

NSRP Electrical Technologies Panel Meeting

Manchester, NH

August 13-14

FABAS LUCE

Innovative SSL (LED) technical lighting solutions
for Navy and Coast Guard



About Fabas Luce

- 50 years of experience in the lighting industry
- 2 locations (Italy and Germany)
- 2 divisions: Professional and Naval
- Around 100 people
- Products designed and manufactured in Italy



Market Segments



Navy

Specialised lighting solutions for military vessels, such as frigates, aircraft carriers, submarines and support ships. All products meet the most rigorous military standards and certification requirements.



Marine

Comprehensive lighting solutions for commercial vessels, cruise ships and professional boats, balancing reliability with aesthetics and energy efficiency.



Energy

Rugged lighting solutions for offshore platforms and offshore wind installations, designed to operate reliably in extreme environments.



Redefining Naval Lighting: Advanced Solutions for Next-Generation Vessels

Fabas originally decided to adopt a SWaP-C approach in order to develop customized and innovative solutions specifically designed for navy applications with the aim of optimizing both the space/crew well being onboard and the lighting performances while reducing maintenance and costs

SWaP-C stands for Size, Weight, Power and Costs – typically used in reference to having items smaller, lighter, more powerful and costs always under control

The Challenge: Traditional Fixtures Limitations



Excessive Weight

Traditional fixtures adapted for LEDs have fixed dimensions due to old fluorescent tubes without the possibility to reduce the total weight of the fittings



Space Inefficiency

Conventional lighting occupies 40% more volume than necessary, consuming valuable space in confined naval environments



Future proof

Traditional systems are not designed to be upgraded at a later time due to new needs of the ship

Fabas Solution: Purpose-Built Naval Lighting

Fabas designed well proven lighting solutions in order to meet the modern navy requirements.

- Compact fixtures (up to 70% smaller fixture footprint)
- Easy and quick electrical installations (Electrical connection in an external IP66 junction box)
- Easy installations (1 min. to install one fixture)
- Aluminum LED board specifically designed for optimizing the thermal balance
- Maintenance zero (All components are available for at least 10 years in case of need)
- Weight reduction
- More than 70 versions with the same housing (dimming, external battery, light colors, etc..)
- Navy certifications

Proven Solutions to Real Navy Challenges

Problem

RCS Vulnerability

External lighting creates radar cross-section concerns in tactical situations

Limited Overhead Clearance

Modern naval vessel designs maximise space efficiency, leaving minimal clearance for lighting systems

Emergency Illumination Flexibility

Emergency portable light to be used in several different Scenarios: Combat situations, maintenance, total black out

Solution

GEST Reduced RCS Lighting

Reduced radar signature weather deck LED fixture special design for stealth navy ship

TVE Short Profile Fixtures

400mm length in which it is possible to have up to 6300lm.

Eblan Emergency Portable Lantern

Portable lantern with different beams, light colors and intensity in one fixture



Amerigo Vespucci - Italian Navy training ship
Venice 2016

Product Families

Technical Lighting



Indoor and outdoor technical lights engineered for operational areas, engine rooms and technical spaces requiring maximum reliability and minimal maintenance, including EX fittings.

Interior Lighting



Specialised solutions for accommodation areas including downlights, bed lights, bathroom fixtures and desk lamps that combine functionality with comfort.

Floodlights



High-powered illumination for deck areas, exterior spaces and security applications, with options for various beam angles and mounting configurations.

Emergency Lighting



Portable emergency lantern and integrated emergency lighting systems providing illumination during power failures or critical situations, battery powered.

Naval and Military Certifications



All products undergo rigorous testing to meet the most demanding navy and naval standards

MIL-S-901D - Grade A - Class I - Type A

Shock testing certification for navy shipboard equipment, survivability under high-impact mechanical shock such as combat conditions



EMC MIL-461G

Electromagnetic compatibility standards for military equipment, preventing interference with critical systems.

