

OFFSHORE PATROL VESSEL

THE 2nd GENERATION OF HIGHLY EFFICIENT AND VERSATILE OPVs



DAMEN



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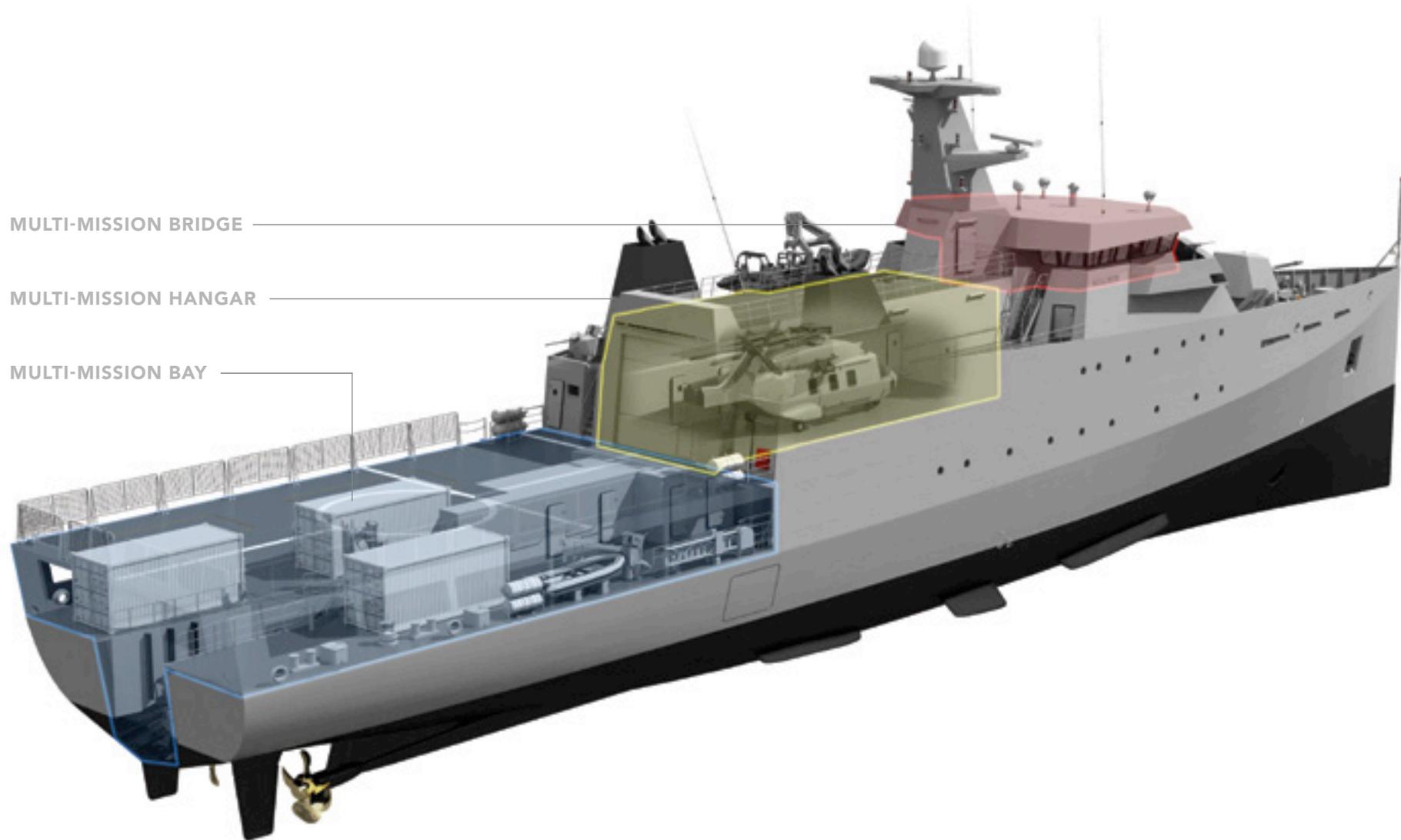
THE ESSENCE OF VERSATILITY

