



Specialised Fishing Vessel Chooses MAN 32/44CR Power Solution

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Norwegian shipping company, Nyholmen AS, has chosen MAN main and auxiliary four-stroke engines to power the 'Kvannøy', an advanced, 77.25-m purse seiner/trawler. The vessel will be constructed at the Karstensens shipyard in Skagen, Denmark and is due for delivery in June 2015. The order represents a continuation of the long-running partnership between MAN Diesel & Turbo and fishing concern Hansen Dahl, Nyholmen's parent company.

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The design specification agreed by Nyholmen and Karstensens is at a high level with the latter reporting a clear preference for suppliers and ship components that deliver quality, innovation and reliable running. The partners have chosen a hybrid propulsion package for the new vessel that features a 600 kW/cyl MAN 6L32/44CR main engine.

The order specifies an MAN Alpha VBS1020 propeller (ø4,200 mm) with an AHT propeller nozzle and an option for a rudder bulb. MAN Diesel & Turbo will also supply its newly developed Alphasonic 3000 propulsion control system, including the ECO Speed Pilot for optimal voyage planning and speed setting. 2 × MAN 9L16/24 GenSets (each delivering 940 kW_e) will deliver auxiliary power for the hybrid propulsion system, which is a remarkably powerful setup and the first time MAN medium-speed powered GenSets have been employed aboard a fishing vessel of this size.

Hansen Dahl is one of the most successful companies in the Norwegian fishing sector and is owned by Birger Dahl Snr. His son, Birger Dahl Jnr., responsible for daily operations, said: "Our vessels operate in a tough environment and the power solution is obviously critical. Hansen Dahl has always been very loyal to MAN engines and earlier Alpha propulsion solutions simply because they are reliable and give us the power we require. In fact, this newbuilding will be our fourth with MAN equipment. When drafting the power specifications for the new vessel, we looked no further than MAN Diesel & Turbo."

Trend setters

Mads Færk – Sales Manager of the Medium Speed Business Unit MSO – MAN Diesel & Turbo, Frederikshavn said: "The industry associates trendsetting technical solutions



with Hansen Dahl when they launch new vessels. They have always been frontrunners with developments and the latest technology, which means that they are often benchmarked by competing fishing companies.”

He continued: “After consultation with Hansen Dahl, we decided that the combination of the hybrid propulsion system, floating frequency, rudder bulb, AHT nozzle and common-rail technology would ensure the highest possible operational flexibility and efficiency for the entire load range – from low-load to high-load power modes. We always aim to maintain long-term relationships with our customers and doing repeat business is a sign that we do things right.”

MAN Diesel & Turbo in Frederikshavn reports that this is the first common-rail main engine to be adopted by the Norwegian fishing sector. The propeller will operate at just 115 rpm at full effect, ensuring an optimal bollard pull when fishing for blue whiting and hake and promoting good sailing characteristics in general. Frederikshavn also states that the potential for further orders is promising with further, similar projects currently pending.

The 32/44 common rail engine

The six-cylinder version (32cm bore/44cm stroke) is rated at 3,600 kW and uses the latest MAN Diesel & Turbo common rail technology that allows the flexible setting of injection timing, duration and pressure for each cylinder. This flexibility allows the 32/44CR's fuel consumption and emissions to be optimised at any point on its operating profile.

The 32/44CR engine series prioritises optimised flexibility and operating economy and also features:

- improved charge-air cooling
- enhanced turbocharging
- Miller valve timing
- revised injection timing
- higher compression ratios
- low swirl inlet ports
- variable valve timing (VVT)



The 32/44CR offers multiple operational benefits, including:

- low fuel-oil consumption
- low emissions
- low operating costs
- low life-cycle costs
- long service life.

Fuel capability

Kvannøy is specified to run on marine diesel oil (MSD/MDO). However, the 32/44CRs robust and proven common-rail injection system is basically designed for operation using more demanding fuels, including heavy fuel oil (HFO) with viscosities up to 700 cSt at 50 °C and fuel-injection temperatures up to 150 °C.

Hybrid Propulsion

Hybrid propulsion systems are a combination of electric propulsion and diesel drive and enable ships with variable power requirements to run at high propeller efficiency. A large number of operational modes are available, which enable engines and propellers to run optimally over a wide power range. For example, a hybrid PTH/Boost mode is where the main propulsion is run by the diesel engine, and the system is designed for electric propulsion for emergency mode or as a boost mode. In this configuration the installed electric power should meet the minimum requirement to bring the ship to shore.

Other configurations can be optimised for electric propulsion as one of the main working conditions. In such a system design, the vessel can utilise the power required for the specific operation in pure electric mode, or in diesel mechanical mode, or in a boost mode by engaging both systems. A hybrid system configuration is a fuel efficient and flexible system, with high redundancy.

