



Security Zones

HALO Security Wave Attenuators

Excellent Protection for Ports & Homeland Defense

HALO Security™ is an excellent sentinel for ports, military bases, dams, nuclear power plants, bridges – whatever you need to secure. By retarding and preventing motion, it deters and prevents intruders from entering restricted areas. The system can easily be rearranged or augmented to protect against any level of threat your facility faces.

HALO Security offers three layers of defense. Each system offers a different level of protection, and can be customized with a variety of sensors, nets, signage, lights, flares, cameras, and entanglement devices.

1. **Small Boat Barrier (SBB) System** is an economical, portable barrier line of demarcation that protects against divers, trespassers, and boats up to 20' in length. The system is stackable and can be stored on land to be deployed in a moment's notice.
2. **Medium Boat Barrier (MBB) System** incapacitates larger vessels up to 60' in length making them incapable of breaching a facility's line of demarcation. Using entanglement and other obstructions to a boat's path, our MBB system is a substantial barrier to incursion. Our MBB system is a modular sentinel that can be combined with either the SBB or LBB system to add another layer of defense to a sensitive facility.
3. **Large Boat Barrier (LBB) System** creates a solid security zone to protect against incursion by large boats up to 100' length. The system has a variable freeboard and can be deployed all the way to the seafloor to prevent diver ingress and egress. While the system is a permanent feature within a sensitive area, it can be augmented in place with our other modular security systems.

Divers, trespassers, terrorists and vessels may try to covertly to enter your facility and do significant damage to property and personnel. Don't be vulnerable to these attacks. Let HALO create a security zone to protect and secure your facility and personnel.

Heavenly Protection Against Covert Intrusion

HALO creates a solid security zone and a strong line of demarcation to protect your facility and personnel against trespassers, terrorists, and boat ingress and egress.



To request a video of HALO in action or to learn more, call 973.227.0145 or visit elementalinnovation.com today.

HALO Tunable Wave Attenuators

Beach Protection | Harbor Protection | [Security Zones](#)

Unlike a massive concrete wall that stops a speeding vessel instantly, our three-dimensional boat barriers create a progressive impact to stop a speeding vessel over time. As a result, our energy-absorbing barrier can survive much higher velocities than a rigid barrier. Stopping forces on our barriers are very low due to a longer stroke; a solid structure may only move a few inches whereas our barrier will move several feet. If a moving object is stopped by a collision, extending the stopping distance will reduce the average impact force.

By transferring the kinetic energy from the moving boat, our barriers use a plowing action to stop the boat. The barrier, not the boat, is allowed to deform quickly which keeps the reaction forces relatively low.

When a boat strikes the face of our barrier at high speed, the boat plows into the water behind the row of the barrier. The resulting friction or kinetic energy is transferred to the water behind the row that plumes up and out.

Proven, Second-Generation Technology

HALO is composed of rows of non-toxic polyethylene panels. Rows are connected by energy-absorbing Delrin rods, which allow the structure to recoil under extreme wave conditions and then rest. Wave energy passes through small openings on the panels to the area between the unit and its mooring points. In this area, waves overlap to create interference, which dissipates the wave's energy.

ERW pipe can also be passed through hubs horizontally creating an enhanced barrier to boat penetration. HALO panels are composed of eco-friendly, marine-grade materials that withstand all sea states without damage.

HALO can be moored into any soil type, including sand, silt/mud, and rock. Depending on the location and application, we can use screw anchors, MANTA RAY® anchors, dead weights or pilings to anchor the HALO into the seabed. After installation, we load-test all anchors to ensure their strength.

We'll work closely with you to provide a cost estimate and visual representation of how the HALO unit will look near your facility. We can also help you with in permitting, installation, and testing.

Partner with the Best

Let HALO Security wave attenuators and the HALO Security Gate protect your facility and personnel from covert incursion and terrorist attacks. Elemental Innovation uses the latest technologies and the best eco-friendly materials to provide you with total coastline protection. For more information or a quote, please visit us at www.elementalinnovation.com, contact sales@elementalinnovation.com or call us at 973.227.0145.



A modular port security system, HALO Security protects and secures your facility and personnel against covert incursion. Request a video of HALO in action by calling 973.227.0145.

HALO Security Gates Provide Extra Safety

The HALO Security Gate™ is a significant security barrier that uses buoyancy to submerge and rise. By operating the gate remotely, personnel and boats avoid long waits and prevent covert incursion. The gate can be enhanced with security features including netting, razor wire, and steel pipe to deter boat strikes against the gate.

The HALO panels that comprise the gate are ballasted; the weight of the entire structure is calculated and offset by the buoyancy contained in the pipe suspended between the rows of the gate. By means of an air/water valve mounted on the suspended pipe, an operator can control the buoyancy of the pipe to raise or lower the gate.

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