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PATRIOT

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Braveheart's multipurpose vessel: the versatile approach to offshore market demands

Javelin International is a subsidiary of Braveheart Marine B.V., which, in turn, provides maritime services to an impressive number of nationally and internationally reputable dredging and offshore companies. Braveheart Marine, like Javelin, has its office in Urk and is specialised in hydrographical studies, crew transfers, offshore wind farm inspections (including use of drones), dive support and sub sea oil spill detection services.

Patriot, a Javelin 25.25, was further developed as an enlarged version of the Javelin 22.22, allowing for an extended stay at sea with more accommodation. Moreover, the layout of the Javelin series can be adapted to the needs of the client, be it alternative crew requirements or additional equipment for a specific scope of work.

With stability, comfort and speed as important parameters, the Javelin concept was first thoroughly tested by the Marin Institute in Wageningen, to further optimise the roll and pitch characteristics of the vessel. Consequently, Javelin 25.25 is suitable for 24/7 operations, commuting between the mainland and offshore working environments past the 200 miles zone, like (oil) platforms, wind farms or dredgers. Inherently, *Patriot* can transport provisions, packages, materials and equipment in challenging sea states with high waves (3 metres), while maintaining a speed of 20 knots. Javelin International facilitated the outfitting, while Baaiman Jachtbouw constructed the aluminium hull of the Vripack designed vessel.

Having an aluminium hull with twin propellers, this vessel is an enlarged and improved Javelin type J22.22. Like the J22.22, type 25.25 features a deep V planing hull, with a double spray rail of which the upper one, near the waterline, has an enlarged surface for added stability at higher speeds.

On 1 September, 2017, Javelin International hosted a celebration, with the naming ceremony of the fourth Javelin-class vessel they delivered to Braveheart Marine. Witnessed by a large audience, the naming ceremony was performed by Mrs. Clara Eschbach, a Braveheart employee from the very beginning. The seaworthy multipurpose vessel, named *Patriot*, is specifically designed to perform hydrographical survey and crew tender activities, for the near-shore and offshore industry.

Straight after the ceremony and sea trials, *Patriot* sailed to Zeebrugge in Belgium to perform hydrographical survey and crew tender activities for Tideway (the offshore energy company of the DEME-group), on the Rentel offshore windfarm near the Belgian coast.

This tender vessel is a type 25.25 Javelin-Class vessel with a deep V planing hull of 25.90

metres in length, and a beam of 7 metres. Boasting a top speed of 25 knots, and a crew of two to four, she has seating in the wheelhouse for up to twelve technical offshore specialists at any one time and an overnight accommodation capacity of ten persons.

Braveheart Marine and Javelin International "Place yourself in the position of the custom-

er" is the straightforward maxim adopted as a standard by the Braveheart/Javelin consortium, and - according to CEO Jelle Hakvoort - this is key to the success of their company. Jelle's experience in near-shore, offshore, and crew tender activities, inspired him to develop a vessel concept in compliance with the requirements of day-to-day use. For this specific purpose, he founded Javelin International B.V.

Based in Urk, in The Netherlands, Javelin International is a maritime company with the combined provisions of an engineering company and a shipyard. As such, they design, develop and build vessels for service providers in the near-shore and offshore industry. Their multi-purpose vessels can be deployed for hydrographical surveys, crew tendering, and patrol duties.

The creation of Javelin 25.25

The Javelin vessels are primarily optimised for gathering hydrographical survey data as accurately as possible. However, the various types or models each have their own additional specialties and range from 7.50 to 25.90 metres. With the development of the J22.22 - *Guardian*, multiple additional operational features were introduced, such as crew tendering, guard/patrol duties and ROV support. With wind farms being built further and further away from the mainland, the demand for a longer stay at sea became obvious. In response to this market demand,

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Patriot features a deep V planing aluminium hull with a double spray rail

The hull has tunnels in way of the propellers. Although Javelin has not applied for certification, the bow structure and plating thickness allow for operations in light ice conditions. The inner hull has been coated with Noxudol, a sound and vibration damping coating. To provide easy maintenance, accessibility and serviceability, the tender is fitted with many access hatches to relatively spacious technical spaces.

A further striking difference between *Guardian* and *Patriot* is the hydraulically powered aluminum rescue platform / staircases, for man overboard recovery, which is integrated into the transom of *Guardian*. In the event of 'man overboard' (this will generally happen near the bow), *Guardian* backs-up and the person is guided to the stern with the aid of a rescue hook, then assisted onto the platform/stairs and rolled on board hydraulically. The aft deck further features a knuckle boom crane and A-frame - for maintenance, provisioning and equipment handling purposes.

Handrails (instead of railings completely to the side of the deck) and a safety traveller system, are fitted to the side of the wheelhouse - all the way around, protruding onto the fore deck and ending near the entrance of the accommodation on the other side. Only around the flush open aft deck are handrails to the side of the deck. This facilitates safe transfer of crew and technicians to other vessels or offshore structures.