About Hansen Dahl

Hansen Dahl Fiskeri AS is a family-owned company based in Bodø, northern Norway that operates a fleet of two modern fishing vessels measuring, respectively, 64 and 84 metres in length with capacities ranging from 1,700 to 3,050 tons. The fleet fishes the North Atlantic and North Sea, and is based in Bodø with 60 staff that also operate a cold-storage terminal and net-making shop. The new Kvannøy will replace an older

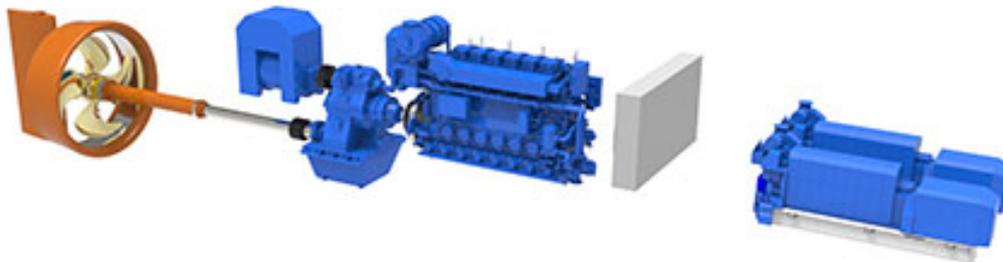


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vessel of the same name that was built in 2002 with an MAN Alpha 16V28/32A-DVO propulsion system. In contrast to the previous 'Kvannøy', which had a fish factory and freezing facility on board, the newbuilding will instead carry fresh fish in RSW tanks.

About Karstensens Shipyard

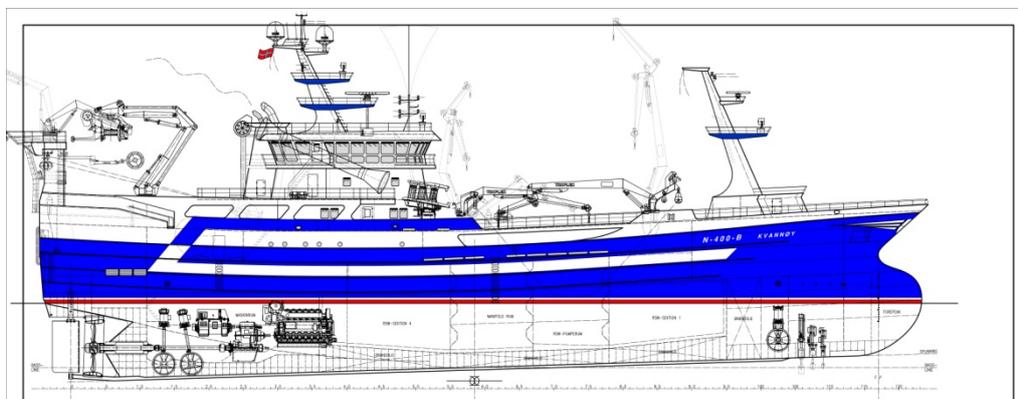
Karstensens Skibsværft A/S is a modern shipyard with some 250 employees at its facility in Northern Jutland. The yard is capable of building a broad variety of ship types up to a length of circa 135 metres, including fishing vessels, tankers, freighters, ferries and special-purpose vessels. The yard has built over 400 vessels since its birth in 1917 – Kvannøy has received hull number #427 – and also offers a comprehensive repair service.



3D representation of the Kvannøy's hybrid propulsion system showing the MAN Alpha VBS1020 propeller with AHT propeller nozzle, MAN 6L32/44CR main engine and 2 x MAN 9L16/24 GenSets



Graphic rendering of the Kvanndøy (courtesy Hansen Dahl)



Line drawing of the Kvanndøy showing engine placement (courtesy Hansen Dahl)

About MAN Diesel & Turbo

MAN Diesel & Turbo SE, based in Augsburg, Germany, is the world's leading provider of large-bore diesel engines and turbomachinery for marine and stationary applications. It designs two-stroke and four-stroke engines that are manufactured both by the company and by its licensees. The engines have power outputs ranging from 450 kW to 87 MW. MAN Diesel & Turbo also designs and manufactures gas turbines of up to 50 MW, steam turbines of up to 150 MW and compressors with volume flows of up to 1.5 million m³/h and pressures of up to 1,000 bar. The product range is rounded off by turbochargers, propellers, gas engines and chemical reactors. MAN Diesel & Turbo's range of goods includes complete marine propulsion systems, turbomachinery units for the oil & gas as well as the process industries and turnkey power plants. Customers receive worldwide after-sales services marketed under the MAN PrimeServ brand. The company employs around 15,000 staff at more than 100 international sites, primarily in Germany, Denmark, France, Switzerland, the Czech Republic, India and China. MAN Diesel & Turbo is a company in the Power Engineering business area of MAN SE.

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