

ARGO CLASS MULTI-MISSION OFFSHORE PATROL VESSEL

The new ARGO Class Offshore Patrol Vessel (OPV) emerges as a state-of-the-art multi-mission platform. Designed to operate seamlessly across both peacetime and wartime scenarios, this OPV design incorporates experience gained from design of many similar vessels now in service for several navies and coast guards, combining commercial efficiency with military-grade capability.



ICEPRONAV Engineering SRL © 2025

A Multi-Purpose Platform

At its core, the new ARGO Class OPV is a vessel engineered for flexibility. Whether patrolling vast Exclusive Economic Zones, conducting search and rescue operations, or supporting naval task forces in high-threat environments, it delivers consistent performance across a wide range of missions. Its design reflects a deep understanding of operational realities: long deployments, unpredictable conditions, and the need for rapid role adaptation.

Designed to be built on proven commercial shipbuilding standards, the vessel offers a cost-effective and maintainable solution without compromising performance.

Its hull form ensures superior seakeeping, allowing for prolonged stays at sea in challenging weather, while the internal layout prioritises crew wellbeing – providing ergonomic workspaces, recreational areas, and noise-reduction systems that support sustained operational readiness.

Its modular mission spaces allow for rapid reconfiguration, enabling the vessel to shift from surveillance to combat support, or from disaster relief to mine countermeasures, with minimal downtime. This adaptability makes it an ideal platform for navies and coast guards seeking a single solution to multiple operational challenges.



Concept Design



Design Benefits

The Class OPV is designed with efficiency, maintainability, and resilience in mind. It incorporates off-the-shelf, commercially available equipment to simplify maintenance and ensure rapid replacement of components.

The hull form has been hydrodynamically optimised using advanced Computational Fluid Dynamics (CFD) analysis, enabling speeds of up to 26.5 knots at a design draught of 3.8 metres under continuous engine power in calm seas.

The hybrid propulsion system supports Power-Take-In (PTI) mode via electric motors for silent operation up to 12 knots, and Power-Take-Off (PTO) capability for enhanced energy efficiency. Diesel and electric systems can operate synchronously, offering flexible power management and low fuel consumption.

Redundant machinery spaces ensure high availability and system resilience, while the vessel's construction — high-tensile steel for the hull and funnel casing, and aluminium for the superstructure, hangar, and mast — reduces weight and improves performance. All equipment and structures are arranged for easy access, inspection, and repair.

Advanced Propulsion & Engineering

At the heart of the Class OPV lies a robust CODLAD (COmbined Diesel eLectric And Diesel) propulsion system.

Four main engines are arranged in pairs and connected to two propulsion gearboxes and two electric motors with PTI/PTO capability, driving two shaft-mounted Controllable Pitch Propellers (CPPs).

This configuration is further enhanced by a fixed Energy Storage System (ESS). The result is a flexible propulsion system that offers low-fuel loitering, silent running for stealth operations, fuel-efficient cruising, and high speed when needed.

Whether operating in propulsion-only mode, hotel-load configuration, or combined-power scenarios, the vessel maintains optimal performance and endurance.

Principal Dimensions

Length (o.a.).....	90.50 m
Length (p.p)	84.00 m
Breadth mould (mld.)	13.50 m
Depth mould (mld.)	7.70 m
Draught, design	3.80 m
Displacement	abt. 2,300 t

Performance

Max. speed (at design draught)	26.5 knots
Cruise speed	12 knots
Range at 12 knots	abt. 4,000 NM
Endurance	30 days

Seakeeping & Manoeuvring

Stabilising system	Active fin
Bow thruster	2 x 280 kW
Rudders	2 x rotary vane steering gears

Propulsion System

Main diesel engines	4 x 5,920 kW, 1,325 rpm
E-motors	2 x 560 kW
Propellers	2 x CPP, diam. 3.10 m

Auxiliary Equipment

Power generation	3 x 880 kW, 1,500 rpm
Emergency generator set	1 x 450 kW, 1,500 rpm
Battery storage / ESS capacity	2,365 kWh

Accommodation

Accommodation is thoughtfully designed to support both permanent crew and temporary personnel.