IEC 60092-306/60533

Lloyd Register Type Approval

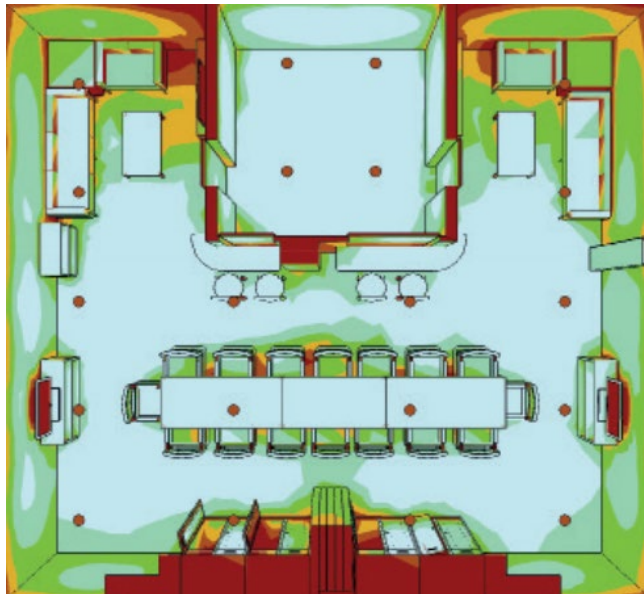
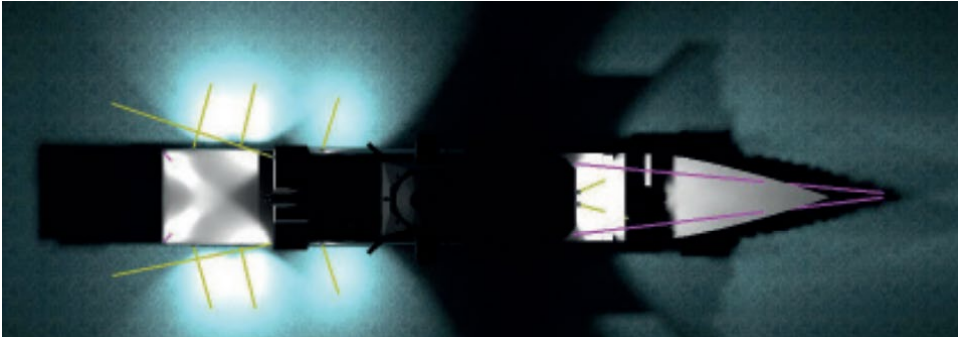
Full compliance with Lloyd Register specifications for marine applications

German BV VG Standard

Specialised certification for submarine applications. Requested by Italian Navy for new NFS submarines. Expected for 2026

Innovative technology

Lighting simulation – Saves time and reduces costs



Fabas support customers in the early phases of the projects also providing detailed lighting analysis.

It allows to view the positioning of the light fixtures on a early stage of the project.

This programme gives the possibility to the user to move around on the ship – It is like working in the **real world!**

Many customers indicate significant savings both in working time and in power consumption thanks to this service.

3D-Simulation

- Lighting simulation and visualization
- Optimization of homogeneity and brightness in illumination

TVE Technical Light

The TVE series provides robust illumination for technical indoor/outdoor areas



Operation Voltage	Operating ambiente temp.	Housing Color	Control System	Primary Light	
100/240V AC 50/60Hz 24V DC	-25° / + 55°C	White RAL 9010	On/Off	6.500K	From 300 to 5.400 Lumen
		Grey RAL 7040	On/Off light color selection rotatory switch on fixture	4000K	
		Blue RAL 5011	Dim. 0-100 with potentiometer on fixture	3000K	
			DALI Dim. 0-100 remote control	Red	
				Blue	
				Secondary light	
				LED light color	Lumen
				4000K	From 40 to 600
				Red	
				Blue	