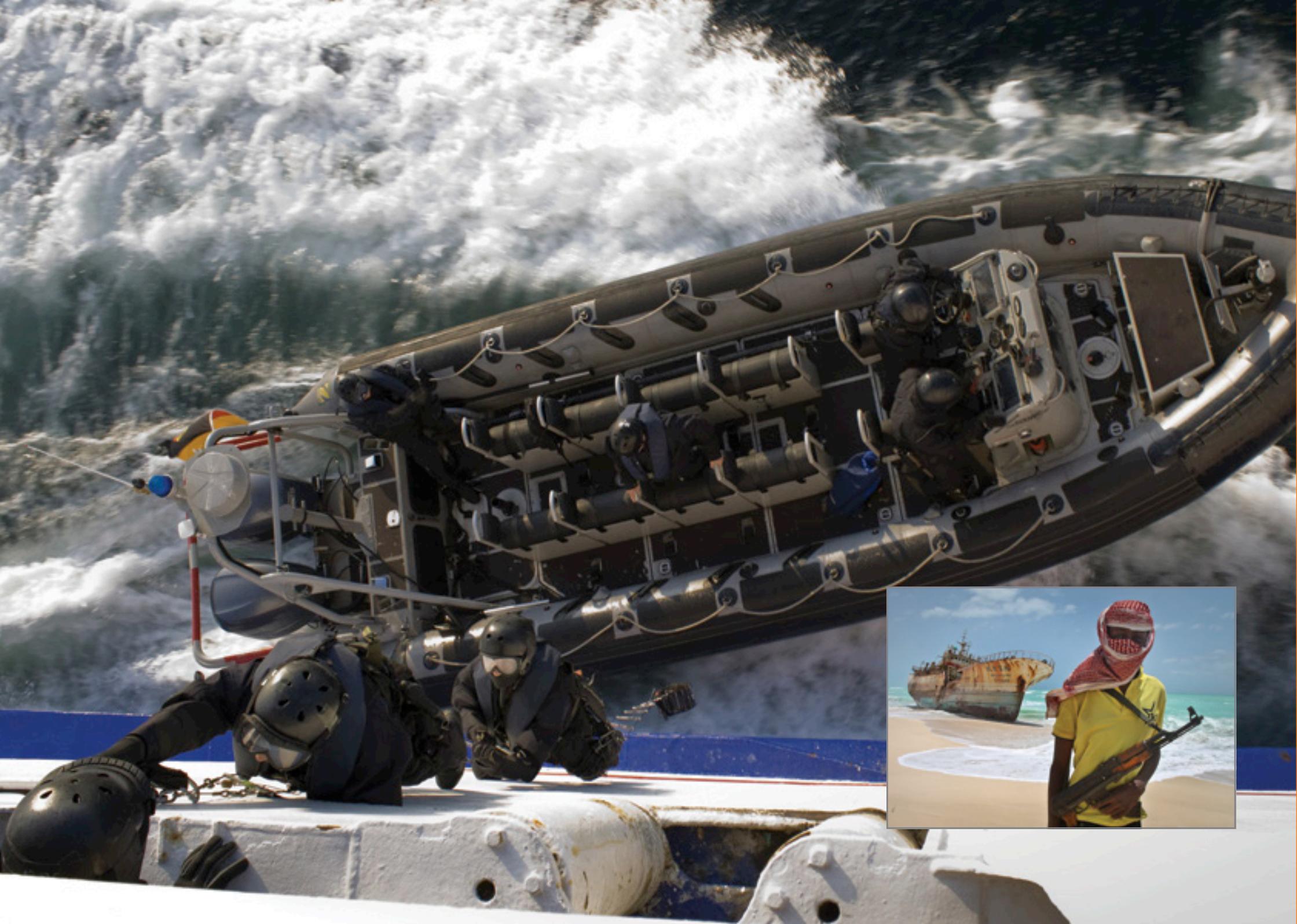
STRENGTHS



THE NEW STANDARD FOR TODAY'S OPV MULTI-MISSION BRIDGE, BAY AND HANGAR

PROVEN TECHNOLOGY ENERGY EFFICIENT COMFORTABLE VERSATILE FAST





THE WORLD TODAY NEEDS A VERSATILE MULTI-MISSION PLATFORM

HUMANITARIAN AID

COUNTER-PIRACY

COUNTER-DRUGS

COUNTER-TERRORISM

ANTI-MINING WARFARE

