

surface combatants |

FRIGATES



➤ **Stealth & multirole frigates** for leading navies

Leading the way in programme prime contracting

DCN
EXPERTS IN
NAVAL SYSTEMS



▲ LA FAYETTE-CLASS FRIGATES

> A long history in frigate design and construction

DCN set in motion a major transformation with the La Fayette stealth frigate and derivatives. DCN holds orders for eight frigates scheduled to enter service between 2005 and 2009.

DCN has been designing and building frigates for the French Navy for more than 300 years. Over the last half-century, DCN has designed some 50 frigates for navies worldwide.



Major milestones

50 -> 60



Type 47 frigates
Cruiser Colbert
Frigate Duperré

60 -> 70



Suffren-class frigates

70 -> 80



Type 67 frigates
Type F70 AAW frigates
Type F70 ASW frigates

80 -> 90



La Fayette-class frigates

90 -> today



La Fayette-class family
Formidable-class frigates
Horizon frigates
Design studies for FREMM
European multirole frigates

Unrivalled stealth and seakeeping



BRAVO FRIGATES ▲

> A broad-based offering

DCN's frigate offering is based on three main products:

- La Fayette stealth frigates and derivatives
- Multirole frigates (FREMM European multirole frigates and derivatives)
- Horizon anti-air frigates.

> Stealth

With the La Fayette frigate, DCN transformed warship design by focusing closely on stealth. A range of design strategies, materials and devices radically reduced the vessel's IR, acoustic, magnetic and radar signatures.

> Seakeeping and stability

The STAF computer-controlled steadying system results in better seakeeping and improved operational capabilities.

> Upgradeability

DCN designs combat systems for easy upgrading and equipment change-out. Once the system has entered active service, new technologies and components can be readily integrated in response to changing threats and scenarios.



◀ La Fayette-class frigates at quayside



▲ Maintenance work on the frigate Cassard

> Survivability

To increase the vessel's survivability, DCN introduced side passageways serving as box girders running the length of each side. These passageways improve compartment division and increase battle damage survivability while facilitating shipboard network design. Redundant systems and full-scale shock testing add to the qualities that make La Fayette frigates and derivatives truly front-line fighting ships.

> Automation

DCN-designed frigates use high-level automation to reduce crew workloads while improving the efficiency of the combat system, platform management system and flight deck systems.

HIGHLY INTEGRATED COMBAT SYSTEMS
STEALTH & SURVIVABILITY
EXCELLENT SEAKEEPING & STABILITY
HIGH-LEVEL AUTOMATION



▲ SAWARI II FRIGATES

> Meeting navies' needs

DCN is one of the few frigate designers and builders in the world to cover all segments and all needs.

DCN divides the world market for frigates into three segments:

- 2,500 - 3,500 tons
- 3,500 - 5,000 tons
- 5,000 - 10,000 tons

> Multirole frigates

DCN designs frigates for all missions. In each segment, the DCN offering range from single-role types (AAW, ASW, ASuW, AVT, NAO) to high-end multirole types.

Main missions

Force projection operations (NAO)		Multirole FREMM frigates	Horizon
Anti-air warfare (AAW)	Formidable	Sawari II	Horizon
Anti-submarine warfare (ASW)	Bravo	FREMM ASM version	
Anti-surface warfare (ASuW)	La Fayette		Horizon
Land strike (AVT)		FREMM Land attack	
Frigates' segments	2,500 to 3,500 tons	3,500 to 5,000 tons	5,000 - 10,000 tons

Characteristics

	LA FAYETTE	FREMM	HORIZON
Length, overall	124 to 134 m	137 m	153 m
Displacement	3,200 tons	5,600 tons	6,500 tons
Range	7,000 nm at 15 kts	6,000 nm at 16 kts	7,000 nm at 18 kts
Speed	25 kts	27 kts	29 kts
Complement	153	108	220
Helicopter	5 tons	10 tons	10 tons
Off-board systems (UAVs, UUVs, USVs)	No	Yes	No
AAW missiles	Crotale naval	32 x Aster 15 + Scalp Naval	16 x Aster 15 + 32 x Aster 30
Anti-ship missiles	8 x Exocet	8 x Exocet	8 x Exocet
Main ASW weapons	-	MU90 torpedoes	MU90 torpedoes
Gun(s)	100 mm	76 mm	2 x 76 mm

A world-class player



HORIZON ^



^ FREMM



^ FORMIDABLE



> A world-class player

Of the 440 frigates in service worldwide, 35 were built by DCN. This 8% market share makes DCN a major player on the world market for this type of warship. Over the last 20 years, DCN has designed and built no fewer than 14 frigates for the French Navy and other client navies. In addition, DCN holds orders for eight frigates scheduled to enter service between 2005 and 2009.