Key Technical Specifications

- Very compact technical light: only 400mm length
- More than 70 versions available
- Custom design LED board
- Diecast aluminium body with opal polycarbonate diffuser
- High efficiency LED technology (up to 5.400 lm output)
- Very light product at only 2,4Kg
- IP66/67
- Lifetime of 100.000 hrs
- Shock proof to MIL-S-901D standard
- Operating temperature range: -25°C to +55°C (option for -40°/+65°C)
- Emergency battery backup option available
- Orientable fitting as standard
- De-icing solution
- Option for 2 colors in the same fitting
- NVG/NVD/NVIS compatible: White, Green, Red and Blue light colors
- Different voltages (100/240VAC and 24VDC) in the same fitting

TVE Technical Light

The TVE series provides robust illumination for technical indoor/outdoor areas



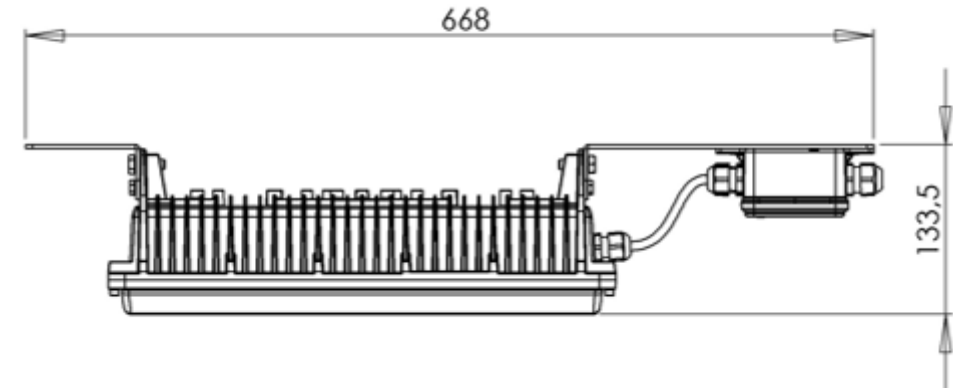
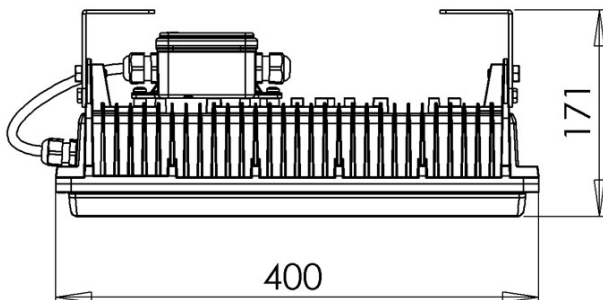
TVE Technical Light

Refitting solutions



Key Points

- ✓ Almost 40mm lower
- ✓ Possibility to have different mounting points
- ✓ Emergency battery backup option available
- ✓ Suitable for refitting projects and for any other project in which height is a decisive factor
- ✓ Easier access to the junction box



TON Floodlight

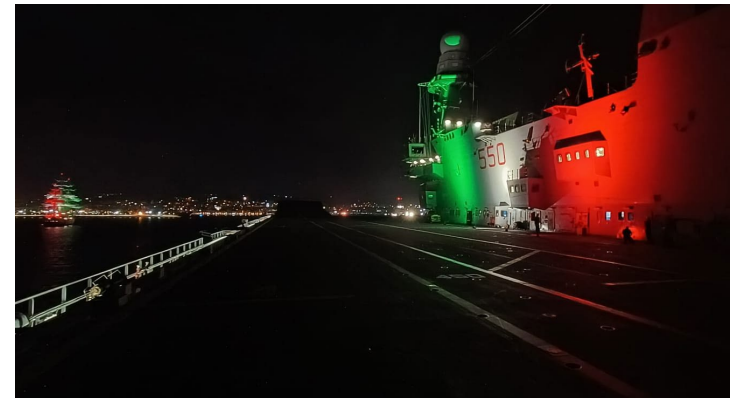


Key Technical Specifications

- Powerful and robust LED Floodlight
- One lens for each LED assure intense and precise light beam
- Housing in Die-cast aluminum
- IP66/67
- Lifetime of 100.000 hrs
- 25.000lm and 50.000lm versions available in Q1/Q2 2026
- Excellent EMC characteristics
- Different beam angles
- Shock proof to MIL-S-901D standard



