

— Marine Gas Turbines

Aeroderivative Innovation Engineered for World Navies

— geaerospace.com/marine

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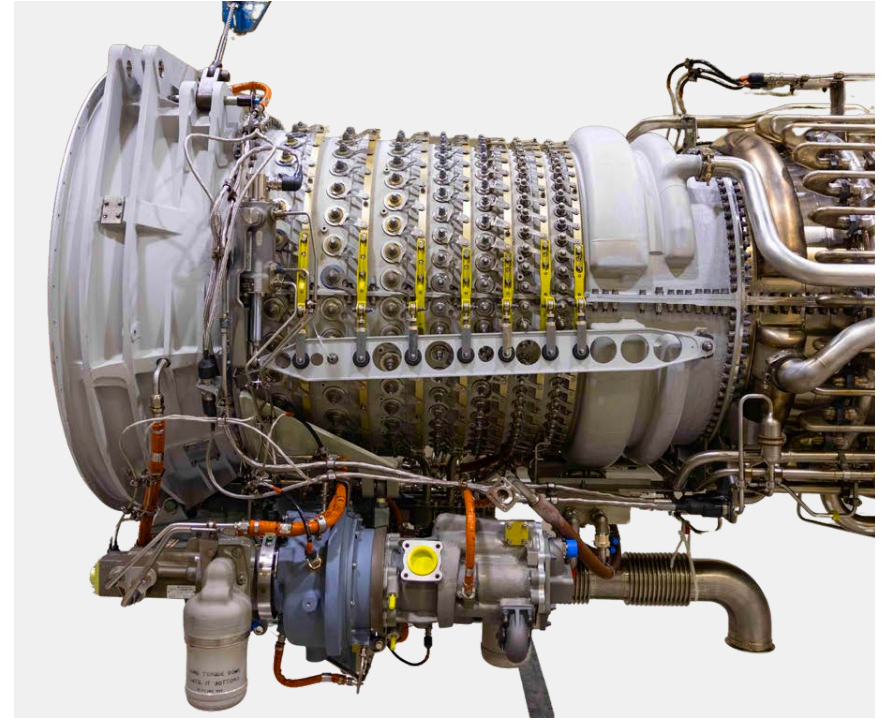


Built for dominance: the engine that commands the seas

The LM2500, an aeroderivative marine engine prized around the world for its performance and reliability, ensures mission success in the most demanding environments. Its proven design and unparalleled track record make it the undisputed choice for critical naval operations.

- 1,700+ engines delivered or on order
- 39 world navies
- 700+ naval ships
- >16 million operating hours
- 7 worldwide depot/service locations

With extensive experience serving military and commercial ship applications, the LM2500 family of engines is backed by the continual infusion of new technologies advancing naval defense.



From first flight to fleet power: CF6



The CF6 engine family remains the longest-running jet engine program in commercial aviation, having entered service in 1971 as GE Aerospace's first successful power plant for the commercial widebody aircraft segment.

Production of the CF6-80C2 continues today, with the aeroderivative LM2500 powering the majority of naval ships using gas turbine propulsion.

Pictured (top) The CF6 engine and (bottom) Boeing 767, a CF6-powered aircraft.



A century of innovation

GE Aerospace's innovation goes back to a small team of engineers and machinists working on an experimental turbocharger near the end of World War I. Fast forward several decades and the first GE LM2500 aeroderivative marine gas turbine began operating aboard a United States Navy supply vessel.

