



NAVAL SHIPS

MEETING INTERNATIONAL STANDARDS
OF SAFETY AND PERFORMANCE



**BUREAU
VERITAS**

Move Forward with Confidence

DE-RISK YOUR PROJECT

Combat ships and government vessels have very specific requirements. We offer specialist expertise to meet their safety and performance needs.

Navies and governments demand efficient, flexible and resilient fleets for their defense and patrol operations. Their combat and patrol vessels must offer a safe working environment for crew, while achieving performance aims.

Increasingly, they turn to classification societies such as Bureau Veritas. The aim: to reconcile military specifications with safety objectives via design review and technical assessment of their vessels. This can be complex in a world where vessel operations demand specialized equipment and layouts.



MOROCCO

FREMM design frigate
Yard: Naval Group, France



SENEGAL

OPV190
Yard: OCEA, France



GUYANA - FRANCE

2 PLG (OPV)
Yard: SOCARENAM, France



BAHAMAS

8 OPV
Yard: DAMEN, Netherlands



JAMAICA

2 OPV
Yard: DAMEN, Netherlands

PARTNER TO MORE THAN 30 NAVIES WORLDWIDE

Technical expertise. Advanced software.
In-depth knowledge of regulations.
It's why navies and governments around
the world rely on Bureau Veritas.



SPAIN

F110 frigate and BAM
Yard: Navantia, Spain



TRINIDAD

4 OPV
Yard: DAMEN, Netherlands



TUNISIA

4 OPV
Yard: DAMEN, Netherlands

SAFETY AND EFFICIENCY RIGHT ON TARGET

Bureau Veritas helps ensure the design of your vessel meets recognized standards, working with you to optimize designs and identify innovative solutions. Our classification services cover a range of combat and governmental vessels: frigates, corvettes, submarines, multi-purpose vessels, aircraft carriers, amphibious vessels, auxiliary vessels, landing crafts, replenishment crafts, OPVs and other governmental vessels.

Classification with Bureau Veritas saves you time, from project outset. Our detailed

rules bring together years of accumulated shipbuilding and operational experience and knowledge. And by classing your vessel throughout its life, you gain independent verification that it is correctly maintained each year, ensuring long-term performance.

