Raytheon

MK-48/MK-56 NATO Seasparrow Vertical Launch Systems (VLS)

The **MK-48/MK-56 Seasparrow VLS** provides a hemispherical, 360° umbrella of effective protection against airborne threats from a limited shipboard space.

Benefits

- Launches Seasparrow or ESSM
- Hemispheric coverage
- Installation flexibility
- Supports high firepower
- High reliability
- Lowest life-cycle cost
- Maintenance and logistical support programs in place

The MK-48/MK-56 Seasparrow Vertical Launch Systems delivers, from limited shipboard space, a hemispherical, 360° umbrella of effective protection against airborne threats. The NATO Seasparrow missile (RIM-7VL) has proven itself against a broad spectrum of airborne threats, including subsonic and supersonic missiles arriving at steep dive angles or low sea-skimming altitudes aided in their penetration by low radar cross-section, evasive maneuvering and electronic jamming. With the capacity of up to sixteen Seasparrow (RIM-7VL) or 32 ESSMs (Evolved Seasparrow Missile), the MK-48/MK-56 significantly increases the firepower of ready-to-launch missiles in the same space as an eight missile trainable launcher. These missiles can be launched with minimal intervals between each salvo. MK-48 has no active mechanical parts such as doors or motors. This also translates into higher reliability and availability, with lower ship-manning requirements.

The new DP-48 (Dual Pack) has been contracted for by the Royal Danish Navy. In the same Mod 3 Module that housed six Seasparrow missiles, twelve Evolved Seasparrow Missiles will now be carried.

Applications

Raytheon's MK-48 Mod 0 design can be used to distribute launchers about the deck of a ship. Mod 1 can be mounted on a bulkhead such as the side of a hangar and Mod 2 can be compactly mounted within the ship's superstructure. Mod 3 is extremely compact, offering a potent weapon system which can be installed aboard combat vessels under 1,000 tons. All four systems have been contracted for ships of six allied navies. Depending on ship design, the most appropriate model can be chosen. All provide a compact, lightweight design that isolates the missile from shock and the extreme green water environment. The MK-48 and MK-56 Vertical Launch Systems are compatible with internationally accepted Fire Control Systems and the new ESSM.

MK-48/MK-56 NATO Seasparrow Vertical Launch System

Mod 0... On-Deck

- Canadian City Class Frigates
- Japanese Murasame Class Destroyers

Mod 1... Bulkhead

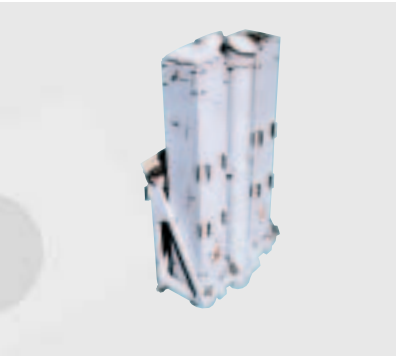
- Netherlands Karl Doorman Class

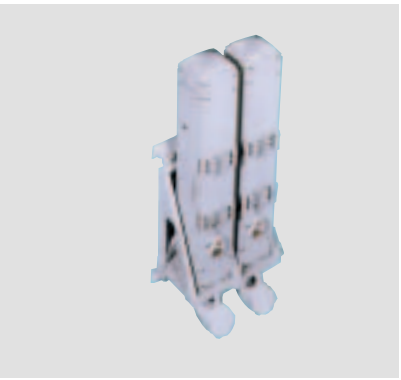
Mod 2... In-Deck

- Hellenic Hydra Class
- Korean KDX Class

Mod 3... Compact Module

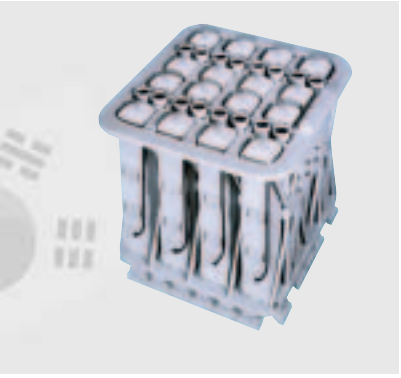
- Danish STANFLEX
- Niels Juel Frigate





MK-48 NATO Seasparrow VLS Characteristics

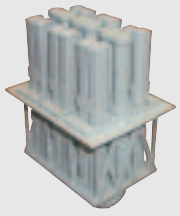
Above Deck Specifications:			Width (cm)	Depth (cm)	Height (cm)
	RIM-7VL	**ESSM**			
Mod 0	(2 cells)	(4 cells)	228	127	478
Mod 1	(2 cells)	(4 cells)	173	132	465
Mod 2	(16 cells)	(32 cells)	477	417	474
Mod 3	(6 cells)	(12 cells)	366	271	473
Below Deck Specifications:			Width (cm)	Depth (cm)	Height (cm)
Missile Launch System (1 per 16 cells, not required for Mod 3)			61	99	132
Electrical Interface Unit (1 per 4 cells, not required for Mod 3)			64	45	91
Launch Controller (1 per 8 cells, used with Mod 3)			152	34	200
ESSM Launch Controller (1 per 16 cells, ESSM missile cells)			89	30	178