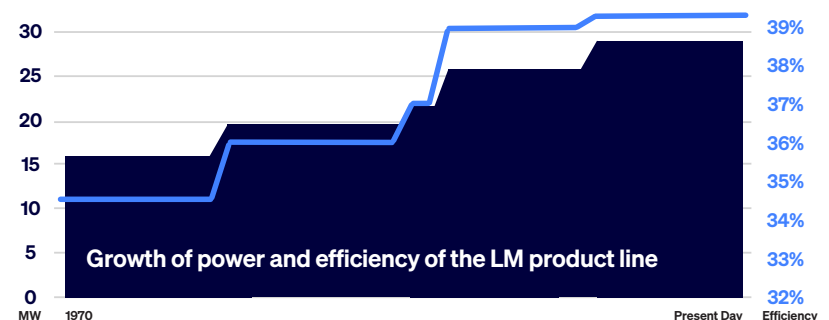
New component technologies:

Electric start, New controls and sensor technologies, Investments in extinguishing system, Composite enclosure and module modernization

Enhanced performance and efficiency:

Improved compressor technology, Enhanced marine coatings and materials, Aviation-grade advancements

For more than five decades since, our aeroderivative gas turbine has advanced to maintain its status as the world's most popular gas turbines with ongoing development ensuring cutting-edge propulsion solutions.





The LM2500 Advantage

Delivering high power output in a compact package, the LM2500 provides exceptional performance while offering unmatched adaptability. Its flexible configuration options ensure compatibility with a wide range of ship designs and operational needs—a powerful and tailored solution for the modern navy.

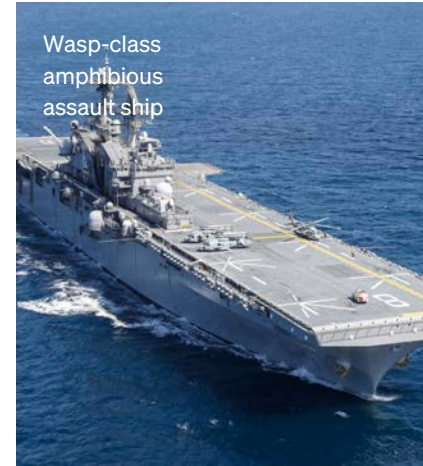
Ready for navies that need combat-ready, power-dense solutions

— Power	33,600 shp 25,060 kW 22.07 MW*
— Weight	10,300 lb 4,672 kG
— Dimensions	Length: 21.4 ft 6.52 m Height: 6.7 ft 2.04 m
— Power turbine speed	3,600
— Specific Fuel Consumption	0.373 lb/shp-hr 226.9 g/kW-hr
— Heat rate	6,863 Btu/shp-hr 9,204 Btu/kW-hr 9,705 kJ/kW-hr
— Exhaust	Gas flow: 152.9 lb/sec 69.4 kg/sec Temperature: 1,051 °F 566 °C

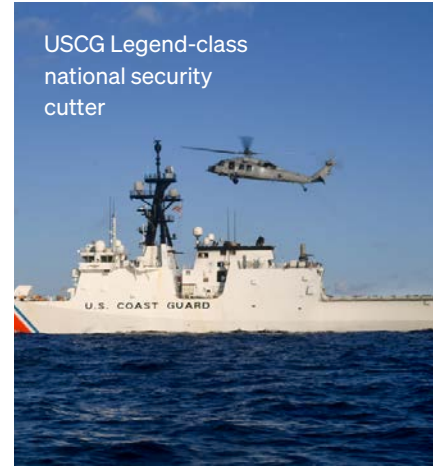
✱ **For full engine spec sheets, visit geaerospace.com/marine**

*All engine stats in this booklet are based on average performance, ISO (60 Hz, 59°F, sea level, 60% relative humidity, no inlet/exhaust losses), except US Navy standard day rating MW (100°F ambient air, sea level pressure, 60% relative humidity, 4.0 in H₂O inlet loss/6.0 in H₂O exhaust loss).

