

FFG(X) Post Award Conference

FINCANTIERI
MARINETTE MARINE



Fincantieri Marinette Marine

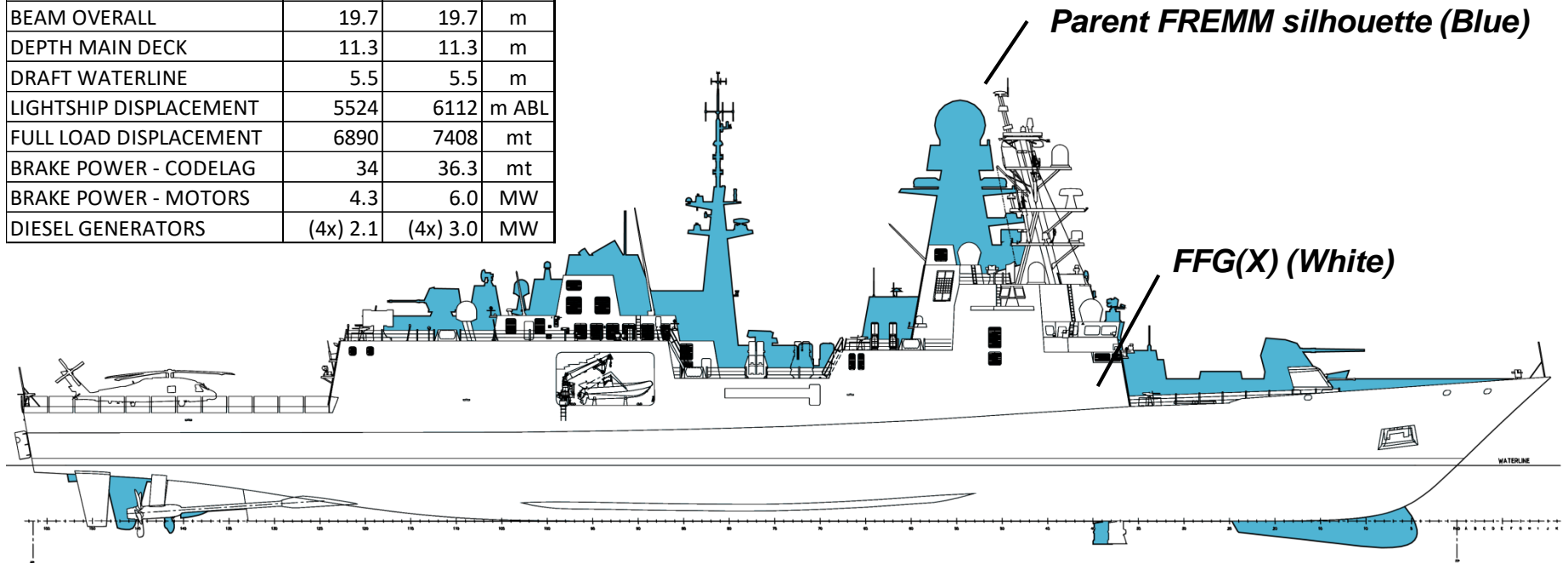
Marinette, WI

28 May 2020

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FREMM Parent vs. FFG(X)

	FREMM	FFG(X)	
LOA	144	151.2	m
LBP	132.5	140.9	m
BEAM ON WATERLINE	17	18.1	m
BEAM OVERALL	19.7	19.7	m
DEPTH MAIN DECK	11.3	11.3	m
DRAFT WATERLINE	5.5	5.5	m
LIGHTSHIP DISPLACEMENT	5524	6112	m ABL
FULL LOAD DISPLACEMENT	6890	7408	mt
BRAKE POWER - CODELAG	34	36.3	mt
BRAKE POWER - MOTORS	4.3	6.0	MW
DIESEL GENERATORS	(4x) 2.1	(4x) 3.0	MW



- **Hull** lengthened **7.2 meters** to accommodate larger generators and future growth
- **Bow design** modified to remove **sonar dome** and **enclosure deck** for stability
- **Generator** rating increased to **3.0 MW** for 16 knot transit speed and future growth
- **Propeller** changed to **Fixed Pitch** for improved acoustic performance
- **Displacement** increased by **~500 tons** for margins and future growth
- **Topside modified** to accommodate **USN warfare systems**



FINCANTIERI MARINETTE MARINE

FFG(X) Design Features and Capabilities

Principal Characteristics

LOA	151.2 m
LBP	140.9 m
Beam Overall	19.7 m
Beam, DWL	18.1 m
Hull Depth	11.3 m
Design Draft	5.5 m
Appendage Draft	7.0 m
Full Load Air Draft	40.4 m
Installed Power	36,300 kW
Shaft Power	33,900 kW
Service Life (Hull Fatigue)	25 yrs
Frame spacing type (TSV/long'l)	TSV
Structural Web Frame Spacing	1.8 m



Performance

Sustained Spd (80% MCR GT Only)	26.1 kts
CODLAG Spd (80% GT MCR + EPM)	27.3 kts
Max Spd (100% MCR GT + EMP)	28.3 kts
Surge to theater distance	2650 nm
Econ Transit Dist (16kts - EPMs, FL)	6183 nm
Econ Transit Dist (EOSL)	6013 nm
APU speed	5.2 kts
Annual fuel consumption	36,430 bbl/yr

Hullform & Arrangements

GM/B Ratio	0.075
L/B Ratio	C_b 7.78
Block Coefficient	C_p 0.509
Prismatic Coefficient	0.602
Metric tons per cm Immersion	20.96 tPI/cm
DC Deck	2nd Deck
Strength Deck	Main Deck
BHD Deck	Main Deck