Operation Voltage	Operating ambiente temp.	Housing Color	Control System	Primary Light	
100/240V AC 50/60Hz	-40° / + 55°C	White RAL 9016 Grey RAL 7040	On/Off	LED light color	Lumen
				4000K	Min 6.250 Max 18.216
				3000K	
				Red	
				Green	
				Blue	



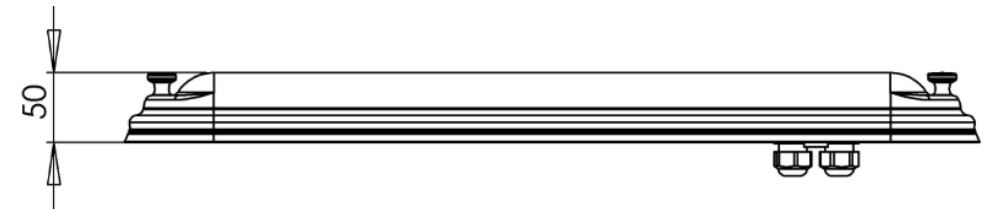
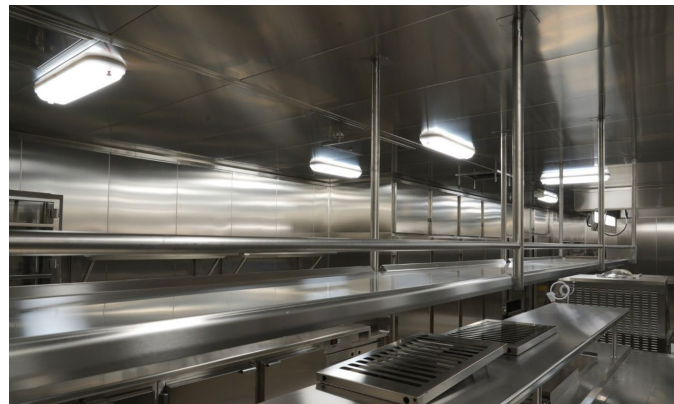
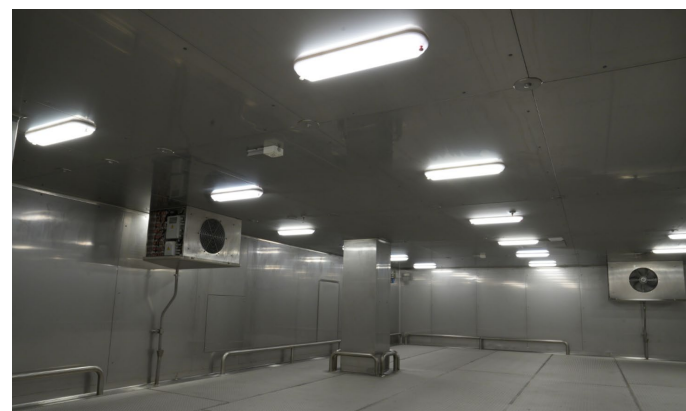
Galcor

LED Light fixture for Galleys, Cold rooms and NBCR



Key Technical Specifications

- Applicable for Galley, Laundry, NBCR, Cool and Freezer rooms
- Very compact technical light: only 50mm height
- Stainless steel AISI 316L body with anti-condensation valve
- High efficiency LED technology (up to 6.400 lm output)
- IP66/67
- Lifetime of 100.000 hrs
- USPHS Compliant
- Shock proof to MIL-S-901D standard
- Operating temperature range: -43°C to +45°C
- Two light colors available: White and Red



GEST

Reduced Radar Cross-Section (RCS) LED fixtures for stealth ship



Key Technical Specifications

- Aluminium housing
- 24 VDC
- External driver included
- IP66/67
- Operating ambient temperature: -25°C / +55°C
- Customized length up to 2m
- Light color: White or Red

Very slim solution perfect for installation on stealth ships!