The LM2500 powers 95% of the US Navy's gas turbine surface combatants



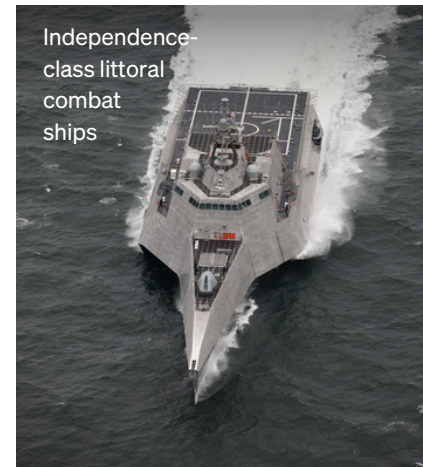
Wasp-class
amphibious
assault ship



USCG Legend-class
national security
cutter



Arleigh Burke-
class destroyer



Independence-
class littoral
combat
ships



Oliver Hazard
Perry-class
guided missile
frigate



America-class
amphibious
assault ship



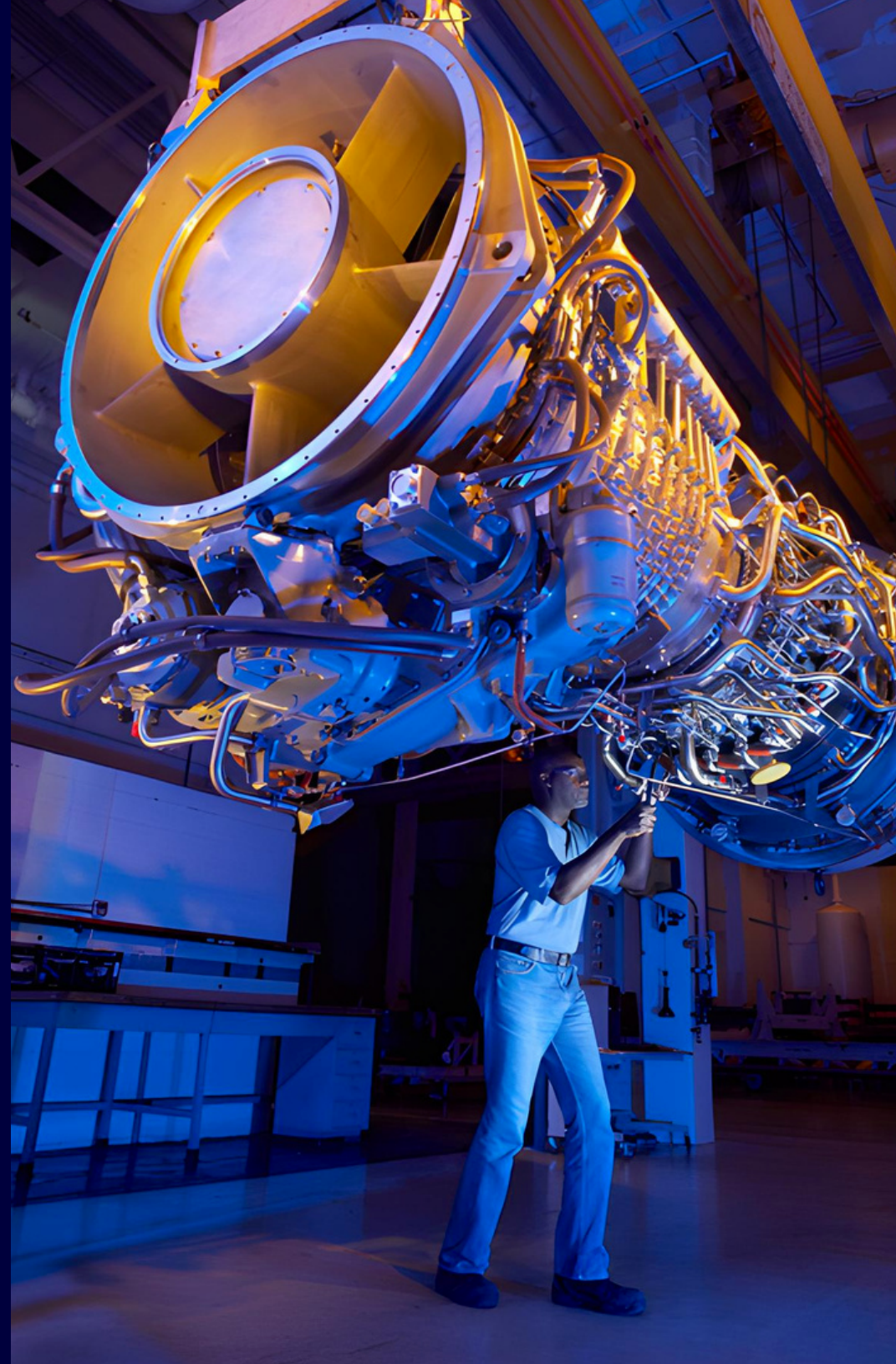
Constellation-class
multi-mission
guided-missile
frigates