Accommodations

Total Accommodations	200
Officer Berthing (1 & 2 Person)	24
CPO Berthing (2, 3 & 4 Person)	16
Crew Berthing (Max 6 Person)	160

Tankage

Propulsion Fuel	785 t	247,758 gal
Aviation Fuel (JP-5)	100 t	31,562 gal
Misc. Tankage	176 t	55,548 gal
Potable Water	67.8 t	17,911 gal

Machinery and Auxiliary Systems

CODLAG Propulsion Plant	
(1) GE LM 2500+ G4	30.3 MW
(2) GE 1K300M66 EPMs	3.0 MW
(4) MTU 20V4000M53B SSDGs	3.0 MW
(1) Schottel APU	900 KW
Propulsor type & size	
(2) 4.75 m FP Propellers	
Ship Service Generators	
(4) MTU 20V4000M53B	
RO Systems	
(2) Plants, 11,000 gal/day	
AC Plants	
(3) York 325 Rton	
Firezones	
5 FZ (FR: 32, 68, 81, 116)	
Fire pumps	
(6) 1000 gpm	

Stores Capacities

Stores Endurance	30 days
Gen & Misc. Stores	1250 m ³
Dry Provisions	69 m ³
Chill Stores	77 m ³
Freeze Stores	61 m ³

Mission

Hangar size	387 m ²
Flight deck size	582 m ²
Armament & qty.	
(1) MK 110 57mm Gun	
(32) MK41 VLS	
(16) NSM Weapon System	
(1) MK 49 RAM	
(4) MK 53 MOD 9 DLS	
(2) AN-SLQ-32(V)6 CM (SEWIP) BLK II	

Electric Plant Loads (EOSL)

	10°F	100°F
Shore	2428 kW	2158 kW
Anchor	3138 kW	2878 kW
Cruise	4307 kW	4114 kW
Functional/Battle	5177 kW	5111 kW
Emergency/Tier 1	2183 kW	2415 kW

Weight Estimate

	WT (t)	KG (m-ABL)
SWBS 100 - Hull Structure	3,066.7	8.73
SWBS 200 - Propulsion	652.6	4.63
SWBS 300 - Electrical Plant	513.4	8.05
SWBS 400 - C4ISR	230.6	12.27
SWBS 500 - Aux Systems	824.2	10.01
SWBS 600 - Outfitting	468.8	9.79
SWBS 700 - Mission Support	105.1	10.54
LS Total w/o Margins	5,861	8.65
Design & Con. Margins	198.2	0.35
Contract Mod Margin	34.9	0.04
GFM Margin	17.4	0.02
LS Total w/ Margins	6,112	9.06

Full Loads (FL)

FL Disp. @ Delivery	1,296	3.87
	7,408	8.15

Service Life Allowances

FL Displacement @ EOSL	404	0.34
	7812	8.49

Space Use Summary

	Area
GRP 1 - Mission Support	2,507 m ²
GRP 2 - Human Support	1,701 m ²
GRP 3 - Ship Auxiliary Support	2,089 m ²
GRP 4 - Machinery Spaces	2,019 m ²
GRP 5 - Unassigned*	196 m ²

GRP - Weather Deck

	1739 m ²
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Total Arrangeable Area 10,251 m²

Total Molded Volume (w. Tankage) 31,285 m³

*Usable Unassigned is 180 m² (4.1% of Arrangeable Area w/ Exclusions)

Other

Nixie or LWT	ND/IE
VDS or LBHA or Both	VDS
UNREP	Objective: P/S FAS FWD/AFT VERTREP

Performance Objectives

SWBS	Capability Area	Threshold	Objective	Notes
070	Sustained Speed	26 knots	26.1 Knots	28 knots 26.1 kts GT Only
070	Accommodations	165 + 10%	200	Max 6 Person Staterooms
070	SLA – Weight	5% plus 34 mt	10% plus 34 mt	404 mt
070	SLA – Cooling	5% plus 150 rTons	10% plus 150 rTons	192 rTons
070	SLA – Electric	5% plus 480kW	10% plus 480kW	828 kW
073	Acoustic Signature	Level 0	Level 4.5	EPMs with FPP Noise Isolation
200	Range at 16 Knots	4,000 nm	6,000 nm	DEL: 6,183 nm EOSL: 6,013 nm
460	Undersea Surveillance	VDS or Bow Sonar	VDS + Bow Sonar	
571	Underway Replenishment	VERTREP	2 VERTREP or VERTREP + CONREP	Stations fwd and aft
702	VLS Cell Quantity		32 Cells	
702	OTH Missiles	8 Tubes	Space & Weight 8 Add'l Tubes	~10 mt, 0.01 m KG



Design Margins & Service Life Allowances

Design Margins	FFG(X)
Weight	4.3% (251 mt)
KG	4.7% (0.41 m)
Arrangeable Deck Area	2% (87.8 m ²)
Electric Load	20% Combined (722 kW)
Speed/Power	8% EHP (~1110 kW)
Service Life Allowances	FFG(X)
Weight	5% Full Load + 34 mt (404 mt)
KG	0.34 m of FL KG*
Accommodations	Objective (200)
Arrangeable Deck Area	2.1% (92.2 m ²)
Cooling	10% + 150 rTons (192 rTons)
Electric Generation	10% + 480 KW (828 kW)

* Includes impact of placing 34 mt "Half way between 02 and 03 Level," a 4 cm increase in SLA KG