

# Maritime HOIC nc

**Special** 

boats



ZWUNDRECHT

the bridge

Barnev Alive Tess



What started out as a project built on speculation was picked up by a client before the yacht made it from the drawing table to the shipyard floor. Over the past decade, Heesen Yachts has been very successful in building and selling various series of yachts.

It started with Lady Ingeborg, the lead vessel in the 37-metre semi-displacement series of which now ten have been built. It was followed by the 44-metre semi-displacement series: all-aluminium 44-metre yachts with a top speed of 25 knots, by the 50-metre semi-displacement series (lead by award-winning Satori), and the 47-metre steel displacement series, which was recently restyled and presented at the 2014 Monaco Yacht Show.

In recent years, Heesen Yachts has built several custom yachts based on a fast displacement

hull type. With a steel or aluminium hull and bulbous bow, but hydrodynamically optimised and powered to deliver a higher top speed, these yachts offer the best of both worlds: the comfort and economic low-speed cruising of the displacement yacht coupled with a higher than standard top speed. A notable example of this was Galactica Star, a 65-metre yacht which gained wide recognition, both for her looks and her efficiency.

In 2011, when Heesen Yachts decided it was time to introduce a new series, it was not

surprising that they decided to create the new vacht based on the fast displacement hull form equipped with Hull Vane: a truly innovative solution that was for the first time to be applied to a luxury yacht. Motor yacht Alive is the first vessel of that series. For this new series, Heesen Yachts worked with their long term partners: Omega Architects for general arrangement and exterior styling and Van Oossanen Naval Architects who devised the innovative naval architecture, further developed and engineered by the Heesen in-house design team.

#### **Exterior Design**

Frank Laupman from Omega Architects was asked to create a contemporary and bold exterior design, which would still be recognisable as bearing the Heesen DNA. A key element in this is the distinctive bow shape: the stem consists of two sections, a

steep and straight upper part and, below the knuckle, a more heeled and curved lower part. It is a very original variation on the plumb bow so much in style these days, and it works well with a bulbous bow, while maximising the interior volume. Other distinctive features in the design which were very much appreciated by the owner are the transparent bulwarks on the upper deck, the panoramic views both from inside and outside, and her general appearance as a 'gentleman's vacht'.

The owners' brief for their new yacht included a transatlantic range, ample guest capacity for family and friends, maximum comfort at sea and vet still a vacht small enough to anchor in a small cove or berth in a picturesque marina. The 42-metre steel-hulled fast displacement yacht proposed by Heesen Yachts checked all the boxes and more.

### Customisation

**NOVEL BOW** SHAPE HERALDS **NEW SERIES** 

## **ALIVE**

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Bold looks and unmatched efficiency characterise Heesen Yachts' first of 42-metre fast displacement series

The owner stepped into the project early

enough to include a number of customisation options, making the yacht truly his own The crew mess was moved to the main deck allowing for an extra double crew cabin on the lower deck, bringing the total number of crew to nine. Instead of the typical skylounge on the upper deck aft, this area is a second master cabin, including a full-beam bedroom, a spacious bathroom, and a gym room. The semi-circular windows toward the upper aft deck have sliding doors, allowing for sleeping with plenty of fresh air.

The other master cabin is traditionally located forward on the main deck, but there too, direct access to the outside has been created: sliding glass doors lead to a balcony on the starboard side. Unlike a fold-out balcony this one offers privacy and can be used at sea. For long crossings where rough weather can be expected, portable aluminium deadlights are provided which separate the entire balcony from the elements. A make-up room at the suite's entrance, a large dressing room and a bathtub in the bathroom complete the high standard of comfort.

On the lower deck another four double guest cabins are located, bringing the total guest capacity to twelve without resorting to less comfortable options such as Pullman



Instead of a skylounge, the upper aft deck houses a superb second master cabin

beds. The cabins on the aft have a dressing room giving access to their bathrooms, while the forward cabins have a connecting door in the centreline division, ideal for a family with small kids.