One of the eye-catching exterior details is the fendering. The material was carefully considered given the operational requirements of the vessel - the impacts of constantly going alongside larger vessels or offshore structures. The fenders are produced by Fender Innovations of Wieringerwerf, the Netherlands; a specialised company that composes a custom fender for every project/vessel from spheres with four different damping gradations and/or 15 types of foam. They use a technique that combines the resilience and indestructability of hollow pressureless Polymer spheres with the

damping ability and shape restoring characteristics of Polyethylene closed cell foam.

For *Patriot's* bow fender they used a combination of the spheres and foam, using their innovative 'BULL technology inside' system, a strong and energy absorbing combination, ensuring a load absorbing and damping capacity as well as an enhanced technical lifetime. *Patriot's* sides feature 'foam-only' fenders for heavy duty purposes. With the technologies that Fender Innovations uses a weight reduction of over 20 per cent can be achieved, whilst the aesthetics are also carefully considered. The fenders are in one-piece without seams and the top finish shows a light texture which does not leave abrasion marks. Because the fenders are made to measure and purpose, a long service life is guaranteed.

The development of the Javelin 25.25 has also been made possible by the ZZL (Zuid-Zee Lijn) subsidy of around half a million euros, to boost regional employment, which

Javelin facilitated the outfitting, while Baaiman Jachtbouw constructed the Vripack designed hull



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The hull has tunnels in way of the twin propellers



The propeller shafts are driven by two MAN V12 main engines



The bridge has two helmsman's seats and a survey console with a further two seats



Patriot has seating for up to twelve technical offshore specialists

Braveheart Marine, together with the Cluster Urk Maritime and ROC Friese Poort, has received. An important condition for granting the subsidy was that it would be used to stimulate the local maritime industry of Urk and the roll call of local companies involved with *Patriot* confirms this achievement: ESU Electrotechnisch Installatiebureau Urk (Electrical installation), De Flux (carpentry), Schildersbedrijf K.J. Coenen & zn (Paintwork), de Boer Marine (Navigation equipment), Hoekman (installation of engines and generators), ten Napel brandbeveiliging (fire extinguishers), VABO Composites (Composite doors), Verotek (acoustic insulation and noise control) and NG Shipyards (building supervisor) - along with a considerable number of North Dutch companies from the provinces Friesland (like above company Vripack) and Groningen.

Meeting the technical demands

When describing the interior design of *Patriot* from stern to bow, we first encounter the engine room. Having twin propellers, the propeller shafts are driven by two MAN V12 type D2862LE463 main engines

of 1.400HP at 2300rpm each, through ZF reversible v-drive reduction gearboxes type ZF3050. The thrust block, flexible coupling, stern tube seals and driveshaft are Poseidon products. With regard to the main components, the engine room further comprises two Caterpillar 4.4 generator sets of 51 kW: both main engines and the generator sets are delivered by PowerPort of Maassluis in the Netherlands. TryDo SteeringGear of Drachten, the Netherlands, delivered the hydraulic steering gear and bow thrusters. To provide additional redundancy, the rudders have two separate steering systems - each with their own dedicated hydraulic pumps - however, both rudder tillers are connected through a cross bar. This vessel has a system in which a large part of the hot cooling water, produced by the engines, is reused to heat the main deck.

In between the generator sets, the vessel features a Seakeeper 26 anti-roll gyro-stabiliser at centreline. Unlike stabiliser fins, the gyroscope has no (vulnerable) outside appendages and does not rely on the forward speed of the ship to generate a roll stabilizing moment and, therefore, can stabilise even at zero-speed and/or at anchor. Inside the unit's vacuum encapsulation, a flywheel spins at speeds of up to 9,700 rpm. When the boat rolls, the gyro tilts fore and aft, producing a powerful gyroscopic torque to port and starboard that counteracts the boat roll and reduces the ship's motion by 85 per cent. Having no appendages outboard, the water flow along the vessel's hull will be less disturbed. So, by applying this system, Braveheart killed two birds with one stone: an optimally stable 'platform' during measurements (and transport of technicians), plus a laminar flow under the ship that does not disturb the signals and readings of the single or multi-beam.

In the technical space, just forward of the engine room, is where the moon pools are to be found at centreline. The forward



moon pool, with a diameter of 650 millimetres, accommodates Braveheart's survey equipment. The aft moon pool has a slightly larger diameter of 700 millimetres, which can be fitted with other survey equipment at request of the client. A single-beam echo sounder is installed in the centreline cofferdam, in between the forward bottom tanks. The further standard scope of survey equipment consists of a Reson SeaBat T50-R multi-beam echo sounder, a Hydrins iXblue

motion sensor, a multi-constellation dual receiver, an SVP (Sound Velocity Profiler) and a mini SVS (Sound Velocity Sensors) - complemented with the matching survey software.