OIL SPILL RECOVERY

FISHERY INSPECTION

SEARCH AND RESCUE

BORDER SECURITY

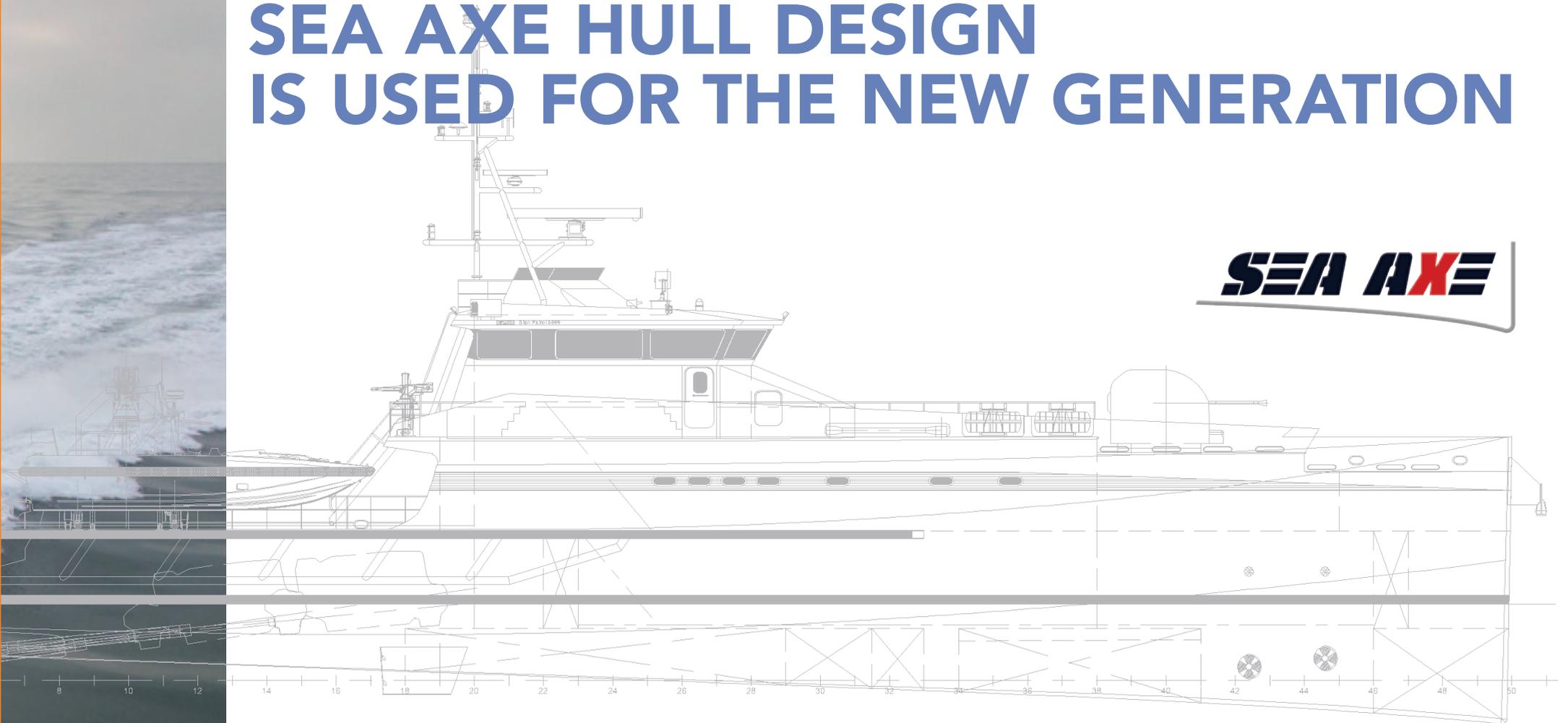




GUARDIAN 1



DAMEN'S UNIQUE AND SUCCESSFUL SEA AXE HULL DESIGN IS USED FOR THE NEW GENERATION



SUPERIOR SEAKEEPING

The Sea Axe hull shape guarantees the best seakeeping performance at high speeds.