Continuous aerospace- supported innovation

LM2500+G4

Building on the industry-leading LM2500, the LM2500+G4 offers a substantial 33% power increase. This fourth-generation engine retains the original's high reliability, availability, and fuel efficiency.

—	Power	49,587 shp 36,977 kW 30.46 MW*
—	Weight	11,545 lb 5,237 kG
—	Dimensions	Length: 22 ft 6.7 m Height: 6.7 ft 2.04 m
—	Power turbine speed	3,600
—	Specific Fuel Consumption	0.35 lb/shp-hr 213 g/kW-hr
—	Heat rate	6,432 Btu/shp-hr 8,626 Btu/kW-hr 9,098 kJ/kW-hr
—	Exhaust	Gas flow: 209 lb/sec 93 kg/sec Temperature: 1,042 °F 549 °C



Matching Power to Mission

More than 1,200 **LM6000** gas turbines are operating in industrial power generation and oil and gas applications. It is now ready to propel high-power naval ships.

The **LM500** is adapted from the CF34 engine and is ideal for fast patrol boats and corvettes.



LM6000

LM500

Power	70,656 shp 52,689 kW 41.71 MW*	6,130 shp 4,570 kW 4.64 MW*
Weight	16,180 lb 7,337 kG	1,500 lb 680 kG
Dimensions	Length: 24 ft 7.3 m Height: 8.3 ft 2.04 m	Length: 7.12 ft 2.17 m Height: 3 ft .93 m
Power turbine speed	3,850	7,000
Specific Fuel Consumption	0.335 lb/shp-hr 203.6 g/kW-hr	0.443 lb/shp-hr 269.5 g/kW-hr
Heat rate	6,168 Btu/shp-hr 8,279 Btu/kW-hr 8,773 kJ/kW-hr	8,140 Btu/shp-hr 10,916 Btu/kW-hr 11,520 kJ/kW-hr
Exhaust: Gas Flow Temperature	306 lb/sec 139 kg/sec 921 °F 494 °C	36 lb/sec 16.4 kg/sec 1,049 °F 565 °C





Worldwide Support

Our design-for-maintenance approach is supported by global service experts in 7 depots worldwide, ensuring the LM2500 family of engines remains the world's most reliable with the lowest lifecycle costs.

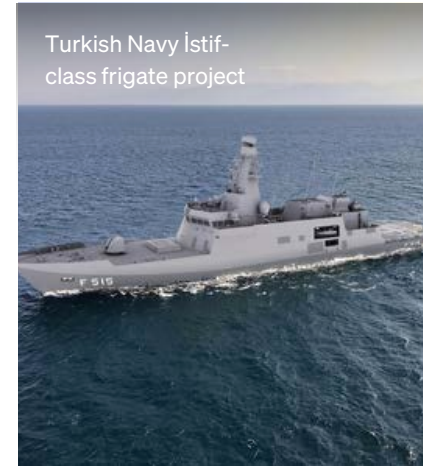
Customized Service Agreements

GE Aerospace offers customized service and support solutions for marine customers. With a CSA, navies can realize the full potential for their critical propulsion gas turbines while balancing performance and risk, along with predictable costs and less administrative oversight.

Other benefits of CSAs include formal and on-the-job training with GE Aerospace and Navy personnel working side-by-side to maintain the LM2500 fleet and assistance with procurement, inspection, technical support and materials inventory management. They also provide direct access to GE's global inventory of parts and spare engines.