Up to 70 individuals – including crew and trainees – are housed in air-conditioned and heated cabins, with additional space for 50 guests in transit.

The vessel's total transport capacity reaches 200 persons, making it suitable for evacuation, disaster relief, or troop movement.

Safety and Survivability

Safety is integral to the vessel's design. It features an active fin-stabilising system, three separate engine rooms for redundancy, and life-saving equipment compliant with Lloyd's Register 100A1 NS (SSC) standards.

This includes two RHIBs (stern-ramp and davit-launched), one rescue boat, liferafts, lifebuoys, and lifejackets.

Classification

Lloyd's Register 100A1 NS (SSC), Offshore Patrol Vessel, UMS, SA2, LAP, AIR

Operational Capacities

The enclosed bridge provides 360° visibility (270° direct view and 90° through electro-optical means).

A separate Mission Information Centre (MIC) supports surveillance and weapon control.

The helicopter platform is equipped for landing and refuelling of helicopters up to 11 tonnes maximum take-off weight.

The hangar can accommodate one helicopter up to 5 tonnes maximum take-off weight and two unmanned aerial vehicles (UAVs).

A 10-tonne knuckle-boom telescopic crane supports deck cargo operations, and the aft deck is configured to carry two containerised mission modules, further expanding the vessel's role adaptability.

Surveillance & Combat Systems

Equipped with advanced sensors and communication systems, the ARGO Class OPV is ready for modern maritime operations.

Surveillance capabilities include a 3D/4D air and surface radar, electro-optical units, and fire control systems, all integrated into a Command and Control System (CMS).

Two unmanned helicopters extend the vessel's reach with maritime radar and thermal imaging, while high-power LED searchlights enhance visibility and target recognition.

The communication suite supports military-grade data links, including compatibility with LINK 22, and features V/UHF, MF/HF, airband VHF, encrypted messaging, and optional Iridium satellite connectivity.

Tactical imagery and sensor data can be transmitted live to command centres or rescue coordination hubs.

Armament

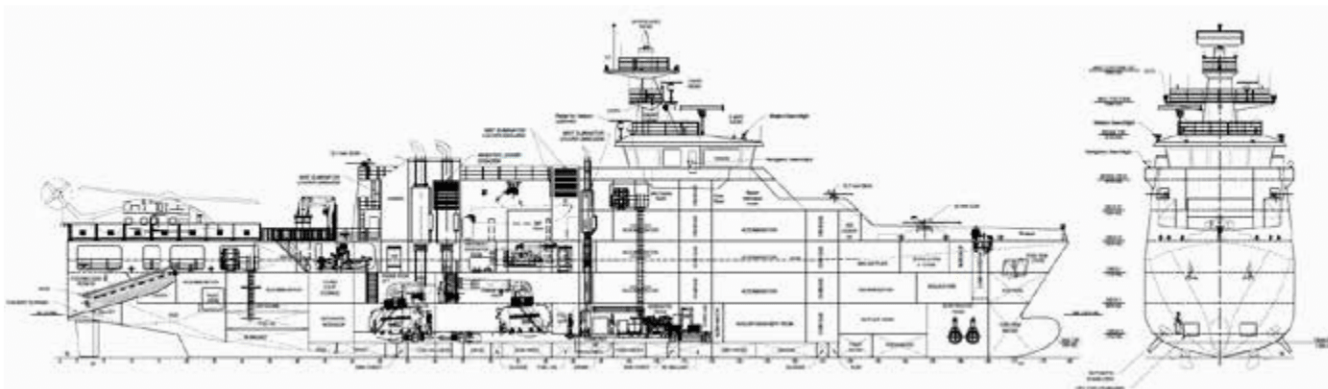
Armament includes:

- 1 x 30 mm gun with EO and FCS (ready for 76 mm)
- 3 x 12.7 mm remote-controlled machine guns
- Secure ammunition storage and small-arms lockers

The CMS can transmit live tactical imagery and sensor data to the Operations Centre or Joint Rescue Coordination Centre (JRCC).

Video recording systems store imagery from the ship's sensors and cameras.

Ammunition stores are provided for the 30 mm and 12.7 mm guns, together with secure storage for small arms and weapon accessories.



