

the past
il passato

Frigate

Leghorn,
Italian Naval Academy

The picture shows the armoured frigate "Principe Umberto" in the waters of Cape Horn. She was one of the first frigates of the newly constituted (1861) Regia Marina (Italian Royal Navy). The vessel was built in Genoa, in 1862. She had one steam reciprocating engine of 600 HP, one propeller and was able to steam at 12 knots. The "Principe Umberto" was the first Italian Navy ship to pass Cape Horn. By the turn of the century the name "Frigate" had disappeared and the class names were "Torpedo boats" for displacements up to 1,000 t, Destroyers up to 3,000 t, and Cruisers for heavier displacements. The class name Frigate was back after WW II, and here is another Italian breakthrough: the "Bergamini", the class ASW Frigate of the late Fifties. They were the first escort vessels in the world fitted with an organic ASW helicopter. More recently (the late Seventies) the "Lupo" class entered service, a technological cornerstone, soon followed by the heavier "Maestrale" class ASW frigate. The next step is the "Bergamini" class, the Italian design of the FREMM frigates (European Multi-Mission Frigates).

L'illustrazione riporta la fregata armata "Principe Umberto" nelle acque di Capo Horn. La nave era una delle prime fregate della neocostituita (1861) Regia Marina. Fu costruita a Genova nel 1862 e dotata di un motore a vapore di 600 HP ed un'elica; era in grado di navigare a 12 nodi. Il "Principe Umberto" fu la prima nave della Marina Militare italiana a doppiare Capo Horn. Alla fine del secolo il nome "Fregata" era già scomparso e sostituito da "Torpediniera" per indicare unità navali con dislocamento fino a 1.000 t, Cacciatorpediniere fino a 3.000 t e Incrociatore per dislocamenti superiori. Il nome di classe Fregata fece ritorno dopo la seconda guerra mondiale, quando ci fu il ritorno di un'altra grande nave italiana: il "Bergamini" classe ASW Fregata della fine degli anni cinquanta. Furono le prime unità di scorta nel mondo dotate di un elicottero ASW. Più recentemente (fine anni settanta) è entrata in servizio la classe "Lupo", di grande rilievo tecnologico, seguita dalla classe "Maestrale" di dimensioni maggiori. Il prossimo passo è rappresentato dalla classe "Bergamini", cioè la versione italiana delle fregate FREMM (Fregata Europea Multi Missione).



FINCANTIERI
The sea ahead



Head Office

Via Genova, 1 - 34121 Trieste (Italy)
ph. +39 040 3193111 - fax +39 040 3192305

Naval Vessels

Via Cipro, 11 - 16129 Genova (Italy)
ph. +39 010 59951 - fax +39 010 5995379/272

fincantieri.com

fincantieri / naval vessels



Fremm Frigate
Bergamini Class

FINCANTIERI
The sea ahead



spines/AB M-02/16

Fremm Frigate

Bergamini Class

The FREMM program is a joint Italian-French Defense industrial co-operation project for a new generation of frigates, having a common baseline, but differing from one country to the other as a function of different operational requirements. The frigates for the Italian Navy are built at the Fincantieri's integrated naval shipyard of Riva Trigoso-Muggiano. The ships have a full load displacement of about 6,500 tons, an overall length of about 144 metres and a top speed exceeding 27 knots. Vessels' endurance is up to 45 continuous days, while their range is 6,000 NM at 15 knots. They are able to perform the role of CTG (Commander Task Group). The ships are designed and built following RINAMIL rules. The propulsion plant has a CODLAG configuration featuring one gas turbine, two reversible type electrical motors, C.P. propellers and four diesel generating sets. Both versions (GP and ASW) are fitted with a hull mounted sonar. The ASW version is also fitted with a towed sonar and embarks two 76/62 mm Strales guns. The GP version is equipped with 2 large RHIBs and a 127/64 mm Vulcano gun instead of fore 76 mm one. Both versions have two hangars for two helicopters, either two SH90 or one SH90+one EH101.

Il programma FREMM è un progetto di collaborazione delle industrie della Difesa italo-francesi che ha lo scopo di sviluppare una nuova classe di fregate, aventi una base di partenza comune, ma con differenze "nazionali" funzione delle diverse esigenze operative. Le unità per la Marina Italiana vengono costruite nel cantiere integrato Fincantieri di Riva Trigoso-Muggiano. Le navi hanno un dislocamento a pieno carico di circa 6.500 tonnellate, una lunghezza fuori tutto di circa 144 metri e una velocità superiore a 27 nodi. L'autonomia delle navi raggiunge 45 giorni continuativi e 6.000 miglia alla velocità di 15 nodi; le unità sono in grado di svolgere la funzione di navi comando CTG (Commander Task Group). Le unità vengono progettate e costruite nel rispetto del regolamento RINAMIL. Il sistema propulsivo ha una configurazione CODLAG, formato da una turbina a gas, due motori elettrici reversibili, eliche C.P. e quattro generatori diesel. Entrambe le versioni (GP e ASW) hanno un sonar a scafo collocato in apposito bulbo prodiero. La versione ASW è attrezzata anche con sensori sonar rimorchiati e imbarca due cannoni 76/62 mm Strales. La versione GP è attrezzata con due RHIB di elevata prestazione e con un cannone 127/64 mm, con sistema Vulcano, in sostituzione del 76/62 prodiero. Ambedue le versioni hanno doppio hangar per due elicotteri tipo SH90 o 1 SH90+1 EH101.