UNRIVALLED OPERABILITY

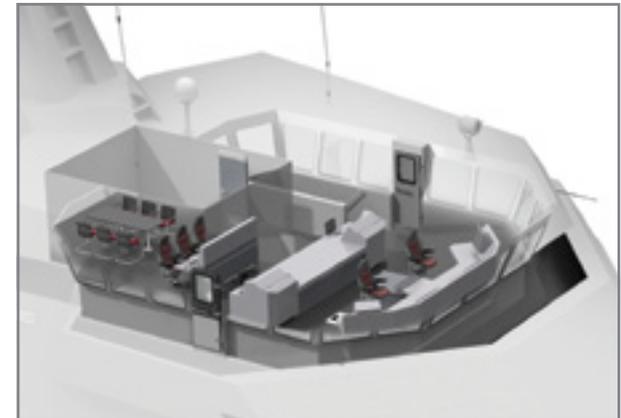
The combination of superior seakeeping and the position of the wheelhouse results in the highest possible level of operability.

HIGHLY FUEL EFFICIENT

The long and slender Sea Axe hull offers exceptionally low resistance, delivering excellent fuel efficiency at all speeds.



VERSATILITY IS REINVENTED WITH APPLIANCE OF MULTI-MISSION EMPLOYABILITY



MULTI-MISSION BRIDGE

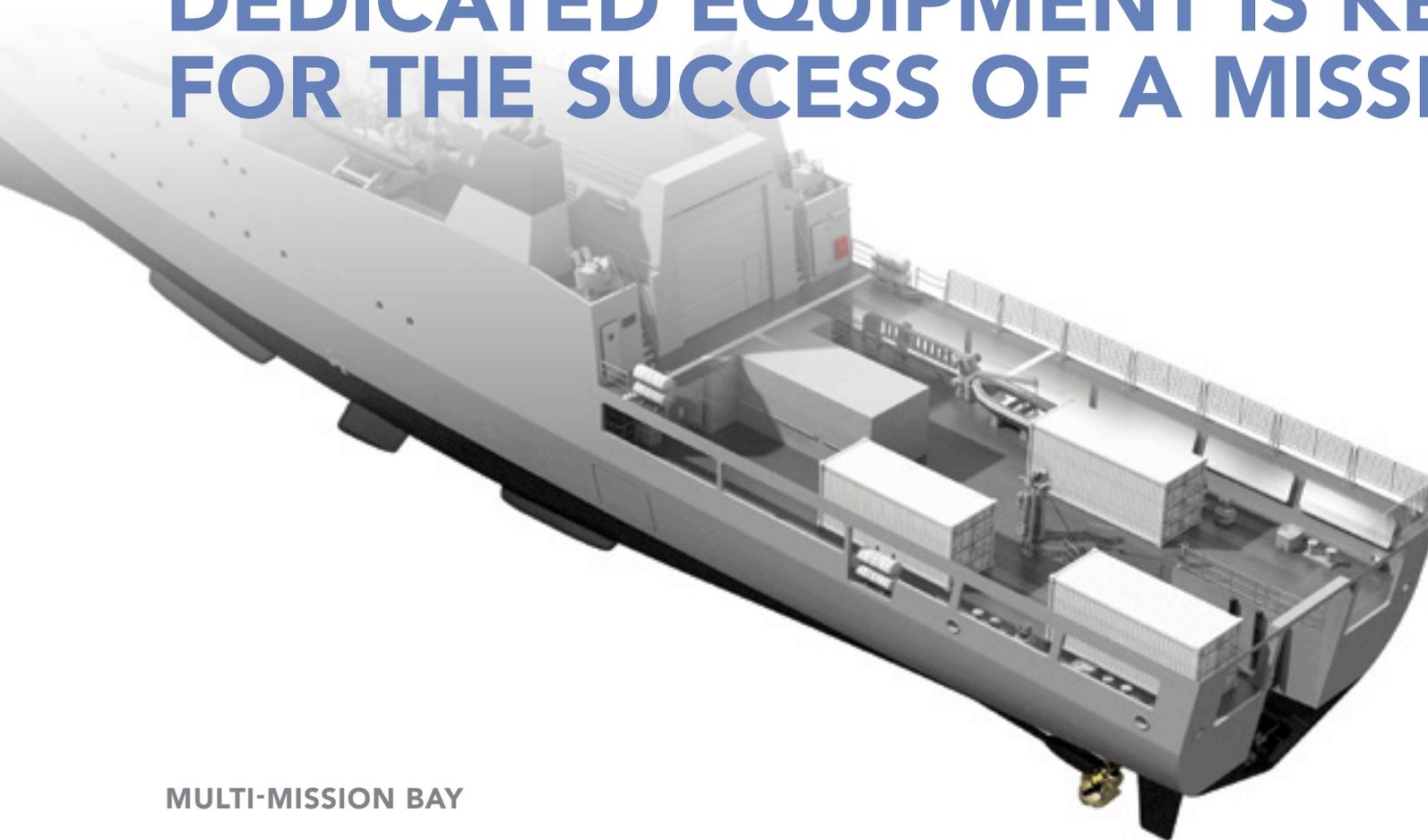
The Bridge directly adjoins the Command & Control Centre (C&C Centre), ensuring easy and fast communication. Depending on the mission and the situation, the C&C Centre can be separated from the Bridge by means of a blinded sliding door. This will ensure that the C&C crew can fully focus on their tasks without being distracted, for instance during the tasking and planning phases of a mission.