The interior design was also entrusted to Omega Architects. *Alive*'s interior style can be described as contemporary classic, instantly creating a feeling of being at home. Laupman: "Each of the cabins is decorated to an individual theme, such as 'Japanese', 'English', 'Contemporary' and 'Underwater'. The owner specified Pantone Warm Grey as the hull colour, which also comes back in the Spinneyback leather used in the atrium and owner's cabin." The interior is less radical than her progressive exterior looks. But what is really ground-breaking about motor yacht *Alive* is actually situated below the waterline.

#### Naval architecture

Perry van Oossanen: "The fast displacement hull form, FDHF, was developed by optimising the classic full-bodied displacement hull for a higher top speed. Using CFD we found out that the bulbous bow can be very effective at higher speed-to-length ratios than previously thought. The FDHF has four basic ingredients, which are all matched together to achieve the best performance overall: a round-bilge hull, a bulbous bow, a sprayrail and a trim-control device, usually an interceptor or trim wedges. The optimal hull shape is achieved with a fully automated optimisation routine, featuring the Friendship Framework as a parametric modeller in combination with the fully viscous RANSE solver ISIS-CFD from Fine/Marine."

#### Hull Vane

On motor yacht *Alive*, the FDHF concept was paired with another Van Oossanen innovation: the Hull Vane. This is a hydrofoil-type wing fixed below the swim platform which not only replaced the standard trim-control device of the FDHF, but also produces a forward-angled lift force out of the upward flow under the aft ship. Due to the fact that the resultant of lift and drag on the foil is angled forward, it has a horizontal

'FAST DISPLACEMENT' FOR BEST OF BOTH WORLDS component which actually pushes the boat forward. In addition, an area of low pressure is created above the wing, which reduces the stern wave of the yacht, and therefore its wavemaking resistance.

On *Alive*, the Hull Vane reduces by about 20 per cent the power needed to achieve any speed above twelve knots. With her pair of 1,080 kW MTU main engines, coupled to ZF 3350 gearboxes, she achieves a top speed of 16.4 knots. Without Hull Vane, this speed could only have been achieved by installing a lot of extra propulsion power, a costly and space-consuming option. The yacht's range at twelve knots is 4,000 miles, which would have been 3,250 miles without Hull Vane. Manoeuvrability is ensured by a hydraulic ZF bowthruster type HRP1001 of 80 kW.

#### **Experience at sea**

Motor yacht *Alive's* captain about the Hull Vane: "The Hull Vane is integrated into the construction, so we haven't tested the boat without it. That makes it difficult to give an impression about it. During the maiden trip, we encountered some bad weather in the Mediterranean Sea, with winds of Force 7-8. I recalled Perry van Oossanen saying that



The classic interior creates a feeling of being at home

the effect of the Hull Vane increases with the speed, so I increased the speed from ten to 14 knots, and we noticed an immediate effect on the boat: a lot less pitching and a reduced slamming frequency. The higher speed was actually a lot more comfortable. Other than that, you don't really notice the Hull Vane. You can see it from the dock, but not from onboard. There is no noise or vibrations coming from it. Because we have a large rotating stern door, the Hull Vane could be mounted below the swim platform and it doesn't protrude behind the stern."

#### Outfit

The man-overboard-boat is situated under a hatch in the dodger, forward of the

The Hull Vane increases the range by 20% by generating forward thrust and reducing the stern wave

wheelhouse. It is launched with a crane which is also completely invisible when not in use. The tender garage in the stern houses a 6.5 metre tender, a waverider, a standup Jet Ski, two Seabobs and two stand-up paddle boards. The diving gear consists of a compressor and four complete sets. There is a floating 'swimming pool' which can be attached to the stern: the netting which forms the walls and bottom protect swimmers from jelly fish or other sea creatures, and the inflatable collar is very practical to sunbathe, walk or as a mooring place for the tenders and Jet Skis.