NVG/NVD/NVIS Solutions

Fabas Technical lights NVG-compatible are designed to minimize glare and interference with Night Vision Goggles/Devices (NVG/NVD), allowing safe night operations aboard naval vessels while pilots or crew use NVGs



Eblan – Emergency portable lantern



NEW GENERATION PORTABLE LED BATTLE LANTERN WITH RECHARGEABLE BATTERY

The EBLAN portable emergency battle lantern provides essential lighting during power failures or combat situations.

- Ruggedised polycarbonate housing
- Integrated Nickel Metal Hydride battery
- Autonomy of 10-hours at low luminous flux
- Two different beams - 36° and 5°
- Three different light colors: White, red and green
- Floating IP67
- Shock proof to MIL-S-901D standard
- Lifetime: 100.000 hrs at 35°
- Operating temperature: -20°/+55°
- Weight: 1,25 Kg

Example of Success stories

LHD Trieste: Lighting the Italian Navy's Largest Vessel



Fabas supplied products	Application
TVE Technical lights	Indoor and outdoor general illumination
Galcor	Galley and cold room lighting fixtures
TON Floodlights	Focused illumination for critical operational areas
NVG Fixtures	Lighting fixtures compatible with Google devices
Downlights and indoor lights	Crew cabin comfort and functionality
Eblan	Emergency light and portable light
Ex lighting fittings	Lighting fittings for Atex areas Zone 1 and 2
DALI Dimmer	DALI Controller and lighting fixtures

Delivered to Italian Navy in 2024

Fabas delivered the **complete ship lighting set** (except navigation lights, searchlights and VLA)
More than **10.000** fittings were delivered

Feature	LHD Trieste – Italy	USS America (LHA-6) – USA
Type	Landing Helicopter Dock (LHD)	Landing Helicopter Assault (LHA)
Displacement	~33,000 tons	~45,000 tons
Length	245 m	257 m
Crew	~600 (up to 1200 with troops)	~1.100

Example of Success stories

FREMM Frigates: Advanced Lighting for Multi-Mission Vessels



Fabas supplied products	Application
TVE Technical lights	Indoor and outdoor general illumination
TON Floodlights	Focused illumination for critical operational areas
GEST Low-Detectability	Reduced radar signature for tactical operations
Downlights and indoor lights	Crew cabin comfort and functionality
Eblan	Emergency light and portable light
DALI Dimmer	DALI Controller and lighting fixtures

THE NEW GENERATION OF SHIP CLASSES

Fabas will supply the complete ship lighting set of FREMM EVO

Feature	FREMM (Bergamini-class)	Arleigh Burke-class Destroyer
Type	Multi-mission frigate	Guided missile destroyer
Displacement	~6.700 tons	~9.700 tons
Length	144 m	155 m
Crew	~145	~300

FREMM EVO



USS Constellation, FFG 62



Example of Success stories

Refitting of the Italian Navy Flagship - Aircraft carrier Cavour

Indoor & Outdoor areas

TVE and TGL lights for technical areas

Galcor for Galleys and Laundries

TON floodlights in 100-160W versions

Ex lighting fixtures for Zone 1 and 2

NVG lighting Solutions

Technical lights NVG compatible, especially designed for use with night vision devices, ensuring optimal visibility while minimizing interference with the NVG operation.

