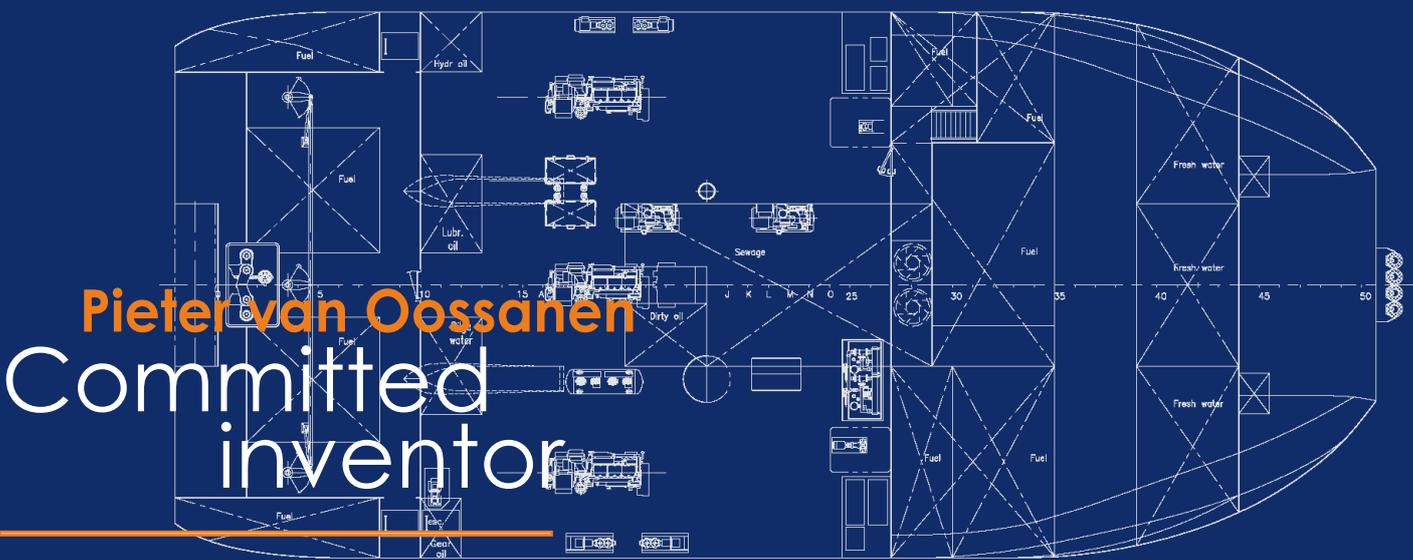


Maritime Holland

Special
Workboats



Pieter van Oossanen
Committed
inventor

Changing
the bridge

Barney
Alive
Tess



Pieter van Oossanen

Committed inventor with a passion for technology

Although he reached the retirement age some time ago, and the management has been taken over, dr. Ir. Pieter van Oossanen is still committed to the company he founded 23 years ago and cannot resist looking over the shoulders of the company's employees: "I come to the office three afternoons per week, make a round and ask what everyone is up to. I can still contribute to the projects being carried out."

After graduating from Delft University of Technology Van Oossanen started working at MARIN (Maritime Research Institute Netherlands) in 1969, where he also obtained his PhD. Van Oossanen: "The professor I worked with, was also the director of MARIN and he asked me to come to Wageningen where MARIN is located. Actually, it was not my intention, as I wanted a career more involved in designing boats and ships.

After 20 years I decided to start my own maritime design office, Van Oossanen & Associates, later changed into Van Oossanen Naval Architects. As I had a huge network, I thought I would be fine on my own, but my contacts were of the opinion that a single designer posed too big a risk and therefore I had to build a complete new network of potential clients. Initially, I received requests for consulting-type work, but in 1996 I received my first design contract, consisting of a design brief for a series of three 16.5 metre Lemsteraken (traditional Frisian sailing vessels, ed.) for private owners."