For internet access while sailing offshore, Alive has both a V-Sat satellite connection





Due to the arched bimini supports, the sundeck sports excellent 360-degree views

for everyday use and a Fleetbroadband 500 connection as a back-up and for those areas where V-Sat has no coverage. A Globesurfer router connects the yacht through the 4G mobile network whenever she is in port or near the shore. Motor yacht *Alive* is normally operated by a crew of eight: captain, first officer, chief engineer, two stewardesses, a bosun, a deckhand and a chef.

Due to the open support structure for the bimini, the sundeck offers excellent 360-degree views. A removable free-standing shower is placed on a drainage grid on the portside aft. A dining table on starboard is served from the bar on portside. The dumbwaiter from the galley does not go

The shape of the bulbous bow was optimised using CFD software



all the way up to the sundeck, but it has a station in the pantry near the wheelhouse. The crew can access the sundeck from this pantry, while the guest access is through the exterior stairs on the aft deck.

#### Heesen Yachts

The shipyard based in Oss has survived the crisis well. It has done this by for example building several full-custom projects, while a few years ago, preference was given to semi-custom series because of the shorter build time, predictable costs and absence of start-up problems. The shipyard still believes in the excellent value proposition of a semi-custom yacht, where naval architecture and engineering are fixed, but the interior design is completely up to the owner. With motor yacht *Alive*, it is quite likely that they have created a new semi-custom series which may become as successful as the 3700 or the 4400 series.

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Bruno Bouckaert

S	E H	Builder Heesen Yachts, Oss, the Netherlands			
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partic		ength o.a. Beam o.a. Draught (loaded) Gross tonnage Displacement (ha	) alf load)	42.40 m 8.90 m 4.40 m 450 GT 354 t	
rincipal	P N F C	Main engines 2 Max. speed Range at 12 knot Generators	x MTU 12V - 1,080 k 1 :s 2 2 x 80 kW	2000M72 okW each 6.4 knots 4,000 NM / Kilo-Pak	
<u> </u>	F F	uel tanks Fresh water tank	S	50 m <sup>3</sup> 12 m <sup>3</sup>	



Exhaust dampers ensure quiet running











#### Subcontractors and suppliers of equipment fitted on board the Alive, YN 417042

ABS, Rotterdam: classification society; AkzoNobel, Amsterdam: Awlgrip paint; Drumarkon, Schelluinen: lightweight ship interior, material and panels; Espen Oino International, Monaco: exterior styling; GEA Westfalia Separator Nederland, Cuijk: separator; H.E.M., Antibes, France: HEM watermakers; Hamann AG, Germany: sewage treatment plant; Heinen & Hopman Engineering, Bunschoten: air-conditioning, heating, ventilation and sanitary system; Hull Vane, Wageningen: Hull Vane fuel saving device; Hydromar Marine Equipment, Berlikum: passerelle; Imtech Marine Netherlands, Rotterdam: navigation and communication system, pc network; Jets™, Hareid, Norway: vacuum toilet system; MTU Benelux, Dordrecht: main engines; Naiad Dynamics, Hampshire, United Kingdom: zero-speed stabilizers; Northrop Grumman Sperry Marine, Vlaardingen: steering system; NPS Diesel, Ravestein: diesel generator; Omega Architects, Druten: exterior design, interior design; Rolls-Royce Marine Benelux, Rotterdam: booster jet, control system; Schaffran Propeller, Lübeck, Germany: NiBrAI propellers; Sinnex Interior; Den Haag: interior; Staalart, Blokzijl: capstans, windlasses; Sterling SIHI Netherlands, Beverwijk: pumps; Van Oossanen Naval Architects, Wageningen: naval architecture; Wolfson Unit, Southampton, United Kingdom: model testing; ZF Marine Krimpen and te Lek: gearboxes, ZF hydraulic bow thruster.