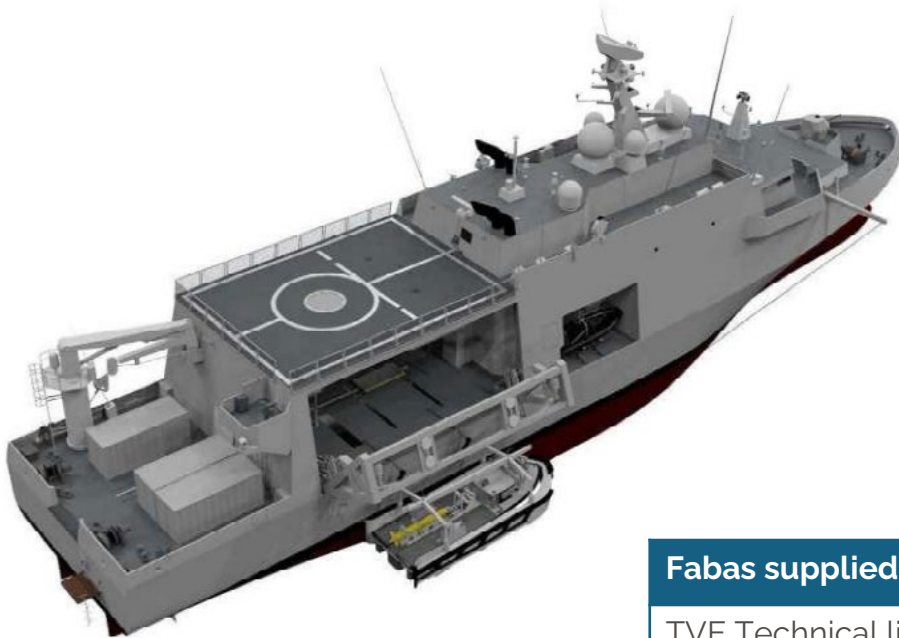
Comfort & Functionality

PSAR downlights – Custom solutions fitted in cabins and hospital



Example of Success stories

MCMV Program for Dutch Belgium and French Navies



Displacement: 2.800 tons

Lenght: 82 m

Delivery Timeline: 2025 – 2030

Nr. of vessels: 18 (6 for each Navy)

Shipbuilding: Kership (Naval Group + Piriou)

Light quantities: ~500 pcs per vessel

Fabas supplied products	Application
TVE Technical lights	White and red lights, Dali, 22 and 35W
TON Floodlights	100 and 160W
GEST Low-Detectability	Reduced radar signature for tactical operations
Downlights	Crew cabin comfort and functionality
Galcor	White and red lights – 32 and 40W
Ex technical light GEX	Atex technical light
Eblan	Emergency light and portable light

Example of Success stories

Submarine U212 NFS for Italian Navy



Fabas supplied products	Application
TVE Technical lights	White, red and blue lights
0-10V Dimmer	Controller and lighting fixtures
Eblan	Emergency light and portable light

U212 NFS (Near Future Submarine) design is based on evolved U212A (Todaro Class). 4 new submarines (NFS) are planned with deliveries from 2027 and 2032.

Fabas after the refitting of the original U212A units, will now supply the technical lights and emergency lights for the new units.

Thanks to the very close collaboration with Shipyard and End User, Fabas will also supply products compliant with the German BV VG Standard

Upcoming Projects



DDX Destroyer for Italian Navy



Fremm Evo Frigates for Italian Navy



F110 Frigates for Spanish Navy



OPV for Portuguese Navy



Minehunter for Italian Navy



EPC (Corvette) for Italian, French, Greek and Spanish Navies

Our Way Ahead

Strategic Partnerships

Establishing new partnerships across Europe and the United States to expand our global reach and better serve international naval and maritime customers.

Team Enhancement

Strengthening our technical and commercial teams to provide the best possible support, very quick response times, and innovative solutions for our customer' evolving needs.

Smart Lighting Systems

Developing next-generation naval lighting systems with remote monitoring and control capabilities, integrating with ship management systems for improved efficiency and safety.