Van Oossanen has a reputation for being a specialist in designing sailing yachts. He was responsible for the research involving sailing yachts at MARIN. In that role he became the key player in the work for the sailing yacht which won the Americas Cup in 1983 for Australia, the first time after 130 years that another country than the United States of America won that event. Van Oossanen: "As a result, MARIN was overflowed with requests for research for sailing vessel projects and that reputation stayed with me when I left. After 1996 we designed many sailing yachts and later also many motor yachts, sloops, and diverse craft such as rescue boats for passenger ships, and river passenger ships." In 2000, his son Perry joined him in the company, specialising in hydrodynamics and performance-optimisation of (large) motor yachts. Perry, together with Niels Moerke, a specialist in the design of small craft and in the application of Computational Fluid Dynamics (CFD), who joined the company full time in 2005, took over the daily management in 2013.

Different way of management

"Perry and Niels manage the company differently to how I used to run the company. Acquisition activities are high on their agenda, which is currently very necessary.



Name:

Pieter van Oossanen

Date and place of birth:

20 June 1943, Haarlem, the Netherlands

Family:

Married, one son and one daughter

Leisure time:

Hiking in the mountains, writing my book about the theory and practise of naval architecture

Education:

1964 - 1970 Naval Architecture, Delft University of Technology, the Netherlands

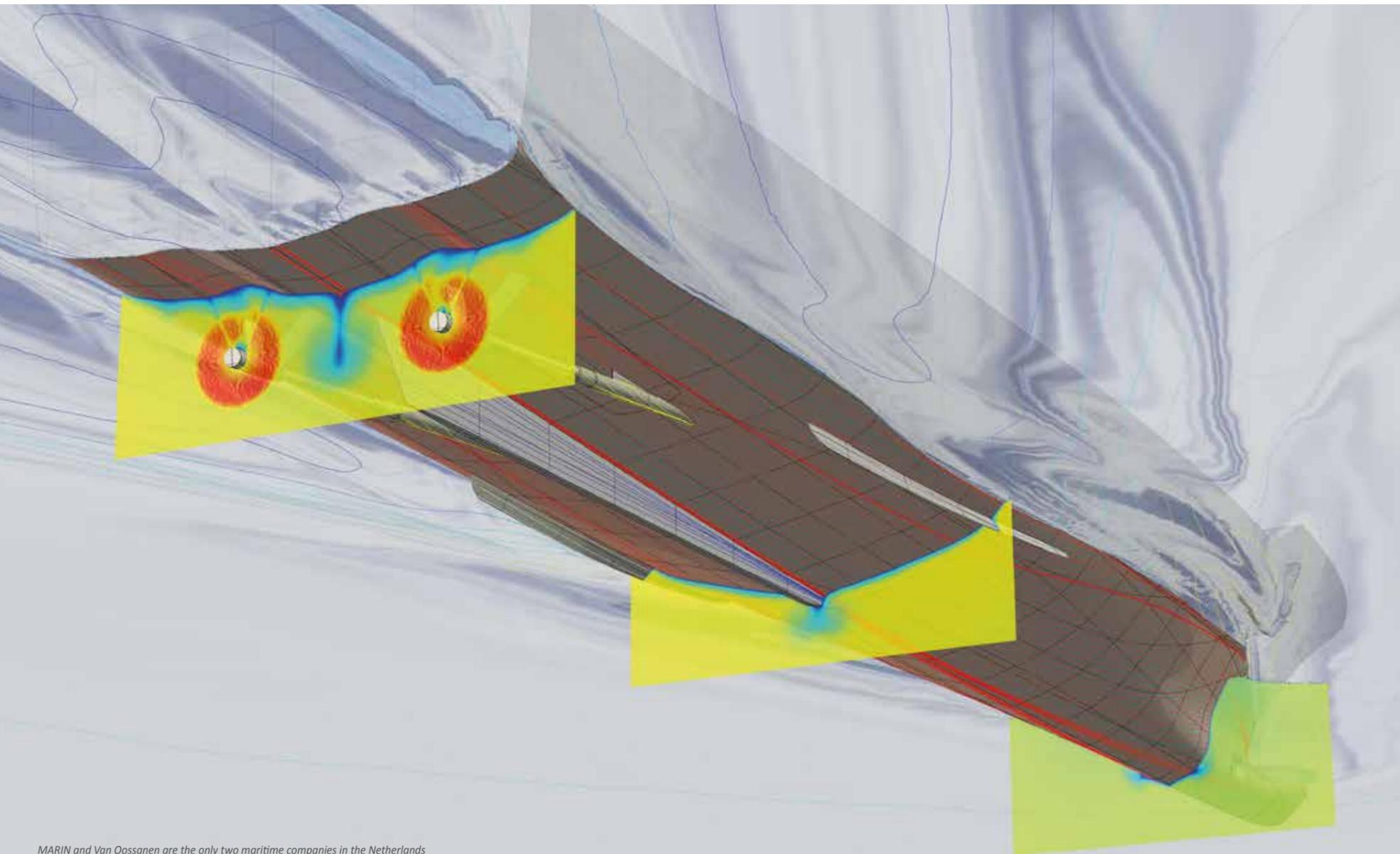
Professional experience:

1991 - Present Managing Director, Van Oossanen Naval Architects, Wageningen, the Netherlands
1969 - 1990 Senior Scientist, Maritime Research Institute Netherlands (MARIN), Wageningen, the Netherlands

Additional tasks

- Fellow Royal Institution of Naval Architects
- Life Member of the Society of Naval Architects and Marine Engineers
- Member Netherlands Society of Yacht Designers and Naval Architects (in Dutch: Nederlandse Bond van Jacht Architecten)
- Member Nederlandse Vereniging van Technici op Scheepvaartgebied (KNVTS)

P a s s p o r t



The competition is fierce, especially in the Netherlands, and the prices are under pressure. We now need to spend about three times more time on acquisition and associated work, as everyone is shopping around more. I am more technology-oriented, as technology is my true passion. Acquisition was a necessary 'evil' for me, with the result that when we had achieved our target for any one year, it was good enough for me, I then concentrated on the execution of our projects. I am very committed to my work. Recently a marketing and PR professional was hired, something I would never have done, but I have to say, I am happy about it, as it is necessary in the current market. For me, the preparation of a good technical quotation is sufficient. I don't become involved with marketing and PR activities very much, although I do acknowledge that it is important nowadays, as times are changing."

Currently 15 people work at Van Oossanen Naval Architects, mainly young naval architects and hydrodynamicists. "We like to hire graduating students to see what they can do, what kind of personality they have. If we feel they fit in our team, we offer them a job. Our team is very international, we had until recently employees from Switzerland,

HIGH QUALITY COMBINED WITH DESIGN AND TECHNOLOGY

Australia and France. Currently we have two Italian women in our team which is good for them and for us - we talk English most of the time anyway. We are presently awaiting the outcome of three substantial naval architecture quotations. If we were to obtain those contracts, we might have to look for more employees."

Up until now, Van Oossanen Naval Architects has created about 105 complete designs, of which only a few have not been built. On average, they carry out about five big sailing or motor yacht projects per year, resulting in 60 per cent of the annual turnover, the other 40 per cent being the result of consulting activities, mainly solving problems for other design- and build companies. The company specialises in CFD. Van Oossanen explains: "Many projects require model testing, but CFD has become accurate enough to replace model testing - thereby saving considerable cost. MARIN and Van Oossanen are the only two maritime companies in the Netherlands

using this advanced software on a daily basis for all of their projects and technical questions."

Mixed client base

Van Oossanen Naval Architects' client base is an international mix. Van Oossanen: "When the economy goes well, half of the customers are private persons. The past six, seven years the contracts for vessels with a length less than 24 metres have diminished and now only a third of our projects are for private persons, with the remaining two thirds being for shipyards. The nationality of our clients ranges from Russians, Americans, French, British or Middle-Eastern, and hardly any Dutchmen, as most of our clients are billionaires. We cherish our private customers, as they nearly always return for a new design. They often use their vessel for four or five years, which requires that after two or three years, they need to start thinking about a new design. I once received an urgent call from a captain, asking me to come over immediately as he had a huge problem. It turned out that his boss had recently divorced and his new lady-friend had insisted on having two nannies on board for the children instead of one, which meant that there were not enough cabins, and therefore he needed a new yacht."