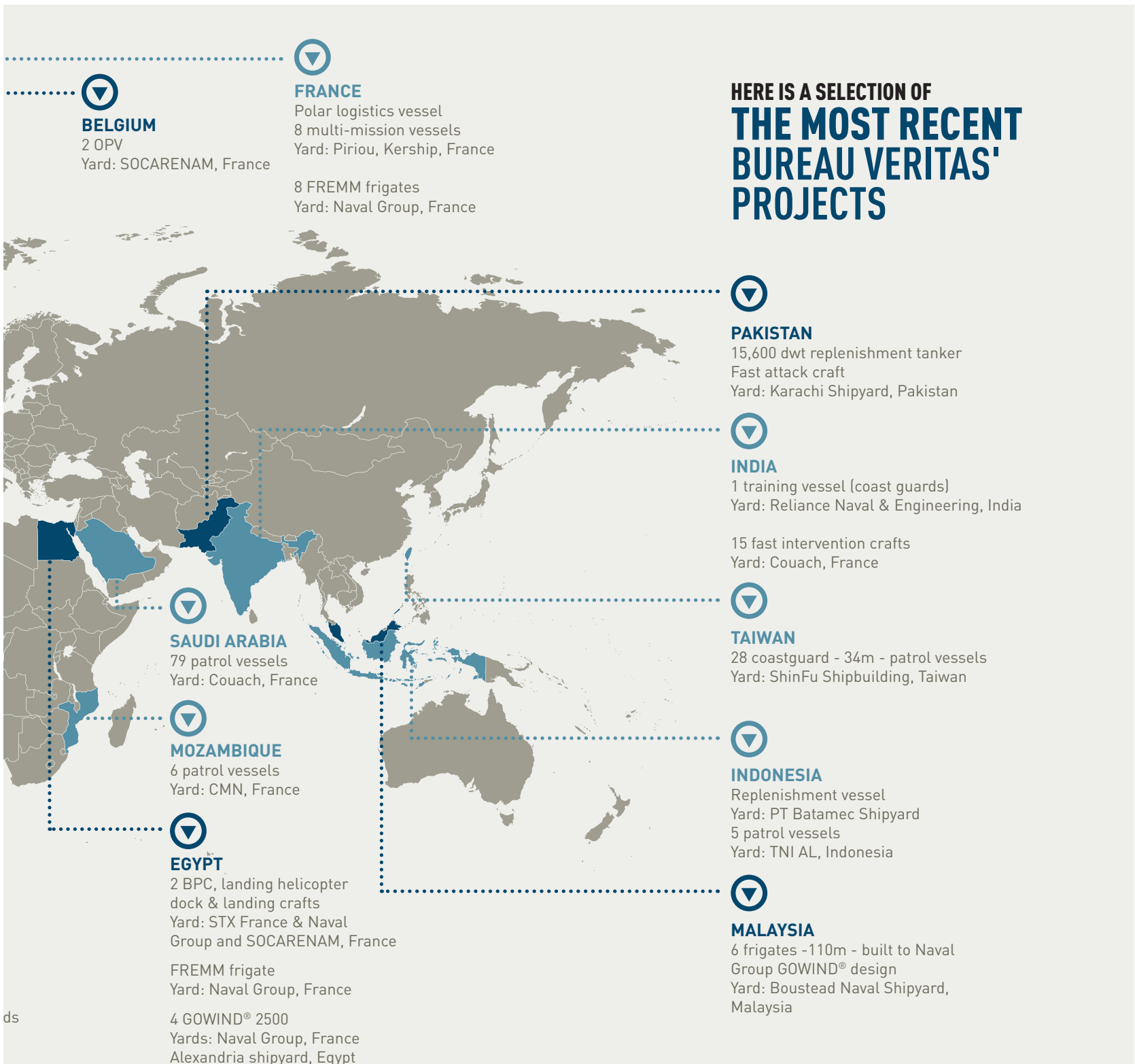
MOVE FORWARD WITH CONFIDENCE

Bureau Veritas extensive global network helps you achieve your objectives. With experts in 140 countries, we support you in optimizing costs and running efficiently. Your ship surveys are carried out in your yard, when you require them.

We support you in meeting new performance challenges, such as navigation in Arctic waters, via technical advice, and certification of new technologies.

Our advanced software helps you analyze ship performance and make the right decisions throughout the vessel's life.

And thanks to our global network, we can support you in local ship construction via transfer of knowledge, and our strong relationships with major shipyards around the world.



HERE IS A SELECTION OF THE MOST RECENT BUREAU VERITAS' PROJECTS

CLASSIFICATION TARGET INTERNATIONAL SAFETY STANDARDS

Ensure your vessel is built and maintained to protect your crew and achieve high performance.

Classification with Bureau Veritas provides you with the reassurance that your vessel has been constructed to recognized standards. These standards are specific to vessel type, and updated based on our clients' experience and international best practice.

In 2017, we published our revised **Rules for the Classification of Naval Ships (NR 483)**. Our original Rules, issued in 2000, were based on a major research and development project that took our accumulated knowledge of merchant vessel construction and adapted it to the special needs of combat ships. The new Rules incorporate feedback from navies and specialist naval shipyards, as well as recent decisions from IMO.

Our detailed **Rules for the Classification of Naval Submarines (NR 535)** were published at the end of 2016. Covering hull, equipment, propulsion and navigation as well as health and safety systems, they focus on preventing sinking and human casualties and on maintaining the capacity of the submarine to return and keep to surface safely or evacuate crew safely.

Non-combat governmental vessels such as patrol vessels, logistics ships and multi-purpose vessels are classed under our standard Rules for the Classification of Steel Ships. They benefit from specific service notations e.g. OPV for offshore patrol vessels and COLD or ICE CLASS for ships operating in Arctic waters.

Classification can be used as a tool to manage construction quality and cost efficiency. It brings rigor to control of global construction supply chains, as components are certified. And with Bureau Veritas experts present during construction at the yard, it can be used to support transfer of knowledge from the international yard at which the first vessel in a series is built, to a local yard in your country where sister ships will be constructed.





What does classification cover?

Classification is a means to ensure safety and comply with international military best practice at every stage of your vessel's life.

Design review provides a thorough health check on safety and performance specifications, resulting in improvements to your vessel. It covers structure, stability, electricity, automatization, and propulsion, as well as fire safety and, escape and evacuation routes.

Certification of materials and safety equipment at manufacturing sites enables you to tightly control your construction supply chain. **Construction survey** confirms your ship is built to specifications and validated by onboard inspection surveys and tests, quay and sea trials.