Reference list - Navy

Updated Feb. 2025

YEARS BEGINNING-END	OWNER	SHIPS N°	TYPE	NOTE
2026 - TBD	Italian Navy	2	DDX destroyer	new build
2025 - TBD	Italian Navy	2	FREMM EVO frigates	new build
2025 - TBD	Italian Navy	2	Multipurpose Combat Ship - MCS (former PPA - EVO)	new build
2025 - TBD	Italian Navy	4	Hight seas tug boat	new build
2024 - TBD	Italian Navy	4	Harbour tug boat	new build
2025 - 2027	Italian Navy	2	Auxiliary units (MTC/MTF)	new build
2025 - 2027	Italian Navy	4	Training ship	new build
2025 - TBD	Spanish Navy	5/7	F110 frigate - Bonifaz class	new build
2024 - TBD	ISPRA Italian Institute for Ambiental Research	1	Oceanographic research vessel	new build
2025 - TBD	Italian Navy - ITN	2	HORIZON class	Complete LED refit
2025 - TBD	Italian Navy	4	U212 - NFS submarine	new build
2025 - 2027	Italian Navy	2	Submarine Sauro class - fourth batch	new build
2025 - TBD	Italian Navy	3	OPV Offshore Patrol Vessels	new build
2026 - TBD	Navies forecasted ships: France 6, Greece 4, Italy 8, Spain 6	24	EPC European Patrol Corvette	new build
2024 - 2026	Italian Navy	1	NIOM Hydro Oeanograpich Ship	new build
2024 - 2027	Italian Navy	1	SDO SuRS - Special and Diving Operations Submarine Rescue Ship	new build
2025 - TBD	Italian Navy	12	Mine hunter	new build
2024	Italian Navy	1	VEGA ship	Complete LED refit
2024	Italian Navy	1	ETNA ship - fleet tanker	Complete LED refit
2024 - TBD	Italian Coast Guard	1	UAM 90m patrol boat (2 in options)	new build
2023	Marine Nationale (France)	1	Commandant Blaison - aviso Direction Service Soutien de la Flotte	Complete LED refit
2023	Slovenian Navy	1	Triglav	Complete LED refit
2022	Italian Navy	2	FREMM frigates	new build
2022 - TBD	6 Belgium, 6 Holland, 6 France	18	MCMV Mine Counter Measures Vessel	new build
2022	Qatari Navy	1	LPD Landing Platform Dock	new build
2022	Italian Navy	1	Sail training school nave Palinuro	new build
2022 - 2029	Marine Nationale (France)	4	Ravitailleurs de Forces (BRF) - Chantier de L'Atlantique	new build
2022	Italian Coast Guard	1	CORSI ship	
2021 - TBD	Guardia di Finanza (sea police)	7	CPV Coastal Patrol Vessel 44m	new build
2021	Italian Navy	1	LHD Landing Helicopter Dock "Trieste" ship	new build
2020 - 2025	Italian Navy	1	Air carrier "Cavour" ship	Complete LED refit
2019 - 2024	Italian Navy	4	Submarine U212	Complete LED refit
2019 - 2021	Qatari Navy	2	OPV Offshore Patrol Vessel	new build
2019 - 2022	Qatari Navy	4	Multimission corvette	new build
2018 - 2025	Italian Navy	5	Multipurpose Combat Ship - MCS (former PPA)	new build
-	Indonesian Navy	2	Multipurpose Combat Ship - MCS (former PPA)	new build
2017	Italian Navy	1	sail training school ship "Palinuro"	Complete LED refit
2018 - 2020	Italian Navy	2	UNPAV high speed navy special forces patrol vessels 44m	new build
2017 - 2024	Italian Navy	3	LSS Logistic Support Ship "Vulcano"	new build
2016	Venezuelan Navy	1	U 209 submarine	Complete LED refit
2016	Italian Navy	1	Sail training school ship "Amerigo Vespucci"	Complete LED refit
2015 - 2021	Algerian Naval Force	3	Mine hunter	new build
2014	Algerian Naval Force	1	LPD Landing Platform Dock	new build

Next Exhibitions



Seafuture

29 Sept. – 02 Oct. 2025
La Spezia, Italy



Navalia

19-21 May. 2026
Vigo, Spain



SMM

01-04 Sept. 2026
Hamburg, Germany



Euronaval

03-06 Nov. 2026
Paris, France

QUESTIONS?

Andrea Monti
andreamonti@fabasluce.it

Sergio Pastine
sergiopastine@fabasluce.it

www.naval.fabasluce.it/en

Thank you for your attention!