- The CSA with the Royal Canadian Navy (RCN) covers an operating fleet of 24 GE LM2500 marine gas turbines plus spare engines used to power Halifax class frigates, delivering 99.9% gas turbine availability since 2001.
- The Royal Australian Navy (RAN) relies on GE Aerospace to maintain its LM2500 fleet under an ISSC since 2014.

Setting the standard for propulsion excellence—trusted by 39 navies



Turkish Navy İstif-class frigate project



German Navy Baden-Württemberg class frigate



Republic of Korea KDX III destroyer



Italian Navy Carlo Bergamini-class frigate (FREMM)



Royal Australian Navy Hobart-class air warfare destroyer



Spanish Navy Álvaro de Bazán-class of air defence frigates



Indian Navy Vikrant aircraft carrier

Optimizing performance and durability

Our newly designed composite enclosure redefines both ship and naval engine room design. It provides a 50% lighter solution, enabling ship designers to optimize vessel performance while prioritizing sailor safety and efficiency with reduced noise, cooler temperatures, and improved maintenance access.



Engine removal and maintenance verification

- **Reduced engine room noise**
60% (4 dBA) less noise than steel enclosures.
- **Cooler engine room temperatures**
Enclosure wall temperatures are 25 °F to 50 °F degrees cooler, approximately 50% less heat is rejected into the engine room.
- **Superior operational and life cycle benefits**
The composite carbon fiber walls are constructed from a single corrosion resistant piece.
- **Significant weight reduction**
The walls and roof assembly are 2,500 kg (5,500 lbs) lighter, a 50% weight reduction, allowing ship designers more flexibility for increased payload, fuel, or systems.
- **Better access to the engine**
Improved crew access to inlet plenum and lightweight main door for easy handling.
- **Ease of engine removal/reinstallation**
The gas turbines can be removed and reinstalled through the intake path, yielding lower cost and expedient repairs whether on ship, dockside, or at a local facility.

In-Situ Maintenance

The LM2500 is the only propulsion gas turbine that has a modular design. Sections can be separated within the module for easy access, minimizing downtime and simplifying removal for repairs.

A standard feature on the LM2500 and LM6000 engines, the horizontal split case uniquely allows for in-situ repair and maintenance. It helps navies avoid costly turbine removals and eliminates the need for spare turbines or gas generators, saving weeks or months of potential downtime.



Commercial Engines

The LM2500 has been powering commercial ships since the 1990s. From hydrofoils, fast ferries, cruise ships, floating production storage, to offloading vessels, offshore platforms, power barges, high-speed yachts, and LNG carriers, gas turbines are a strong choice for ship service and propulsion choice for commercial owners and operators for several reasons:

- Power Density**
High power in a lightweight, small footprint provide room for additional cargo or passengers for increased revenue.
- Fuel Flexibility**
Beyond marine gas/oil, our engines can run on bio diesels, LNG, hydrogen, methanol, and new alternative fuels.
- Highly reliable Dry Low NOx emissions combustion system**
Our DLE technology meets Tier III IMO/Tier IV United States Environmental Protection Agency requirements now with no exhaust treatment.



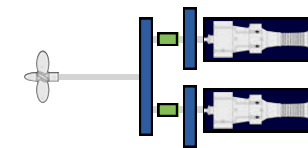
Propulsion Architecture

GE Aerospace marine gas turbines have demonstrated successful integration across diverse architectural configurations, as illustrated by the cycle diagrams below. Our product consistently meets the requirements, regardless of the specific specification.

COGAG

COmbined Gas And Gas turbines

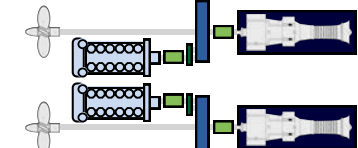
Applications: USN DDG51, Korean KDX III, Japanese Kongou, Hyuga, Izumo and Atago



CODOG

COmbined Diesel Or Gas turbines

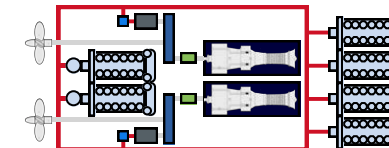
Applications: Australian Anzac and Hobart, Finnish F100, Canadian Halifax, German F122 and F123