When creating the recognized service picture, the C&C Centre will be in charge of collecting all necessary data. When targets on the radar cannot be identified, the C&C Centre officers

can directly deploy an RHIB to visually identify the unknown target.

The actual engagement phase or 'chase', requires a lot of coordination and thus the number of activities per minute on the bridge normally is very high. On the new Damen OPV, the C&C officers will be able to see the situation with their own eyes directly from the C&C Centre, after the blinded sliding door has been lowered, taking away communication moments. This reduces the workload on the crew involved, which is beneficial for the operation.

DIRECT AVAILABILITY OF DEDICATED EQUIPMENT IS KEY FOR THE SUCCESS OF A MISSION



MULTI-MISSION BAY

“Take what you need and leave the unnecessary.” This approach makes the OPV-2 versatile and mission focused. Missions can be related to such like humanitarian aid, counter-piracy, -terrorism and -drugs, anti-mining warfare (AMW), oil spill recovery, fishery inspection, search & rescue (SAR) and also everyday border security. For these missions different types of equipment is necessary.

The Multi-Mission Bay makes it possible to store dedicated equipment for the mentioned multifarious missions and even more. Mission modules (dedicated containers) can be lifted into the Multi-Mission Bay, through the helicopter deck. If necessary, equipment stored in the mission modules (ROV, sonar, etc.), can be lowered into the water through the two PS and SB stern hatches.

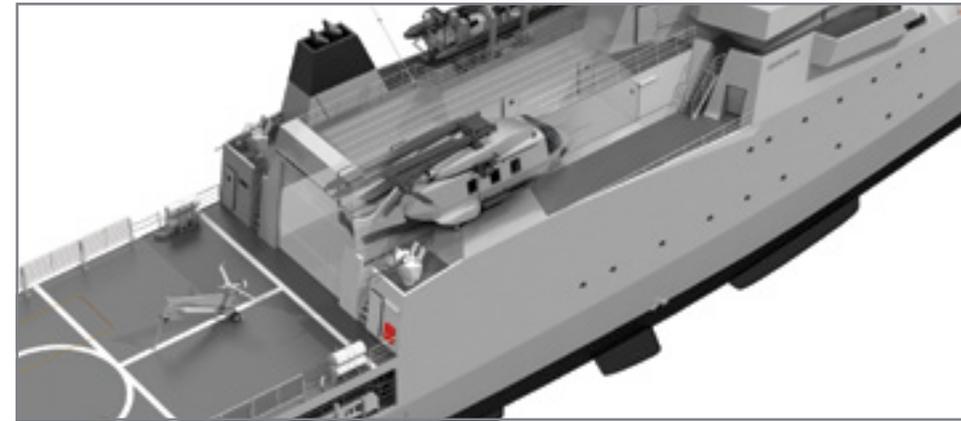
Also one of the two 9 meter RHIBs is stored in the Multi-Mission Bay. A small slipway makes ultrafast RHIB deployment possible, while sailing. Also quick recovery of the RHIB in sea states up to 6 BF is possible. A quick connecting hook takes in the RHIB quick and efficiently. A painter line is superfluous.







