

# Made in Holland

## Next generation chase vessels

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The seismic industry is momentarily closely watching the Netherlands. Engineering company Saltwater Engineering, shipping company Rederij Groen and shipbuilder Maaskant Shipyards Stellendam are currently working on a next generation of chase vessels, which are used in the seismic industry, and it is said that this new concept might become the worldwide standard.

Family-owned Rederij Groen, originally active in sport fishing and chartering boats for fishing trips, is one of the leading players in the world of offshore, guard and seismic support services since the 1980s. The company owns a fleet of 22 vessels and also has 41 charter vessels to be deployed worldwide. As a part of the fleet consists of aged converted fishing vessels and clients demand younger ships with special requirements, for example two propellers and a certain bollard pull, Rederij Groen was looking for a new concept for two chase vessels. This type of vessels accompanies seismic research ships and intercepts approaching ships that risk damaging the cables that the mother ship hauls to research the ocean floor, for example to look for oil and gas. Also, chase vessels make sure there are no obstacles in the water, like lost containers or fish nets, that could obstruct the research vessel. When Rederij Groen started in this industry, there were no specific ships yet, so fishing ships were converted to do this work. Fishing vessels are very suitable for the job, as

they can sail slowly and are very comfortable for the crew. Saltwater Engineering came in contact with Rederij Groen in 2010 and did a few projects for them. Then they heard about the new chase vessels and offered to think along.

### The concept

Saltwater Engineering started in 2006 and has 12 employees. Financial manager Mike Stelzer: "We would like to grow to 15 people, but definitely not more. Being a small organisation has the big advantage that you can be very flexible. Our strength is that we chose not to specialise; if something floats, we dare to design it." The engineering company started with the concept for Rederij Groen: "With the demands and wishes of Rederij Groen and their client in mind, we researched the seagoing behaviour and the specifics to make sure the vessel would be as comfortable for the crew as possible and made a general arrangement. Critical items to take into account were a large freeboard, an open work deck, accommodation cabins on



## "Close cooperation is key"

the main deck and above, easy access to the workshops and stores and a large bridge for clear views over both foreship and aftdeck", says Sander Broekmeulen, operational manager at Saltwater Engineering. "We wanted to create something special and unique. The smallest offshore vessels are 50 to 55 metres, which is too big and too expensive for the seismic industry. Our vessels will have an overall length of 40 metres." Astrid Westinga, project manager, adds: "Moreover, offshore vessels don't have the comfort for the crew and the esthetics of a vessel as main priorities, whereas these two issues are very important to Rederij Groen. Considering the fact that the vessels have to operate for long



*Astra-G and Aquarius-G are built parallel to each other*

periods in possible adverse weather conditions, comfortable lines needed to be developed. The operating speed of the vessel during seismic

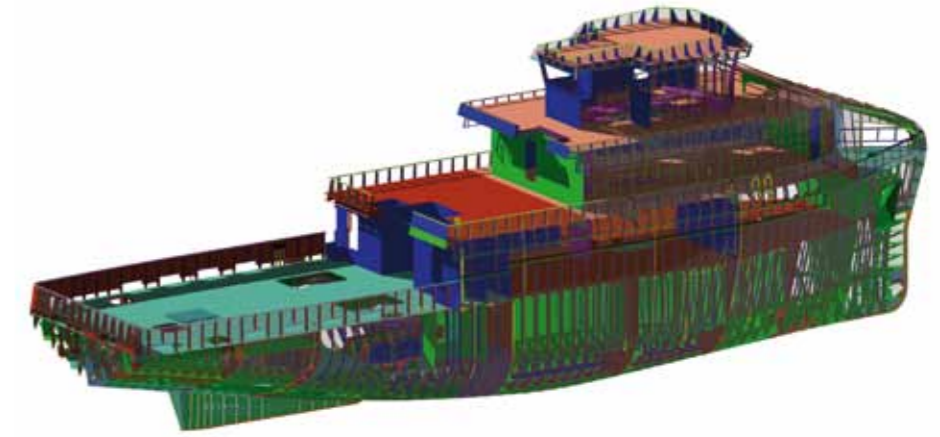
chase operations is mainly about four to five knots resulting in possible wave slamming and pitching of the vessel. These factors played an important role while developing the final lines plan for the vessel. Propelled by two Caterpillar 970 kW engines, the maximum speed is 14 knots, as the vessel needs to be able to be on location as fast as possible. The vessels have refrigerated and dry storage capability as well as space on deck for the stowage of several containers. When we presented our design to the shipping company, they were excited about our reasoning behind the concept: it is not a standard offshore vessel, but includes links to fishery and special attention is given to comfort." Saltwater Engineering worked for the design with CFD (Computational fluid dynamics) calculations and 3D Engineering according to the latest standards. Broekmeulen: "This means we could show Rederij Groen very detailed and lifelike drawings. This always works better than flat drawings, as the client can imagine the ship a lot better. Next to that it enables us to create our own promotional materials."