CODLOG

COmbined Diesel eLectric Or Gas turbines

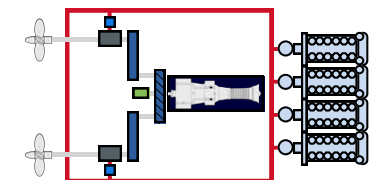
Applications: USN Makin Island



CODLAG

COmbined Diesel eLectric And Gas turbines

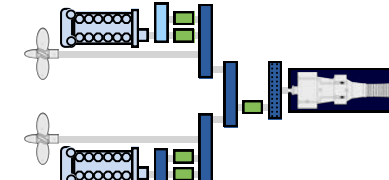
Applications: USN FFG 62, Italian FREMM, Finish SQ2020, Spanish F110, German F125



CODAG

COmbined Diesel And Gas turbines

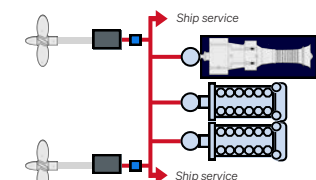
Applications: USCG Legend, German 124, Turkish MILGEM



IPS

Integrated Electric Propulsion

Applications: Spanish Juan Carlos, Australian Canberra LHD



Naval Applications by Country

Country	Class	Type	# Ships	GT/ship	GT Model	Cycle
 Algeria	Erradii	Frigate (MEKO A200)	2	1	LM2500	CODOG
 Australia	Anzac	Frigate	8	1	LM2500	CODOG
	Adelaide	Frigate	6	2	LM2500	COGAG
	Canberra AHD	Amphibious Helicopter	2	1	LM2500	IPS
	Hobart AWD	Destroyer	3	2	LM2500	CODOG
	Sabha	Frigate	1	2	LM2500	COGAG
 Bahrain	Khalid bin Ali	Frigate	1	2	LM2500	COGAG
	Inhauma	Corvette	5	1	LM2500	CODOG
 Brazil						
 Canada	Halifax	Frigate	12	2	LM2500	CODOG
 Chile	Adelaide (Australia)	Frigate	2	2	LM2500	COGAG
 China (PRC)	Luhu	Destroyer	2	2	LM2500	CODOG
 Colombia	Narino	Corvette (Donghae)	1	1	LM2500	CODOG
	Pohang Class (S. Korean)	Corvette	1	1	LM2500	CODOG
 Denmark	Niels Juel	Corvette	3	1	LM2500	CODOG
	Flyvefisken	Patrol Vessel	14	1	LM500	
 Egypt	Sharm El Sheikh	Frigate (FFG-7)	4	2	LM2500	CODOG
	Pohang Class (S. Korean)	Corvette	1	1	LM2500	CODOG
	Tahya Mir	Frigate (DCNS FREMM)	1	1	LM2500+G4	CODLOG
	Al-Galala	Frigate (FNC FREMM)	2	1	LM2500+G4	CODLAG
	MEKO	Frigate	4	1	LM2500	CODAG WARP
 Finland	Pohjanmaa (SQ2020)	Corvette	4	1	LM2500	CODLAG
 France	Forbin	Frigate (Horizon)	2	2	LM2500	CODOG