ICE GROUP CAPABILITIES AND RESOURCES

As a design subcontractor for major defence contractors, ICE has undertaken design work for Offshore Patrol Vessels (OPVs) for clients in the Middle East and the Americas, as well as basic design assistance for a series of vessels for the US Navy.

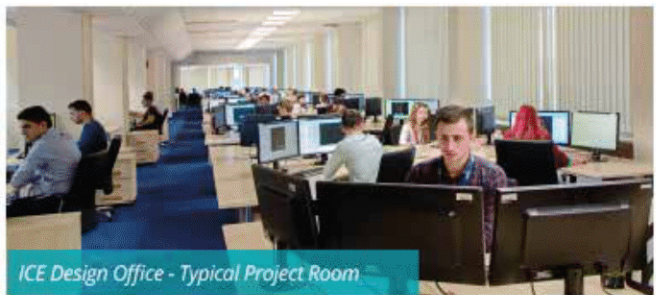
In the UK, ICE has provided design services for the Queen Elizabeth Class aircraft carriers and the Type 45 destroyers for the Royal Navy, and has undertaken conversion design for Type 22 frigates.

ICE also carried out Class and detail design and assisted with procurement and yard supervision for a series of mid-shore patrol vessels for the Canadian Coast Guard.

ICE's Romanian subsidiary, Icepronav Engineering SRL, is currently (2025–26) engaged in detail design for three different frigate programmes, all covered by the required export and import licences for military technology held by its Romanian affiliate, Icepronav Engineering SRL, the main design office within the ICE Marine Design Group.



ICE Main Design Office



ICE Design Office - Typical Project Room



Offshore Patrol Vessel (OPV) 90m



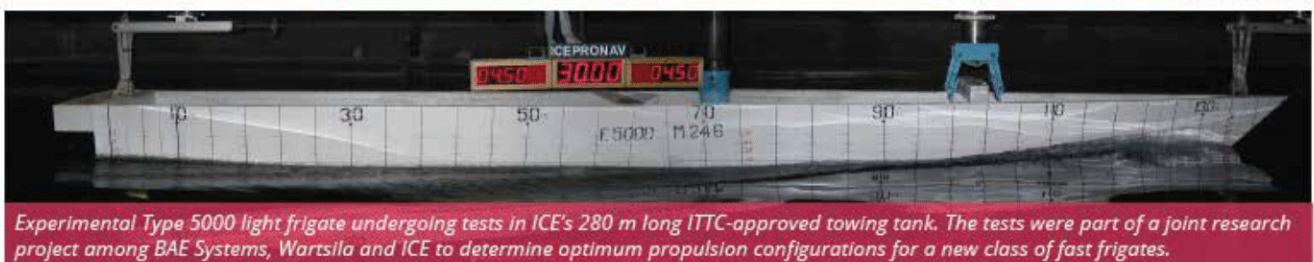
Mid-Shore Patrol Vessel (MSPV)



Ocean Patrol Vessel (OPV) 99m



Type 45 Destroyer



ENGINEERING CERTAINTY

International Contract Engineering Limited, 19-21 Circular Road, Douglas, Isle of Man, IM1 1AF British Isles
Tel: +44 (0)1624 623 190 | Fax: +44 (0)1624 628 297 | www.icedesign.info
ICE Engineering Services UK Limited, UK Registration no. 05981929/2006

With a 60 year track record and an annual output having exceeded 700,000 professional engineering man-hours, the International Contract Engineering (ICE) Group is one of Europe's largest independent ship design consultancies. We provide high-calibre multi-discipline design services to yards and owners in the commercial shipping, defence and offshore energy industries, ranging from conceptual studies and Class drawings to detail design and production information. We cover a full range of naval architecture and marine engineering disciplines such as hydrodynamics, structural, mechanical, piping, electrical, instrumentation, outfit and HVAC. Our experience includes gas carriers, passenger vessels, navy and coast guard ships, chemical tankers, drill ships, FSO/FPSOs and a range of other vessels. We also have available proprietary designs that can be adapted to clients' requirements.

With our head office in the Isle of Man and engineering facilities in Romania and Croatia, we provide high quality design and engineering at competitive prices.