NEW AVIONICS INCREASE THE CHANCE OF OBSERVING THE KEY DETAILS OF THE SITUATION



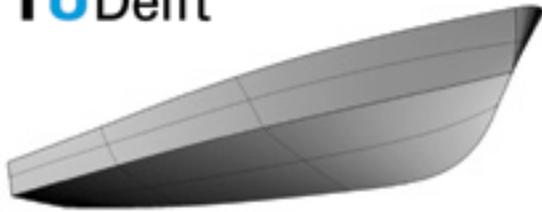
MULTI-MISSION HANGAR

Today's high-tech and pioneering OPVs have "eyes in the sky". Surveillance from the sky is essential for taking situation awareness to a higher level. Apart from a large helicopter, the Multi-Mission Hangar can store an Unmanned Aerial Vehicle (UAV) like the Boeing ScanEagle. Inside the Multi-Mission Hangar, the UAV can also be maintained in a dedicated UAV-workshop. Launching and recovery of the UAV is carried out from the helicopter deck. Constant communication between the UAV and the Multi-Mission Bridge assures that all details in the area are spotted. The new OPV can handle helicopters up to 11 tons, like the NH-90. The hangar is large enough to store large helicopters and also to execute maintenance. Also the hangar is equipped with a helicopter spare parts store and workshop.



A HIGH LEVEL OF COMFORT BASED ON OUR REVOLUTIONARY AXE-BOW CONCEPT

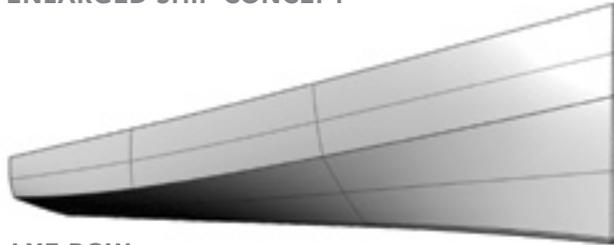




CONVENTIONAL HULL



ENLARGED SHIP CONCEPT



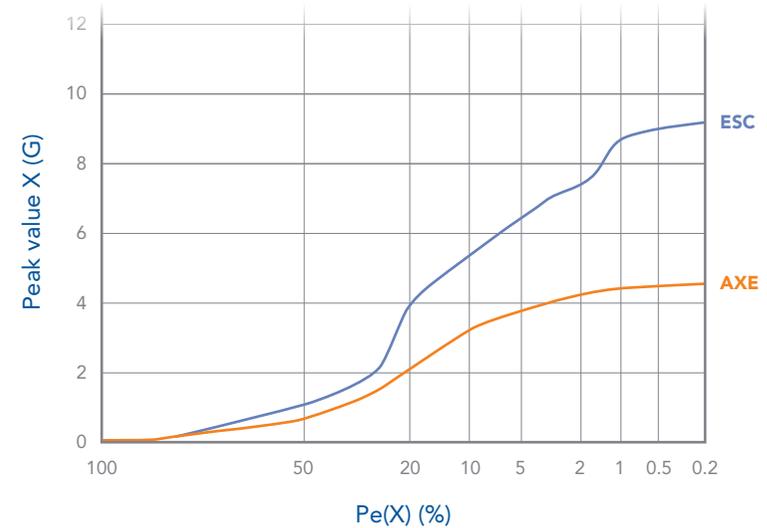
AXE BOW

THE AXE-BOW CONCEPT

Since the 1980s, Damen and Delft University of Technology have cooperated in a research programme aimed at improving the seakeeping characteristics of high speed vessels. This cooperation produced the "Enlarged Ship Concept" on which the highly successful Stan Patrol 4207 and 4708 are based.

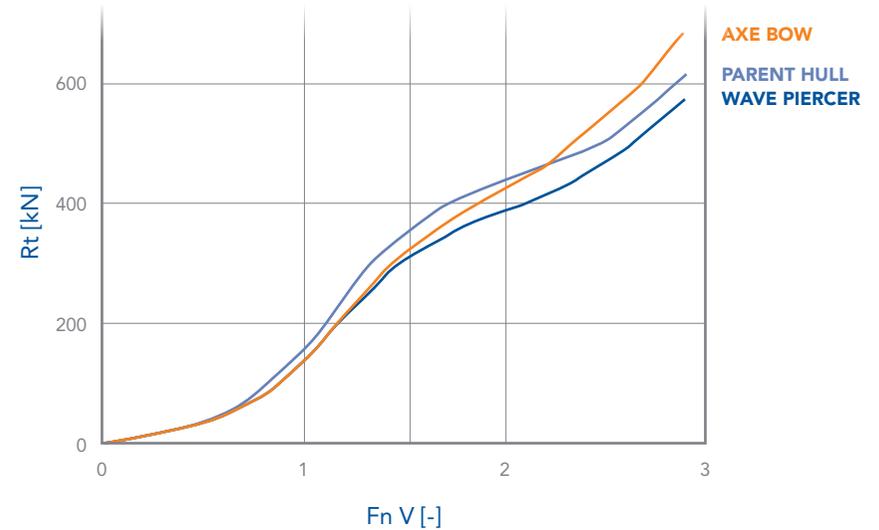
The development of the "Axe Bow Concept" followed, a hull shape with unparalleled seakeeping characteristics: the maximum acceleration ever measured on the bow of an existing Axe-Bow is 1.3 G. Based on this concept, Damen has developed the "Sea Axe" Patrol Boats and Fast Crew Suppliers. Damen has delivered over 150 Axe-Bows since 2006.