Interior Design Features

Above main deck, *Patriot* has 12 crew seats, a U-shaped sofa and the bridge/survey area forward. The bridge, with two helmsman's seats, is fitted with all state-of-the-art nautical, navigation, and communication equipment. One 'row' behind the bridge console is the survey console with a further two seats. In the aft of the superstructure are two lockers for wet-gear and a split kitchenette with a sink, coffee machine and further storage space.

Below deck are two toilets, a galley/mess room, a shower/wash basin, two single-berth cabins and four twin-berth cabins. Each cabin is outfitted with a wardrobe and a washbasin. The galley contains basic equipment, like refrigerator, dishwasher, microwave, hot plate and double sink. The mess room to starboard side can accommodate ten persons at a time. Forward of the combined galley/mess, is ample storage for provisions in the cool/freeze and dry storage room.

Royal appreciation

On 29 June 2017, Dutch King Willem-

Alexander and Queen Máxima, visited Urk as part of a regional visit to northern Flevoland. The royal couple spoke with five local maritime entrepreneurs and fishery alderman, Geert Post. Amongst the selected entrepreneurs was Jelle Hakvoort, CEO of Braveheart Marine; with the aid of ship models and photographic material, he explained the activities of Braveheart. In his interview with Maritime Holland magazine, Hakvoort proudly talks about the visit and how he was impressed by the King's profound knowledge. In addition, he was deeply moved by the sympathetic letter he and his crew received from the royal couple when the sister ship, *Guardian*, had an accident, and was stranded on the rocks, just after the royal visit.

Given the flexible approach, the wide range of services offered to the maritime industry and the versatility of the vessels, it's no surprise the hear that *Patriot*, having already performed a number of successful projects in the second half of last year, is already fully booked for the whole of 2018.

Tom Oomkens

Principal particulars	Builder	Javelin International B.V., Urk, The Netherlands
	Owner	Braveheart Marine B.V., Urk, The Netherlands
	Length oa	25.90 m
	Length waterline	23.87 m
	Beam oa	7.00 m
	Beam mld	6.30 m
	Draught half load	1.45 m
	Draught full load	1.63 m
	Speed, maximum	25 kn
	Complement	
Crew, ship's operation	3 persons	
Crew, offshore day	12 persons in seats	
Crew, offshore overnight	8 persons in twin-berth cabins	
	2 persons in single-berth cabins	
Tank capacities		
Fuel oil	25,000 ltr	
Fuel transfer	15,000 ltr	
Fresh water	4,000 ltr	
Lubrication oil	600 ltr	
Dirty lubrication oil	550 ltr	
Sludge	900 ltr	
Grey water	600 ltr	
Class Notations		
Bureau Veritas		
#HULL #MACH - LS (Light Ship) - HSC (High Speed Craft) - Sea Area 3 - Green Passport		



Subcontractors and suppliers of equipment fitted on board the *Patriot*, YN 4
Alphatron Marine, Rotterdam: colorlight searchlight; **Ambtman Marine**, Groningen: watermaker; **Baaiman Jachtbouw**, Espel: construction aluminium hull; **Datema Nautical Safety**, Delfzijl: fire, safety and medical equipment; mooring lines; **De Boer Marine**, Urk: navigation equipment; **De Flux**, Urk: carpentry; **Dromec**, Rheden: winches; **ESU Electroservice Urk**, Urk: electrical installation; **Fender Innovations**, Wieringerwerf: fendering; **Friesland Non-Ferro Metaal**, Leeuwarden: aluminum profiles; **Gerretsen Trading**, Soest: reels; **Heila Cranes Nederland**, Waalwijk: knuckle boom crane; **Hoekman Shipbuilding**, Urk: installation of engines and generators; **iHydraulic**, Veendam: moonpool; **J.B. Isolatie**, Groningen: insulation; **K.J. Coenen**, Urk: paintwork; **NG Shipyards**, Lauwersoog: building supervisor; **Nicoverken**, Schiedam: ICCP (cathodic protection); **Novetec**, Alblasserdam: ventilation technology; **Oosting metaalbewerking**, Leek: machined aluminum parts; **P. Hoenderop**, Ridderkerk: drive shaft and steering equipment; **Powerport**, Maassluis: generators and engines; **Rafa**, Leusden: windows; **Roxtec**, Harderwijk: cable glands; **Seakeeper**, Germany: anti-roll gyro-stabiliser; **SeaVsat**, Urk: satellite navigation; **Snijtech**, Joure: aluminum building kit; **Ten Napel brandbeveiliging**, Urk: fire pro fire extinguishers; **Theunissen Technical Trading**, Malden: *Consilium Marine* fire-detection system; **Thormarine**, Groningen: hatches; **THR Marine**, Groningen: anchor; **ToTec Installatietechniek**, Urk: airconditioning; **TryDo SteeringGear**, Drachten: steering gear, thruster; **VABO Composites**, Emmeloord: composite doors; **Verotek**, Krimpen aan den IJssel: *Noxudal* sound and vibration damping coating; **Vripack**, Sneek: design and naval architecture; **Woonstijle Tjamme Vis**, Groningen: upholstery.

FULLY
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 FOR 2018