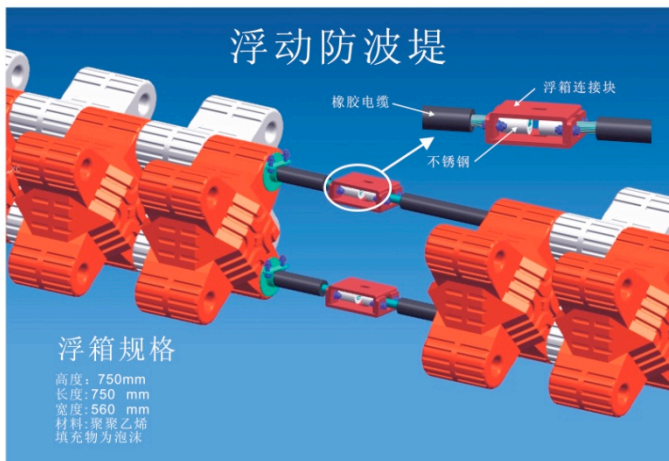




FLOATING BREAKWATER

THE FLOAT MODULE

Each barrier starts out with individual modules, which are highly engineered polygons made of HDPE by blow molding. The unique polygon shape is beneficial not only for wave attenuation but also greatly enhances the modules strength. The polyethylene is treated with UV inhibitors during manufacturing so it's life expectancy, even in harsh marine environments with directly sunlight, is 20+ years.



A standard module weight is 7kg, full filled by EPS foam and is approx. 75*75cm and 28cm deep. The module can be filled with materials of different densities, such as water or sand, to precisely adjust its buoyancy as well as provide ballast. The modules can also be "puncture proofed" by filling them with marine buoyant foam. The modules can be produced in any color, and come standard in white, black, and a highly visible safety orange.

Size : 750*750*280mm	Weight: 7 kg/pc	Material: HDPE

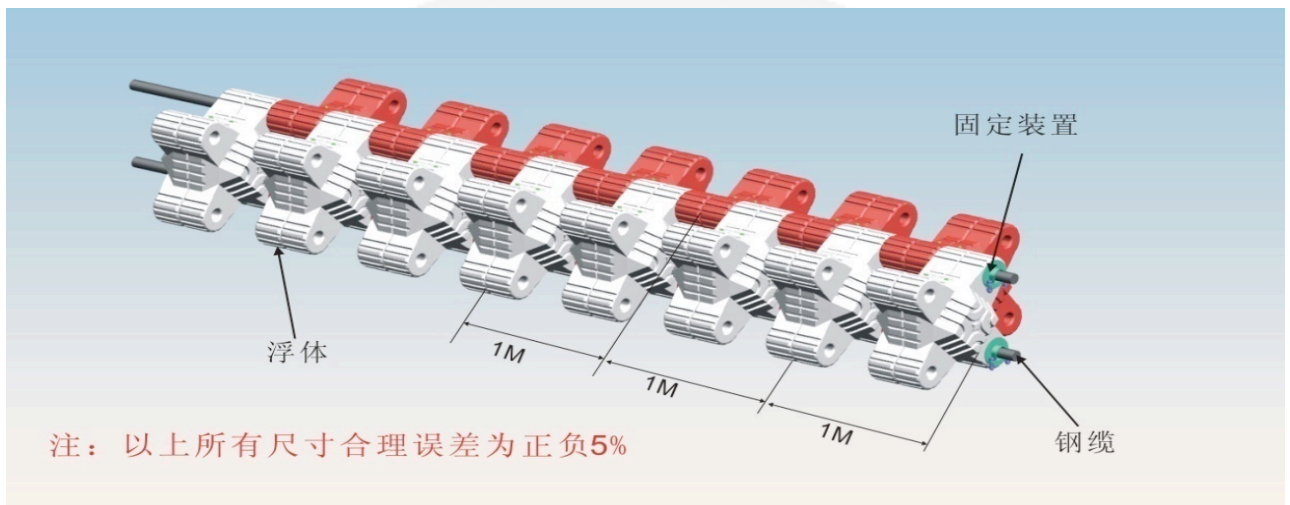
Application:

- ✧ **Versatility:** can be used widely in various fields.
- ✧ **Economy:** free maintenance and low upkeep.
- ✧ **Convenience/Simplicity of Construction:** can be easily quickly installed and dismantled.
- ✧ **Color:** with colors of red, white, black, gray and orange, etc
- ✧ **Durability:** resistant to UV rays, frost, seawater, corrosion, chemicals, and oil.
- ✧ **Recycle:** HDPE Material, 100% recyclable, environmentally friendly.



PUTTING THE MODULES TOGETHER

The structures can be constructed with embedded galvanized or stainless steel cable or rods, up to 30mm diameter, inside connecting 50mm EPDM rubber cables. These cables or rods can run the entire length of the structure, or be constructed in sections. The sizing and number of cables, the freeboard height of the structure, and the anchoring system all influence the resistance to various threat levels as well as the wave attenuation capabilities. The stainless steel rods are used when a rigid structure is required, such as for sections or buoys with signage and barriers with rigid fencing.



All metal hardware used is either galvanized or stainless steel as required. Metal eyes can be placed periodically or as needed for lifting, towing or otherwise moving the structure.

HOW WELL DO THEY WORK?

The floating breakwaters are engineered to effectively extract the energy out of the water rather than just deflecting the energy. At the installation we are showing a transmission coefficient of 0.1 on the expected wave spectrum. The floating breakwater was able to dissipated the 1.2m waves that the marina was subject to during highly destructive storms to a mere 15cm (90% efficient)!





BARRIERS

The barriers are currently available in 3 configurations, the Small Craft Intrusion Barrier, the Vessel Exclusion Barrier and the Enhanced Vessel Exclusion Barrier. The VEB has sufficient strength to withstand 1,000,000 foot pounds of energy over a 1.5 second period, capable of completely stopping 35-foot vessels traveling at 50 miles per hour (43-½ knots) and significantly impeding larger vessels. The barriers can be designed with gates, solar lighting, fencing, razor-wire and more depending on your needs.



FLOATING BREAKWATER

We developed the floating articulated breakwater technology to afford protection to ports, harbors, marinas, beaches, and private property subject to destructive or annoying wave/wake forces. There are three primary configurations of the floating breakwater: Ocean Floating Breakwater, 2 Layer Floating Breakwater and 3 Layer Floating Breakwater.



PHYSICAL BARRIERS

The modularity and the flexibility of the FLOAT MODULE erosion control technologies led to discussions with the **Navy** and **Coast Guard** about developing various maritime port security barriers and related products for their Homeland Defense and **Military Force Maritime Protection** needs. These military branches were impressed by the FLOAT MODULE commercial off-the-shelf availability, marine engineering, product life cycle and maritime roots. We developed the FLOAT MODULE Force Protection Marine Barrier Systems to assist in the demarcation of Homeland Security Zones and serve as a physical barrier /"marine fence" to help mitigate the risk of nautical terrorism.