MK-48 NATO Seasparrow VLS Weight (kg) - including missiles

Specifications:			Above Deck		Below Deck		Total Weight	
	RIM-7VL	**ESSM**	**RIM-7VL**	**ESSM**	**RIM-7VL**	**ESSM**	**RIM-7VL**	**ESSM**
Mod 0	(16 cells)	(32 cells)	15,128	29,5681	814	408	15,942	29,976
Mod 1	(16 cells)	(32 cells)	12,464	26,020	814	408	13,278	26,428
Mod 2	(16 cells)	(32 cells)	16,834	30,482	814	408	17,648	30,890
Mod 3	(6 cells)	(12 cells)	7,272	11,340	476	476	7,748	11,816

DP-48 Mod 3



MK-48 Mod 3

MK-48 NATO Seasparrow VLS Prime Power Requirements

Specifications:		
Mod 0 , 1, 2 with 16 missiles	115 Vac, 3ϕ, 60 MHz, Type I	4 kVA (without anti-icing) 13 kVA (without anti-icing)
	115 Vac, 3ϕ, 400 MHz, Type II	21 kVA
Mod 3 with 6 missiles	440 Vac, 3ϕ, 60 MHz, Type I	12 kVA
	115 Vac, 3ϕ, 400 MHz, Type II	9 kVA
	24 Vdc	140 VA


Canada


Japan

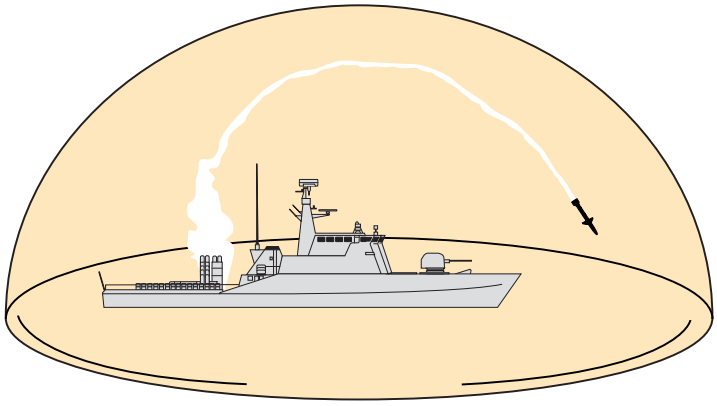

Netherlands


Greece


Korea


Denmark

MK-48/MK-56 NATO Seasparrow VLS



- Hemispherical coverage
- Installation flexibility
- Supports high firepower
- High reliability
- Lowest life-cycle cost
- Maintenance and logistics support programs in place

MK-48/MK-56 Vertical Launch System (VLS)

Seeker
- Semi-active radar
- Look-down, shoot-down
- Demonstrated performance against sea-skimming missiles in heavy clutter

Guidance Section
- Integrated missile
- Digital missile-borne computer
- Surface-to-surface mode

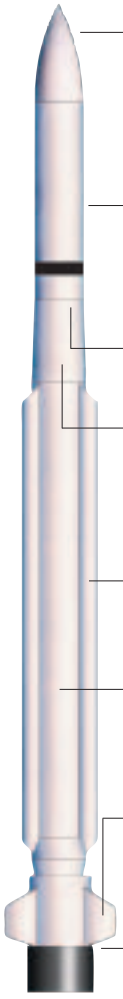
Warhead
- 39 kg, optimized for anti-ship missiles

Control Section
- High maneuverability
- Folded wings for compact storage

Rocket Motor (8" diameter)
- 8" diameter
- Beyond the horizon range

Jet Vane Control
- Provides close-in minimum range

NATO Seasparrow (RIM-7VL)



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Warhead
- 39 kg, optimized for anti-ship missiles

Transition Section
- 8" to 10" body size
- Fast autopilot computer
- Inertial measurement unit

Strakes (4)
- Aerodynamic performance

Rocket Motor
- 10" diameter
- Beyond the horizon range

Tail Control Section
- Allows for very high G maneuvers

Thruster Vector Control
- Provides rapid close-in minimum range

Evolved SeaSparrow Missile (ESSM)

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