When asked about recent projects, Van Oossanen says: "We do the naval architecture for all yachts built by Heesen Yachts, based in Oss. We also do the naval architecture for projects involving significant modifications of existing vessels. A recent example is the lengthening of the 44-metre *Seven Sins*, built by Heesen Yachts in 2005. The owner wanted to lengthen his yacht by three metres in the bow region. Usually, a yacht is lengthened in the stern, or amidships. It was a challenging project, also because it is a charter yacht, so it could not be in the dock for too long. It was decided to make a prefab new bow section. We prepared all of the required drawings and 3D models. Balk Shipyard was given the contract to do the actual work and we only heard once that something was a little bit off. In the end, *Seven Sins* received a brand new bow section which comprised part of the crew accommodation area."

Another project that Van Oossanen Naval Architects recently received involves a 75-metre hull that was bought by a client who wants it to be outfitted in the Netherlands. However, according to Van Oossanen, he has some specific requests requiring major surgery. "It is a big, challenging project, which means a lot has to be done."

Fast displacement hull form

"Our most successful project has been the 65-metre *Galactica Star*, the first motor yacht with a fast displacement hull form", Van Oossanen continues. This yacht has received several awards, including Prix du Design from HSH Prince Albert II of Monaco, the Nautilus award from Yacht Design Magazine, the World Superyachts Awards the best semi-displacement yacht longer than 50 metres, and the Asia Boating Award Best Design of the Year. Heesen sold a second lengthened version of this yacht, referred to as Project Kometa, at 70 metres overall the largest Heesen yacht being built so far, to be launched in the Spring of 2016. Negotiations with a third customer are underway.

The fast displacement hull form (FDHF) is a Van Oossanen-invention. "We were often



Heesen's motor yacht *Alive* is equipped with Van Oossanen's invention Hull Vane

confronted with the dilemma of having to design a hull form for both moderate and high speeds: some clients want to sail very fast and some just want to sail at more moderate speeds. With a traditional displacement hull it is not efficient to run very fast, and with a hard-chine planing hull - designed to run fast - it is not efficient to operate at moderate speeds. For a yard building semi-custom series this requires two different hull forms for the one and the same length and internal space, when offering different engine powers and speeds. This is less cost-effective than when the one and the same hull is suitable for all speeds. About seven years ago, Perry made it his mission to solve this problem. He carried out significant research and, with the use of our CFD software, was able to develop a hull form that is efficient over the entire speed range."

The FDHF is applicable to all vessels and out-performs conventional displacement and semi-displacement type hull forms at all speeds up to full planing speeds. At semi-displacement speeds, the resistance values displayed by the FDHF are typically 15 to 20 per cent better than those of well-designed hard chine hull forms. Comparison of model test results for the FDHF with those of numerous hard chine models show that only at fully planing speeds will a very well-designed hard chine hull be more

efficient than the FDHF. Other benefits include improved sea keeping behaviour and manoeuvrability, as well as a lower sensitivity to an increase in displacement. "Heesen was very enthusiastic about the FDHF when we offered this concept to them first. They were quick to nominate the *Galactica Star* project for this hull form and provided the required finance to carry out extensive model tests to ensure that our homework was correct. The vessel achieved 29.2 knots during ship trials, exactly as predicted."

Hull Vane

Another successful invention by Van Oossanen is that of the Hull Vane. Conceived by Van Oossanen sr, the Hull Vane is a fuel saving device in the form of a fixed foil, located below the stern of a ship. It influences the stern wave pattern and creates hydrodynamic lift, which is partially oriented forward, resulting in a reduction in the ship's resistance. The performance of the Hull Vane depends on the ship's length, speed and hull shape in the aft sections, and ranges from five to 15 per cent for suitable ships and, in specific cases, savings up to 20 per cent are possible.