	Aquitaine	Frigate (DCNS FREMM)	7	1	LM2500+G4	CODLOG
 Germany	Bremen	Frigate (t22)	8	2	LM2500	CODOG
	Brandenburg	Frigate (t23)	4	2	LM2500	CODOG
	Sachsen	Frigate (t24)	3	1	LM2500	CODAG
	Baden-Wuerttemberg	Frigate (t25)	4	1	LM2500	CODLAG
	Hydra	Frigate	4	2	LM2500	CODOG
 Greece						
 India	Shivalik	Frigate (P-17)	3	2	LM2500	CODOG
	Nilgiri	Frigate (P-17A)	7	2	LM2500	CODOG
	Vikrant	Aircraft Carrier (P-71)	1	4	LM2500	COGAG
	Next Generation Missile Vessel	Corvette (NGMV)	6	1	LM2500	CODAG
	Mandau	Fast Attack	4	1	LM2500	CODOG
 Indonesia	Indonesian Fast Missile Craft	Fast Missile Craft	2	1	LM2500	CODAG
	PPA	Offshore Multi-purpose Patrol	2	1	LM2500+G4	CODLAG
 Israel	Eilat	Corvette (Sa'ar 5)	3	1	LM2500	CODOG
 Italy	Artigliere	Frigate	4	2	LM2500	CODOG
	Maestrale	Frigate	8	2	LM2500	CODOG
	Durand de la Penne	Destroyer	2	2	LM2500	CODOG
	Garibaldi	Aircraft Carrier	1	4	LM2500	COGAG
	Andrea Doria	Destroyer (Horizon)	2	2	LM2500	CODOG
	Cavour	Aircraft Carrier	1	4	LM2500	COGAG
	Bergamini	Frigate (FNC FREMM)	10	1	LM2500+G4	CODLAG
	PPA	Offshore Multi-purpose Patrol	7	1	LM2500+G4	CODLAG
	Asuka	Experimental	1	2	LM2500	COGLAG
	Murasame	Destroyer	9	2	LM2500	COGAG
 Japan	Takanami	Destroyer	5	2	LM2500	COGAG
	Kongo	Destroyer	4	4	LM2500	COGAG
	Hyuga	Helio Destroyer (DDH)	2	4	LM2500	COGAG
	Izumo	Helio Destroyer (DDH)	2	4	LM2500	COGAG
	Atago	Destroyer (DDGHM)	2	4	LM2500	COGAG
	Asahi	Destroyer	2	2	LM2500	COGLAG
	Maya (27DD)	Destroyer	2	2	LM2500	COGLAG
	Hayabusa Patrol Boats		6	3	LM500	
	Sparvieu Hydrofoils		3		LM500	
	Izumo Destroyer (22, 24DDH)	Destroyer	2	4	LM500	COGLAG
	Flyvefisken from Denmark		4	1	LM500	
 Lithuania						