Finally **periodic surveys** of the ship in-service provide independent verification that your vessel is maintained to high standards of safety and performance throughout its working life.



MAIN NOTATIONS USED IN THE CLASSIFICATION OF NAVAL SHIPS

CLASS NOTATIONS

⊗HULL⊗MACH
FRIGATE, AIRCRAFT CARRIER, CORVETTE, MILITARY OPV
AMPHIBIOUS VESSEL

VOLUNTARY NOTATIONS

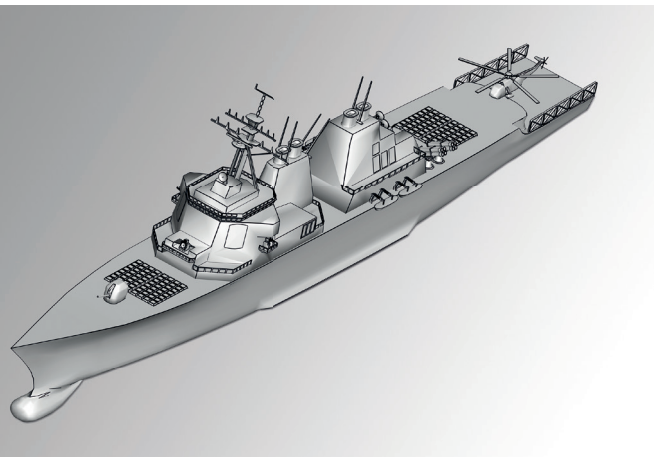
Performance	⊗AVM (availability of machinery) ⊗AUT (automation of the engine room) SEA-KEEP (Sea keeping performance of the propelled platform)
Environment	CLEANSHIP (pollution prevention)
Safety & comfort	FFS (flooding fighting systems) COMF-NOISE, COMF-VIB (comfort criteria noise & vibrations)
Service features	INWATERSURVEY (provisions for bottom survey while afloat) REFSTORE (refrigerating plants for ship domestic supply)

VALUE-ADD AND DIGITAL SERVICES

Beyond classification, Bureau Veritas provides a range of value-add services to improve the performance of your vessel and help you meet new challenges. Bureau Veritas offers specialist technical and consulting services to help you improve the design of your vessel, optimize its performance or address specific requirements such as URN.

ACHIEVE COST-EFFECTIVE ASSET INTEGRITY MANAGEMENT

VERISTARAIM^{3D}
A BUREAU VERITAS SOLUTION POWERED BY DASSAULT SYSTÈMES



Our value-add services include calculations and alternative designs, and asset integrity management services to manage maintenance in a cost-effective way and/or extend the life of your vessel. Our **Veristar AIM^{3D}** tool creates a digital twin of your asset, based on a 3D model, which it automatically updates throughout the asset's life with inspection and live data, to help you make proactive maintenance decisions.

TAKE ADVANTAGE OF NEW TECHNOLOGIES

We offer type certification of technologies such as navigation systems, alternative propulsion systems and fuel cells. Our aim: to enable you to take advantage of unproven new technologies, confident in the knowledge that they have been tested against safety and performance standards.



MANAGE END OF LIFE

Bureau Veritas is able to advise on life extension strategies for your vessel. We are also active in decommissioning, a rising concern for navies and governments. We identify hazardous materials such as asbestos onboard before ships are sent for scrapping, enabling you to comply with international best practice. Finally, we are able to monitor dismantling on site at the shipyard.





ABOUT BUREAU VERITAS

Bureau Veritas is a world leader in testing, inspection and certification. We help clients across all industries address challenges in quality, health & safety, environmental protection (QHSE) and social responsibility.

For 190 years, our clients have looked to us to provide technical support, verify compliance, or obtain certification. Our network of over 1,400 offices and laboratories ensures we meet their needs, wherever they are in the world.

HISTORICAL PARTNER TO THE MARINE INDUSTRY

Bureau Veritas was founded in 1828 for the initial purpose of collecting, verifying and providing maritime insurance companies with precise and up-to-date information about the condition of ships and their equipment around the world. Today, over 2,650 experts in Marine and Offshore serve our clients' needs worldwide.

OVER 1,000 ACCREDITATIONS AND AUTHORIZATIONS

Our wide range of accreditations and authorizations across a range of industry sectors prove that we operate professionally and that our reports and certifications are recognized and respected. We hold 145 delegations of authority on behalf of national maritime authorities.



Move Forward with Confidence

Bureau Veritas - Marine & Offshore

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