Van Oossanen explains the development: "I became a specialist in designing wings for maritime application in 1981-1982 during the design project for the Australian yacht

Galactica Star, the first motor yacht with a fast displacement hull form and Van Oossanen's most successful project to date





Van Oossanen's Hull Vane came second in the 'Vernufteling 2015'. From left to right: presenter Ed Nijpels, winner Pieter van de Paen of Nelissen Ingenieursbureau, judge Marc Zegveld of IBM and runner-up Pieter van Oossanen

that won the America's Cup in 1983. The winglets attached to the yacht's keel - an idea put forward by Joop Sloof of the National Aerospace Laboratory in Amsterdam - were researched and refined by myself at MARIN. This gave the yacht less resistance, more stability, and greater speed. Later, I developed a similar type of keel for Conyplex and many cruising yachts with a shallow draft that wanted good performance when sailing to windward. For a similar project for an 18-metre sailing yacht in 1991, I was requested to also improve the performance of the rudder. When testing winglets attached to the rudder I found that when these were placed high up on the rudder, below the hull, the resistance of the hull was considerably reduced in a specific speed range. The reduction of the resistance was great, but in the end we did not use it. The idea of applying this concept was put aside for many years until I started work for a French America's Cup team in 2000. Their yacht needed to have something special to be able to win the Cup with the small budget they had. I proposed testing a small wing below the hull and these tests again showed a reduction in resistance. This convinced me of the commercial importance of the device and I decided to patent the concept in 2002. Many people I discussed this concept with in those days did not believe in my idea, but after the results of more detailed tests became available in 2004, for a merchant ship project, most sceptics were convinced. We had by then obtained a trade mark on the words 'Hull Vane' which aptly describe the concept."

He continues: "We did several projects with companies such as Wagenborg and IHC between 2004 and 2009, but there were many obstacles to overcome. Then

Perry suggested to apply the Hull Vane to a motor yacht, so we told Heesen about our invention and they reacted enthusiastically. At that time they were in the process of building the yacht Alive (see the complete vessel review on page 52 of this magazine, ed.) and, at their request, performed extensive tests with the Hull Vane in the towing tank for this yacht, with very good results. Currently the build of another Heesen yacht with a Hull Vane is being prepared. Also two of six supply vessels, built by shipyard De Hoop, have been equipped with a Hull Vane, with the other four awaiting installation. We have taken this up very seriously, investing a lot in the commercialisation of the Hull Vane. We expect to see some profit from this investment soon." Van Oossanen Naval Architects and Hull Vane came second in the 'Vernufteling 2015', a yearly award for a consultancy or engineering company with the most innovative project. This prize is awarded during the 'Day of the Engineer', organised by the Royal Netherlands Society of Engineers KIVI.

Three main trends

When asked about the trends in yacht design, Van Oossanen identifies three things: sustainability, new innovative designs, and more comfort and space on board. "I notice that yacht owners focus more and more on sustainability, but only to show to the outside world that they care. They usually don't mind if they have to pay more or less for fuel. In addition, we recognise that yacht design has become more daring and innovative, sometimes at the request of clients

who want to distinguish themselves more. Another trend I see is that the owners now want to use the stern area of their vessel totally for recreational purposes, which means that the tenders and toys usually housed in that region have to be relocated elsewhere, and that the engine room needs to be located further forward. Being naval architects we sometimes need to make the impossible possible to meet the wishes of our clients."

What will the future hold for Van Oossanen Naval Architects? "Perry and Niels are full of ideas. CFD is becoming so important to everyone that we are playing with the idea of offering a kind of CFD subscription service to companies by means of a service contract. We are also trying harder to become more involved in the commercial shipping industry, since we believe that with our hydrodynamic expertise and CFD knowledge we can contribute in improving merchant ship hull forms and propulsion arrangements. We have always done well in the past, as we have betted on several horses thereby spreading risks. The company is divided into departments: the superyachts, managed by Perry, the small yachts up to 24 metres, managed by Niels, and the consulting and CFD services, also Niels's responsibility. When one part of the company has difficulty in maintaining a steady income, another is usually able to compensate. For that reason we have always been able to maintain a stable work force, never having to dismiss anyone, and we have to be thankful to our clients for the projects and the challenges they provide. The Netherlands excels in high quality in combination with design and technology, it is in our genes."

Gail van den Hanenberg

MORE DARING
&
INNOVATIVE

