HARBOR OFFSHORE BARRIERS
PROVEN MARITIME SECURITY

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Floating Barriers - PSB 600™ Port Security Barrier System

The PSB 600™ is the current standard anti-terrorist port security barrier system for commercial installation. It employs a continuous net capture system supported on a floating pontoon structure.

Full-scale testing by the US Navy found that this barrier system provides true physical protection against 98% of vessels classified by the US Coast Guard as small craft (65 ft /19.81 m).

PSB 600™ power plant intake barrier.

The PSB 600™ maritime security system is designed to stop:

- Fast Inshore Attack Crafts (FIAC)
- Boat-Borne Improvised Explosive Devices (BBIED)
- Multiple boat and swarm attacks
- Intruders at full power before, during and after impact
- Slow speed, heavy tonnage vessels
- High speed, lower tonnage vessels

PSB 600™ barrier system – Energy Absorption and Stopping Power

- Ultimate stopping energy 5.90M ft lbf/7.99 MJ
- Working stopping energy 2.49M ft lbf/3.37 MJ

Constructed System

- PSB 600™ unit length is generally 50 ft (15.24 m) and 40 ft (12.2 m) units are available.
- Pontoons are High Density Polyethylene (HDPE) that is corrosion free and resistant to UV exposure for 50+ years.
- Pontoons are usually 1.25 in (3.17 m) thick and 30 in (76.2 m) in diameter subject to conditions, customer requirements or other factors.
- Pontoons can be supplied in either parallel or perpendicular design.
- Netting attached to a galvanized steel beam that runs from pontoon to pontoon.
- Netting is constructed of either nylon or metal mesh (steel or stainless steel) and generally rises 8 ft (2.44 m) above the water line.
- Anchors vary by type and size depending on engineering requirements.
- Shore terminations are designed and installed to resist loads induced by high current flow rates.
- Shore connections and subsurface anchors are designed to accommodate large fluctuations of water levels at dams and ocean tide cycles, high currents, and up to 30 ft (9.14 m) tidal ranges.
- Connection units and latches are of proprietary design by Harbor Offshore Barriers to handle continuous motion and heavy loads.
- Under an 85-knot wind and 4-knot current broadside conditions, the system can withstand 911.2 lbf (4 053.22 N).
- Parts and connections are interchangeable.
- Gate systems built to customer needs.

Performance

- Durability – the HDPE pontoon's thickness and diameter produce structural strength sufficient to withstand the weight of the heavy steel beam and netting so that the entire system can stop high-energy vessels.
- Low-maintenance – uses composite materials, is a simple system structure and has as few parts as possible to support easy and low-cost inspection and maintenance.
- Low operational cost – making the system light and keeping the wind, current and wave loading on the system as low as practical gives operators the ability to easily open/close gates.

Expertise and Service

- Expert installation – teams include divers and marine constructors with over 30 years experience working with each other.
- Anchor placement and mooring arrangements – placing anchors on the seabed requires skills that few teams can offer.
- Fosters local partnerships – local sub-contractors join the team when qualified, gaining work skills and technology training.
- Life-cycle value – team experts provide life-cycle cost estimates to be used in formulating investment and insurance calculations and in selecting the system that meets the customer's need.




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Harbor Offshore Barriers at a Glance

MISSION STATEMENT:

Our mission is to meet every customer's unique needs, from project conception to completion. We offer you a full services package to assess, design, engineer, fabricate, install, and maintain your waterside perimeter barrier system with an experience foundation not offered by others.

COMPANY: Harbor Offshore Barriers, Inc., founded 2004
AFFILIATION: Marine security specialty company of Harbor Offshore, Inc. founded 1997
HEADQUARTERS: 4411 Dupont Court, Suite 130, Ventura, California 93003 USA
MANAGEMENT: Jeff Terai, President
Dave Hutchinson, Chief Operating Officer
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Cliff Center, Director of Marine Operations
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PRODUCTS:	Fixed Security Barrier FSB ™ (Patent #7,744,313 B2)	Floating Barrier PSB 600™	Floating Barrier PSB 5500™	Floating PSB-T US Navy Model
Characteristic Benefit	Underwater Fixed Barrier	Global Standard	Heavy-Duty	Military Installations
Structure	Netting in intertidal zone and above water attached to steel pilings	Continuous net capture system supported on pontoon structure	Continuous net capture system supported on pontoon structure	Floating barrier on pontoon structure
Ultimate Stopping Energy	3.70M ft lbf/5.01 MJ	5.90M ft lbf/7.99 MJ	9.09M ft lbf/12.32 MJ	5.90M ft lbf/7.99 MJ
Working Stopping Energy	1.25M ft lbf/1.69 MJ	2.49M ft lbf/3.37 MJ	5.49M ft lbf/7.44 MJ	3.70M ft lbf/5.01 MJ
Unit Length*	Pilings spaced up to 100 ft (30.48 m) apart	50 ft (15.24 m) / 40 ft (12.2 m) available	50 ft (15.24 m) / 40 ft (12.2 m) available	40 ft (12.2 m) / 50 ft (15.24 m)
Netting Material *	Galvanized or stainless steel	Nylon or metal mesh	Nylon or metal mesh	Nylon
Netting Attachment	Steel pilings	Galvanized steel beam running from pontoon-to-pontoon	Galvanized steel beam running from pontoon-to-pontoon	Galvanized steel beam running from pontoon-to-pontoon
Usual Netting Height*	Height 8 ft (2.44 m) Depth to 80 ft (24.38 m)	8 ft (2.44 m)	9 ft (2.74 m)	7 ft (2.13 m)
HDPE Pontoon Dimensions*	Not Applicable	1.25 in (3.17 cm) thick 30 in (76.2 cm) diameter Length engineered for site conditions	1.75 in (4.45 cm) thick 42 in (106.68 cm) diameter Length engineered for site conditions	1.25 in (3.17 cm) thick 30 in (76.2 cm) diameter Length engineered for site conditions

*Exact dimensions may vary; all specifications depend upon conditions, customer requirements and other factors.

EXPERIENCE:

- Since 2004, over 50,000 linear ft (15 240 m) fabricated, assembled, installed worldwide from Japan to Iraq to guard naval and infrastructure facilities.
- Multiple US Department of the Interior Bureau of Reclamation dam projects – PSB 600™ model certified for Bureau of Reclamation work.
- On-going US Navy inspection and maintenance services.
- US Department of Homeland Security "Approved Product".
- Extensive testing of the FSB™, PSB 600™ and PSB 5500™ with independent US Navy and academic observers.