DCN is also playing a leading role in the planned FREMM multirole frigate programme, which calls for 17 frigates for the French Navy and 10 for the Italian Navy.

With innovation long a dominant trait in its lineage, DCN set in motion a major transformation with the La Fayette stealth frigate and derivatives. This was the first time that a ship's radar cross-section had been specified as a major design goal. This innovation gave rise to the radical shift in surface combatant design over the ensuing years.

> Proven know-how

DCN is a systems integrator with unique experience in all aspects of naval design and shipbuilding involving all types of surface combatants.

DCN's proven expertise in systems design and integration is grounded in the excellence and practices of its 1,200 engineers and technicians, including 300 combat system specialists. Teams drawn from this body of professionals design and develop tomorrow's warships and technologies. Starting from DCN's existing designs, our teams tailor frigates to your needs. This process - which typically focuses on the combat system, automation and propulsion - results in a design meeting your navy's exact requirements. For example, starting with the La Fayette frigate designed to the French Navy's requirements for anti-surface warfare missions, DCN has successfully designed derivative versions for other missions.

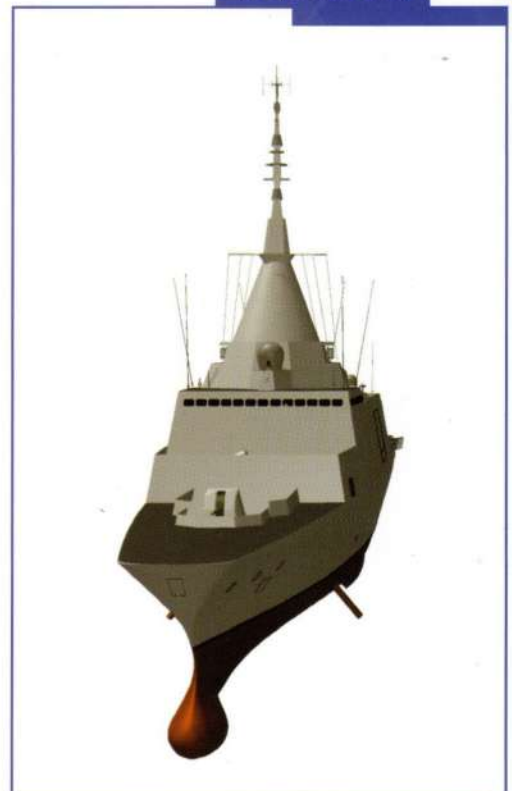
Through new technologies and innovation, DCN is constantly improving the performance and reliability of shipboard equipment. One key aim is to complete all equipment testing before a new vessel is ready for seas trials.

> DCN's expertise

DCN's know-how in frigate design and construction draws on proven expertise in:

- stealth
- upgradeability, seakeeping and shock resistance
- propulsion systems combining high performance and speed
- high-density equipment integration resulting in excellent firepower-to-displacement ratios
- technologies and automation contributing to reduced crewing and lower life-cycle costs, hence lower cost of ownership.

FREMM CAD view





Focus

> Open to partnerships

Today, DCN is open to partnerships and alliances involving any phase or combinaison of phases of frigate design and construction. This openness to cooperation with other prime contractors and shipyards extends to European countries and all others with which DCN has commercial ties.

DCN is cooperating with Fincantieri of Italy for the FREMM and Horizon programmes and with Singapore Technologies Marine for the Formidable-class frigate programme, which calls for the construction of five stealth frigates in Singapore.

Satisfied customers

DCN's satisfied customer list for frigates includes the navies of:

- France
- Saudi Arabia
- Singapore
- Taiwan