

ROSE DE CASCIA

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Photo by Flying Focus

First of three innovative fly shooters for North of France

One could easily think that having won the 'Ship of the Year award 2017' for the innovative fishing vessel *MDV-1*, together with shipyard Hoekman from Urk, seems to have paid dividend for shipyard Padmos from Stellendam. The yard is constructing a series of three fishing vessels for a French client which bear a strong resemblance to *MDV-1*, even though they are a size smaller. But the foundations for this order have been laid much earlier.

Refits

It started about a decade ago with a complete refit of seven French trawlers for a fishing company based in Concarneau (South Brittany, France). These were stripped to the steel and

completely rebuilt. Word of mouth did the rest, because since then, the French flag was often seen on hanging over the stern of the ships frequenting the Stellendam-based shipyard for maintenance work. At the time of our visit to

the shipyard, no less than five French fishing vessels were in for repairs.

International tender

When a joint venture called 'Scopale', consisting of a several ship owners, French supermarket giant Intermarché and other investors, put out a tender for three new vessels in 2015, they approached seven French shipyards, one Spanish shipyard and one Dutch shipyard. The Dutch shipyard, Padmos, cooperated with French shipyard Manche Industrie Marine, and submitted an offer to build the hulls in Dieppe (France) and complete them in Stellendam. They won the

tender due to the technical choices made: the propeller, powering, energy consumption. In addition, the shipyard's experience with fly shooters played a role. The first vessel was completed in July 2017, and the other two will follow in October and December.

Fly shooter

The *Rose de Cascia* and her sister vessels are specifically developed for the flyshooting fishing method, also called Danish Seine fishing or Snurrevaed. This method has gained in popularity as it is a lot more fuel-efficient than bottom trawling, whereby a heavy net is dragged over the seabed. Flyshooting is done by laying a heavy cable on the bottom in the shape of a diamond (like the figure of playing cards). At one point of the diamond, the fishing net is deposited, while at the opposite tip both cables converge, into the vessel. When all is laid neatly on the bottom, the vessel starts sailing forward and hauls in both cables. The cables are pulled on the bottom towards the center of the diamond,

and in doing so, they stir up the sand, creating cloudy water. This forces the bottom fish - such as squid and red mullet - to swim towards the center of the diamond, where they are scooped up by the fishing net, which by that time is being hauled in fast with the ship's two large hydraulic winches. Contrary to conventional trawling, where the fish can be in the nets for as much as two hours, the fish are only 15 minutes in the net with the flyshooter method.

Big advantages are also that smaller vessels are needed, with less installed power, and that the fuel consumption per ton of catch is a lot less. The cables also cause a lot less harm to the seabed than other trawling nets. As it relies on the fish swimming towards the net, the method is also more selective, leading to less undersized fish and other unwanted by-catch.

By the time the cables are hauled in entirely and the net has reached the transom, it is lifted from a derrick on the A-frame and the contents are dumped into a stainless steel box on the aft deck. From there, the catch goes by gravity onto a conveyor belt which leads to the sorting station, forward on starboard side. The fish hold has a HCCP-compliant capacity of 88 cubic metres, which is exceptionally large for a 19-metre vessel.

THREE MODES OF FISHING



The hull was built in Dieppe, France



A jumper winch can be used to lift the nets



The gearbox is large for a high reduction ratio



A conveyor belt leads to the sorting station



Photo by Flying Focus

PTO on the gearbox of the main engines or by a hydraulic pump mounted on the generator set engine. A PLC controls the hydraulic pressure in the accumulator tank, leading to a seamless operation. Cooling of the main engine and generator is with channels which are welded onto the bottom shell plating.

In addition to fly shooting, the vessel is also fully equipped for pelagic trawling and bottom trawling. Pelagic trawling uses four sideboards to keep a towed net open, and suspended between the bottom and the sealevel. Bottom trawling is also possible, in which case the net is kept open by two sideboards. This versatility in fishing methods allows to use the vessel for different purposes

in function of the season or the available quota.

Rose de Cascia is built entirely of steel at Manche Industrie Marine (Dieppe), from a building kit supplied by Centraalstaal from the Netherlands. All areas sensitive to chafing are built of stainless steel to reduce the maintenance costs. Inside doors were supplied by Winel and are of built of composite and aluminium. The windows are glued onto the window mullions. In terms of connectivity, the vessel is equipped with a V-SAT broadband internet connection through satellite, which also allows the shipyard to log in, view the systems' status and provide remote support.

French courses

Shipyard Padmos has invested in their French connection and this pays off. The workforce in the shipyard receives regular French courses. This is not only functional, but it's also greatly appreciated by the yard's customers. In spite of an international revival in fishing vessel construction, the Dutch fishing sector is lacking in newbuild orders at the moment. It is said that the fishermen are postponing large investments until they have clarity about the impact the Brexit will have on their fishing grounds. *Rose de Cascia* was christened in her homeport Boulogne-sur-Mer on 13 July 2017 and fishes on the Channel.

Bruno Bouckaert

Winches

Shipyard Padmos collaborated with Marelec on the fishing winches. In order to maintain the shrinking diamond-shape on the bottom while hauling in the cables, the port and starboard cables can be hauled in either at equal length, at equal pulling force or at equal hydraulic pressure. Depending of the situation, the fisherman can control the winch in either way. Each of the winches has a cable drum with a capacity for 2,500 metres of rope with a diameter of 42 millimetres. The winches are placed in recesses on deck to improve the handling. On the aft deck, three drums are provided for the storage of nets, which are handled by the jumper winch.