_ overview



Fremm

Carlo Bergamini
 Virginio Fasan
 Carlo Margottini
 Carabinieri
 Alpino
 Luigi Rizzo



_ main characteristics



Length overall.....	144.00 m
Length between perpendiculars.....	132.50 m
Max breadth.....	19.70 m
Full load displacement.....	abt. 6 500 t
Draft.....	5.10 m
Max continuous speed (GT mode).....	≥27 kn
Max continuous speed (Electric mode).....	16 kn
Max speed (auxiliary propulsion).....	7 kn
Range at 15 kn.....	6 000 nm
Endurance.....	45 days
Crew.....	145 people
Total accommodation.....	200 people

ENERGY AND PROPULSION SYSTEM

Propulsion System CODLAG with:

- 1 x 32 MW Gas Turbine
- 2 x 2.2 MW EPM

Electrical Generating System.....	4 x 2.1 MWe DD/GG
Propellers.....	2 FCPP
Azimuthal propeller.....	1 electrical driven

HELO CAPABILITIES

Flight deck and 2 hangars for EH101/NH90

_ combat system

Anti Submarine Warfare (ASW)

- 1 Combat Management System
- 1 Bow Mounted Sonar
- 1 Mine Avoidance Sonar
- 1 Underwater Telephones
- 225 mm machine guns
- 1 Torpedo Launching System (2 triple launchers)
- 1 Anti-Submarine Rocket System (2 x 2)
- + 1 Surface to Surface Missile (2 x 2)
- 1 Vertical Launching System (2 x 8 A43 or A50)
- 1 Torpedo Decoy Launching System (2 launchers)
- 1 Variable Depth Sonar + Towed Array
- 2 76 mm Gun Strales
- 2 Fire Control System
- 1 Anti Air Warfare Decoy Launching System (2 launchers)
- 2 Navigation Radars
- 1 Communication - Electronic System Measure
- 1 Radar - Electronic System Measure
- 1 Radar - Electronic Countermeasures
- 1 Multifunctional Radar
- 1 Surface Surveillance Radar
- 1 Identification Friend or Foe
- 1 Transponder
- 1 Optronic system (only Infra-red)
- 1 Integrated Communication System
- 1 Navigation System

General Purpose (GP)

- 1 Combat Management System
- 1 Bow Mounted Sonar
- 1 Mine Avoidance Sonar
- 1 Underwater Telephones
- 225 mm machine guns
- 1 Torpedo Launching System (2 triple launchers)
- 1 Surface to Surface Missile (4 x 2)
- 1 Vertical Launching System (2 x 8 A43 or A50)
- 1 Torpedo Decoy Launching System (2 launchers) (fitted for)
- 1 Towed Array (fitted for)
- 1 76 mm Gun Strales
- 1 127 mm Gun
- 2 Fire Control System
- 1 Anti Air Warfare Decoy Launching System (2 launchers)
- 2 Navigation Radars
- 1 Communication - Electronic System Measure
- 1 Radar - Electronic System Measure
- 1 Radar - Electronic Countermeasures
- 1 Multifunctional Radar
- 1 Surface Surveillance Radar
- 1 Identification Friend or Foe
- 1 Transponder
- 1 Optronic system (only Infra-red)
- 1 Integrated Communication System
- 1 Navigation System

Aegis Fremm



_ main characteristics

Length overall.....	abt. 144.00 m
Length between perpendiculars.....	132.50 m
Max breadth.....	19.70 m
Depth to weather deck.....	11.30 m
Max continuous speed (GT mode).....	≥30 kn
Max continuous speed (Diesel mode).....	≥18 kn
Cruising speed.....	15 kn
Range at 15 kn.....	6 000 nm
Crew.....	165 + 63 people

ENERGY AND PROPULSION SYSTEM

CODAG type propulsion system, with two independent propelling plants

- two x 20.5 MW power Gas Turbines (38°C air inlet temperature)
- two Diesel Engines each of about 6.5 MW power
- two Reduction Gears (two inputs one output) driving two shaftlines with FCP propellers

One Azimuthal Retractable Thruster of about 1 MW power to assure the Auxiliary Propulsion function, up to 7 kn ship speed, and to manoeuvre inside harbour.

Two Electrical Power Stations for a total power of about 6 400 kW.

Option for aft boat ramp for special forces.

COMBAT SYSTEM

1 BMS	1 VDS	1 RESM + CESM
1 RECM	1 CIWS	1 SAM VLS (up to 48 cells)
1 SSM (2 x 4)	2 FCS	1 Main gun 76/62
1 TLS (2 x 3)	2 AAW + ASW DLS	

Escort Vessel



_ main characteristics

Length overall about.....	144.00 m
Length between perpendiculars.....	132.50 m
Max breadth.....	19.70 m
Depth to weather deck.....	11.30 m
Full load displacement (EOL) about.....	6 550 t
Max continuous speed (GT mode).....	≥28 kn
Max continuous speed (Diesel mode).....	≥20 kn
Cruising speed.....	15 kn
Range at 15 kn.....	6 000 nm
Crew.....	165 + 63 people

ENERGY AND PROPULSION SYSTEM

CODOG type propulsion system, with two independent propelling plants.

One Azimuthal Retractable Thruster of about 1 MW power to assure the Auxiliary Propulsion function, up to 7 kn ship speed, and to manoeuvre inside harbour.

Two Electrical Power Stations for a total power of about 6 400 kW.

COMBAT SYSTEM

1 BMS	2 FCS
2 SRA 25 mm	1 AAW DLS (2 launchers)
2 SCG 40 mm + E/O System	1 2D Surveillance Radar
1 TLS (2 x 3)	1 SSM (2 x 4)
1 VDS	1 RESM
1 RECM	1 SAM (4 x 8) + MFR
1 CIWS from 20 to 76 mm	1 IFF-PA
1 ASW DLS (2 launchers)	1 LCG 127/64