



# Security Zones

## HALO Security Large Boat Barrier

### Excellent Protection against Trespassers and Large Boats

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.

Our 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 would become a permanent feature within a sensitive area, it can be augmented in place with our other modular security systems including the Small Boat Barrier and Medium Boat Barrier.

Part of our HALO Security™ suite of barriers, our Large Boat Barrier system creates a solid security zone for military bases, dams, power plants, bridges, ships docked in ports, nuclear reactors, vessels with hazardous materials, military assets overseas – whatever you need to secure. By retarding and preventing motion, it deters and prevents intruders from entering restricted areas.

Each HALO Security system can be customized with a variety of sensors (sonar, acoustic, motion), nets, signage, lights, flares, cameras, and entanglement devices. The systems have a variable freeboard and can be deployed all the way to the seafloor to prevent diver ingress and egress.

### HALO Security Gates Provide Extra Safety

Working with our line of Halo Security barriers, our security gates submerge and rise on command from a facility on shore or aboard a vessel. The gate uses the principals of buoyancy to lower and raise a significant security barrier when a boat wishes to enter.

The gate can be enhanced with different security features including netting, razor wire, and steel pipe of various dimensions to provide a significant barrier to boat strikes against the gate. The ballast and buoyancy of the gate are adjustable depending on the water level and physical barrier requirements.

### 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](http://elementalinnovation.com) today.**

# HALO Tunable Wave Attenuators

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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 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](http://www.elementalinnovation.com), contact [sales@elementalinnovation.com](mailto: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 panels are composed of eco-friendly, marine-grade materials that withstand all sea states without damage.**

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