### Close cooperation

After awarding Saltwater Engineering the

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contract for the general design, Rederij Groen, together with the engineering company started the tender process for the shipyard, which was won by Maaskant Shipyards Stellendam. This shipyard's history goes back to 1948, when the company was active in repairs of fishing vessels, mainly from Bruinisse. The yard evolved into a shipbuilder for various types of (fishing) vessels and was taken over by Damen Shipyards Group in 1984. The contract between Rederij Groen and Maaskant Shipyards Stellendam was signed on 10 November 2011 during Europort. Frits van Dongen, the shipyard's managing director, comments: "We have had a relationship with Rederij Groen for over ten years. We do repair and maintenance work for their existing fleet and converted some of their fishery vessels, that were also built at our yard. They know the quality of our work and our vessels and that they can rely on us regarding delivery times. That is probably why they chose to award the contract to us." Together with the shipyard, Saltwater Engineering did the detail engineering and also during the building process, all three parties work closely together. Van Dongen: "The cooperation is excellent, it is clear that every party enjoys this collaboration. We have a round table discussion every two to three weeks, where we talk about the progress and listen to each other's input. As a shipyard, we are very flexible to meet all needs and wishes, but of course all parties try to fulfill all demands and wishes in the most optimal way." This close collaboration is key, as all three parties agree. Stelzer: "It is about a personal connection, that is ever important." Broekmeulen adds: "We



*3D model of the structural steel items of the new generation chase vessels*

form a trinity and that should be maintained. We have short lines of communication and have built a strong base, also for future projects. All three of us go that extra mile, it is more than just doing a project to earn money, it is investing in a long-term relationship."

### Features

The two chase vessels have an EP (environmental passport) notation. They support the reduction and prevention of environmental impacts by improving maritime environmental protection on a voluntarily basis, meaning that for example environmentally friendly materials are used

during the build, and emissions are reduced. The vessels can accommodate 16 people, eleven passengers and five crew. The reason for this is to create the possibility to use the vessels for crew changes. The ship had to stay below 500 GT, since exceeding this limit has several large implications on the required regulations for the vessel. Westinga: "To achieve this, we had to take many things into consideration. For example, the funnels are made smaller at the top and we shaved some volume away where possible, which resulted in a vessel of 499.5 GT." Another interesting feature is the Ice Class 1E notation. Westinga: "To be able to sail in ice gives the vessel added value. Chase vessels are forerunners in market; for example, if oil and gas drilling is to start in the Arctic, chase vessels have already been there to help the seismic vessels with their surveys. I expect the demand for seismic research in extreme regions, like the Arctic, to rise in the near future and therefore, an ice class notation is important."

The two vessels, to be named *Astra-G* and *Aquarius-G*, are being built parallel to each other. The cascos are built at shipyard Crist in Poland, as Maaskant Shipyards Stellendam never builds cascos themselves, but have good experiences with Polish built cascos for over 40 years. The first vessel was launched on 9 October and was towed to Maaskant Shipyards Stellendam afterwards. The second vessel will be launched mid-November and will be in the Netherlands a few weeks after that. Delivery of the two vessels is planned for March and April 2013, which will be the cherry on the cake of the good cooperation of the three Dutch companies, who managed to accomplish the realisation of the next generation chase vessels.

Gail van den Hanenberg

*FEM analysis of the crane pedestal integration into the vessel's structure*