Hull design

In terms of naval architecture, *Rose de Cascia* is quite similar to *MDV-1*, except that she is shorter, has fuller (U-shaped) bilges and some more V in the stern sections. The hull shape was optimized by research institute MARIN for the required stability, payload and speed.

She features the same sharp bow and wide aft ship as *MDV-1* for reduced vertical accelerations. A deep keel with ballast inside ensures optimal stability. The father of the first vessel's skipper was on board during one of the first sea trials in rough weather and said he had never experienced such comfort in such rough weather in his 50 years of fishing. The length was initially restricted to 16 metres, to allow for fishing of St Jacques Shells, but this wish was later abandoned in favor of more payload. The length-over-all grew to 19.2 metres during the design process. The French stability requirements are very strict for fishing vessels, which led to a large volume under the waterline.

Efficiency

In terms of engineering, there is a big difference with *MDV-1*. Rather than the diesel-electric propulsion of her larger predecessor, *Rose de Cascia* features diesel-direct propulsion with a single, very large and slowly rotating propeller, which is a longstanding recipe for efficiency. The propeller is a fixed-pitch propeller of two metres diameter, placed in a nozzle for maximum bollard pull (nine tonnes). The main engine is rated at 360 kW, while most current vessels in this range need over 500 kW to perform the same tasks. The maximum speed of the vessel is 9.3 knots. Padmos shipyard did the concept design, and hired the engineers of C-Job Naval Architects to do the detailed engineering.

Hydraulics

Hydraulics play an important part onboard. The winches are operated by hydraulics, as well as the deck crane and the bow thruster. In total there are 11 hydraulic consumers. The hydraulic power is generated either by a

COMFORT EFFICIENCY

Principal particulars

Builder
Padmos, Stellendam, The Netherlands

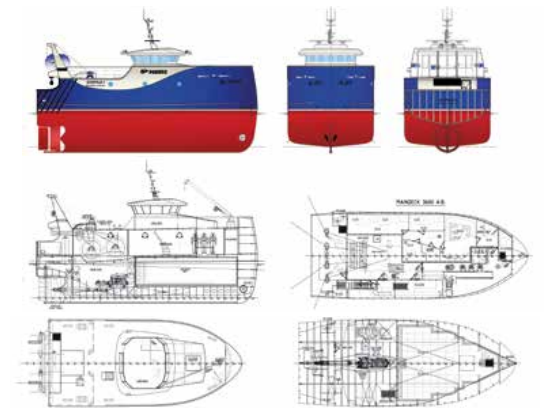
Owner
Scopale, Le Portel, France

Length o.a. 19.2 m
Beam moulded 7.5 m
Depth moulded 3.65 m
Draught (keel) 3.6 m
Gross tonnage 165 GT

Main engines 1 x 360 kW
Bow thruster 1 x 40 kW
Generators 1 x 80 kVA
Max speed 9.3 kn

Crew max. 7 persons

Fuel 14 m³
Freshwater 5 m³
Sewage 2 m³



Subcontractors and suppliers of equipment fitted on board the *Rose de Cascia*, YN 203

AEMI, Boulogne: nautical equipment; **Bloklad non-ferro**, Sliedrecht: oil coolers; **Bureau Veritas**, Rotterdam: classification; **C-Jobs Naval Architects**, Hoofddorp: engineering; **Damen Marine Components**, Hardinveld-Giessendam: Optima propeller, nozzle with stainless steel liner; **Datema Nautical Safety**, Delfzijl: safety signs; **De Waal**, Werkendam: steering gear; **Delta Isolatie Stellendam**, Stellendam: insulation engine room; **Drumarkon**, Schelluinen, interior panels; **Econosto Nederland**, Capelle aan den IJssel: valves and fittings; **EK Marine**, Ireland: crane; **France Hélices**, France: separators, filters; **Gebr. Sluyter**, Rotterdam: P&I insurance; **Hi-Safe Systems**, Dordrecht: fire protection equipment; **Hora**, Leusden: glued windows; **Hylkema Hydrauliek**, Reahüs: hydraulic systems; **Utama Scheepsbodembedrijf**, Stellendam: insulation and carpentry wheelhouse and accommodation; **International Paint Nederland**, Rhoon: coating system; **Manche Industrie Marine**, Dieppe: hull construction; **Marelec**, Nieuwpoort: flyshoot-fishing software and weighing systems; **Nidec Leroy Somer**, Soesterberg: generator; **Padmos**, Stellendam: supply Mitsubishi main generator, auxiliary generator with Mitsubishi engine and Nidec Leroy Somer generator, fishing net drum winches, fishing winch and propeller shaft unit; **Promac**, Zaltbommel: cooling, ice systems; **Promarin Nederland**, Moerdijk: propeller and nozzle; **Reikon**, Spijkenisse: Azcue pumps; **Schavicast**, Stellendam: gritblasting and painting; **Smit Neuchâtel**, Utrecht: Solvolan rubbermortar deck covering, with a Hypox finish; **VCU-De Maritieme Specialist**, Urk: processing plant, sorting system; **WETEC**, Stellendam: electrical installation; **Winel**, Assen: doors and hatches; **Winteb**, Winschoten: WIN200 HIAS pipe heads; **Wortelboer**, Rotterdam: anchor and chain.