Country	Class	Type	# Ships	GT/ship	GT Model	Cycle
 Morocco	Mohammed VI	Frigate (DCNS FREMM)	1	1	LM2500+G4	CODLOG
	Te Kaha	Frigate (Anzac)	2	1	LM2500	CODOG
 New Zealand						
 Norway	Fridtjof Nansen	Frigate	5	1	LM2500	CODAG
 Pakistan	PNS Alamgir	Frigate	1	2	LM2500	COGAG
	Babur (MILGEM) Class	Corvette	4	1	LM2500	CODAG
 Peru	Caravajal	Frigate - Mod Lupo	4	2	LM2500	CODOG
	Aguirre	Frigate - Lupo	4	2	LM2500	CODOG
	Pohang Class (S. Korean)	Corvette	1	2	LM2500	CODOG
	Pohang Class (S. Korean)	Corvette	1	2	LM2500	CODOG
	ORP Slazak	Offshore Patrol Vessel	1	1	LM2500	CODOG
 Philippines	Gen. K. Pulaski	Frigate (FFG-7)	2	2	LM2500	COGAG
	Vasco Da Gama	Frigate (MEKO 200)	3	2	LM2500	CODOG
	Flyvefisken from Denmark		5	1	LM500	
 Poland						
 Portugal						
 Saudi Arabia	Al Siddiq	Patrol Combatant	9	1	LM2500	CODOG
	Badr	Corvette	4	1	LM2500	CODOG
 S. Africa	Amatola	Frigate (MEKO A200)	4	1	LM2500	CODAG WARP
 S. Korea	Donghae	Corvette	4	1	LM2500	CODOG
	Pohang	Corvette	24	1	LM2500	CODOG
	Ulsan	Frigate	9	2	LM2500	CODOG
	KDX-1	Destroyer	3	2	LM2500	CODOG
	KDX-2	Destroyer	6	2	LM2500	CODOG
	KDX-3 B1	Destroyer	3	4	LM2500	COGAG
	KDX-3 B2	Destroyer	1	4	LM2500	COGLAG
	FFX B1 (Incheon)	Frigate	6	2	LM2500	CODOG
	Hansando (ATX)	Aux Training Ship	1	1	LM2500	CODOG
	PKX-A (Yoon Youngha)	Patrol Vessel	18	2	LM500	CODAG
	PKX-B B1 (PKMR)	Patrol Vessel	16	2	LM500	CODAG
	PKX-B B2 (PKMR)	Patrol Vessel	12	2	LM500	CODAG
	Santa Maria	Frigate	6	2	LM2500	COGAG
	Alvaro de Bazan	Frigate (F100)	5	2	LM2500	CODOG
	Principe De Asturias	Aircraft Carrier	1	2	LM2500	CODOG
 Spain	Juan Carlos	Amphibious Assault (LHD)	1	1	LM2500	IPS
	Bonifaz (F10)	Frigate	5	1	LM2500	CODLAG
	Cheng Kung	Frigate	8	2	LM2500	COGAG
	Ming Chuan	Frigate (FFG-7)	4	2	LM2500	COGAG
	Kee Lung	Destroyer (Kidd)	4	4	LM2500	COGAG
 Taiwan	Taiwan Light Frigate	Light Frigate	2	1	LM2500+G4	CODLAG
	Naresuan	Frigate	2	2	LM2500	CODOG
	Chakri Naruebet	Helo Carrier	1	2	LM2500	CODOG
 Thailand	HTMS Bhumibol Adulyadej	Frigate	1	1	LM2500	CODOG
	Barbaros	Frigate	4	2	LM2500	CODOG
 Türkiye	Gabya	Frigate (FFG 7)	8	2	LM2500	COGAG
	Ada	Corvette (MILGEM)	4	1	LM2500	CODAG
	ISTIF	Frigate (MILGEM 5)	1	1	LM2500	CODAG
	DIMDEG	Fleet Replenishment	1	2	LM2500	CODAG
	Istanbul	Frigate (I-MILGEM 6-8)	3	1	LM2500	CODAG
	Istanbul	Frigae (I-MILGEM 9-12)	4	1	LM2500	CODAG
	MILGEM	Corvette	2	1	LM2500	CODAG
	Adm. Wm. M. Callaghan	Roll-on, Roll-off	1	2	LM2500	COGAG
	Pegasus	Patrol Hydrofoil	6	1	LM2500	CODOG
	Oliver Hazard Perry	Frigate	51	2	LM2500	COGAG
 Ukraine	Spruance	Destroyer	31	4	LM2500	COGAG
	Arleigh Burke	Destroyer	89	4	LM2500	COGAG
	Kidd	Destroyer	4	4	LM2500	COGAG
	Ticonderoga	Cruiser	27	4	LM2500	COGAG
	Supply (AOE-6)	Fast Combat Support	4	4	LM2500	COGAG
	Watson	Fast Sealift	8	2	LM2500	COGAG
	Sea Fighter	Fast Sea Frame	1	2	LM2500	CODOG
	Makin Island	Amphibious Assault (LHD8)	1	2	LM2500+	CODLOG
	Legend	USCG National Security Cutter	11	1	LM2500	CODAG
	America	Amphibious Assault (LHA6&7)	2	2	LM2500+	CODLOG
	America	Amphibious Assault (LHA8&9)	2	2	LM2500	CODLOG
	Independence	LCS2 (Littoral Combat Ship)	19	2	LM2500	CODAG
	Constellation (FFG-62)	Frigate	10	1	LM2500+G4	CODLAG
	US Navy Test Site		1	1	LM500	
	DDG(X) LBTS	Test site	1	1	LM2500+G4	
 USA	FFG-62 LBES	Test site	1	1	LM2500+G4	CODLAG
	Mariscal Sucre	Frigate	6	2	LM2500	CODOG
 Venezuela						
 Vietnam	Pohang Class (S. Korean)	Corvette	2	1	LM2500	CODOG