NEGATIVE VERTICAL ACCELERATION SEA STATE 5



Peak acceleration of AXE BOW is 50% less compared to the very good Damen Enlarged Ship Concept*

CALM WATER RESISTANCE UP TO 35 KN



AXE BOW shows 5-10% less calm water resistance compared to the Damen Enlarged Ship Concept*

* data from model tests

140 YEARS OF NAVAL EXPERIENCE

Uniquely in the shipbuilding world, Damen specialises in building naval and patrol vessels ranging from 7 m to more than 200 m.

Damen has a rich tradition of naval shipbuilding with our original navy roots stemming back 140 years. More than 120 ships have been delivered.

Damen Shipyards Group is known worldwide for its quality shipbuilding, both in the naval and commercial sector. Damen vessels are entirely fit for purpose, offering unrivalled seakeeping behaviour, speed and reliability.



DAMEN OPVs

FULL RANGE AND SPECIFICATIONS



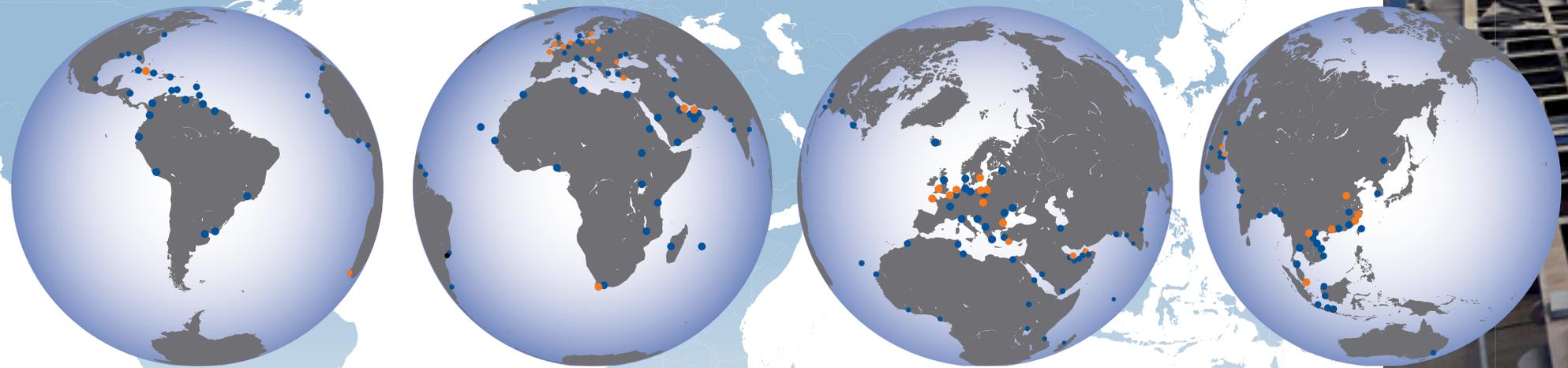
MAIN CHARACTERISTICS	OPV 1400	OPV 1800	OPV 2400	OPV 2600
Displacement (t)	1400	1800	2400	2600
Length o.a. (m)	75	85	95	103
Beam moulded (m)	12,7	13,7	14,4	14,4
Draught (m)	3,8	4	4	4
Speed max. (MSR) (kn)	23	25	26	26
Range (nm)	4000	5000	6000	7000
Endurance (days)	25	30	40	40
Helicopter & UAV hangar	telescopic	telescopic	telescopic	telescopic
Helicopter flight deck & refueling	standard	standard	standard	standard
Helicopter hangar area, LxB (m)	19,2 x 6,0	19,2 x 6,0	19,2 x 6,0	19,2 x 6,0
Helicopter flight deck area, LxB (m)	25,0 x 12,7	25,0 x 13,7	25,0 x 14,4	25,0 x 14,4
Take-off weight max. (t)	6	11	11	11
Multi-Mission Bridge	standard	standard	standard	standard
Multi-Mission Bay	standard	standard	standard	standard
Mission Module Containers (#)	2	3	3	5
Number of RHIBs (#)	2	2	2	2
Length of RHIBs (m)	9	9	9	9
Core Complement capacity (#)	40	60	60	60
Additional in Multi-role comp. (#)	12	36	48	48
Multi-role compartment area (m ²)	130	190	220	320

DAMEN TECHNICAL COOPERATION BUILDING ON SITE

Damen Technical Cooperation enables you to build your Damen vessel locally, anywhere in the world. We provide you with a prefabricated shipbuilding kit and can, on request, combine this with expert assistance, training and backup.

By using standardised components it is possible to make a custom-built design, fulfilling the specific local requirements. This cost-efficient concept can be applied to the full range of Damen vessels for a wide variety of marine operations.

One in five Damen vessels are built on-site by Damen Technical Cooperation. In addition, clients can take the design-only option and have the vessel built by a shipyard of their choice.



● Damen yard
● DTC project





HSEQ

SAFETY, QUALITY AND CORPORATE SOCIAL RESPONSIBILITY



HEALTH & SAFETY

Damen is committed to continuously improving the health, safety and welfare of all people working under Damen Shipyard Group's sphere of influence. Damen is establishing a safety culture that includes the management and internal and external colleagues working together to jointly ensure the safety of all. Employees are encouraged to identify improvement and corrective opportunities and participate in maintaining a safe working environment. And using our Supplier Code of Conduct we advocate best practices at our building locations. At Damen we strive to create an incident-free workplace, everywhere we operate, at all time.



ENVIRONMENT

Damen is committed to ensure continuous improvement of our products and production methods with the objective to reduce our environmental impact. Being aware that the products we make represent the largest impact on our environment, Damen is duly focusing on optimizing its design, and constantly working on environmentally relevant product innovations. In addition, we have taken progressive actions to reduce the environmental impacts of our facilities and bring awareness to our employees in relation to every day's activities.



QUALITY

Quality of our products and services is of paramount importance for the Damen Shipyards Group. Our quality policy is focused on control of our activities as a result of which maximum quality, productivity, flexibility and cost reductions are achieved. Realizing that our customers have to outperform in their operations, Damen is committed to continuously improve its products and services, to meet customers' needs. Damen therefore invests in product, process and organizational development and together with all our employees we are aiming to constantly improve our sustained performance.



DAMEN SHIPYARDS GROUP

Damen Shipyards Group operates 40 ship- and repair yards, employing 8.000 people worldwide. Damen has delivered more than 5.000 vessels in more than 100 countries and delivers approx. 180 vessels annually to customers worldwide. Based on its unique, standardised ship-design concept Damen is able to guarantee consistent quality.

Damen's focus on standardisation, modular construction and keeping vessels in stock leads to short delivery times, low 'total cost of ownership', high resale value and reliable performance. Furthermore, Damen vessels are based on thorough R&D and proven technology.

Damen offers a wide range of products, including: tugs, workboats, naval and patrol vessels, high speed craft, cargo vessels, dredgers, vessels for the offshore industry, ferries, pontoons and super yachts.

For nearly all vessel types Damen offers a broad range of Services, such as maintenance, spare parts delivery, training and transfer of (shipbuilding) know-how. To complete, Damen offers a variety of marine components, especially nozzles, rudders, anchors, anchor chains and steel works.

In addition to ship design and shipbuilding, Damen Shiprepair & Conversion offers a network of 16 repair & conversion yards worldwide, with dry docks ranging up to 420x80 metres. Conversion projects range from adapting vessels to today's requirements and regulations to the complete conversion of large offshore structures. DS&C handles 1,500 repair and maintenance jobs annually.

COLOPHON

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If you have any comments on our brochures, please let us know: info@damen.com



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