AvK®
HYBRID MARINE PROPULSION

Case history

VARD

Where:
Søvil, Norway

Specified:
2 x AvK® DSG 144 alternators
3 x AvK® DSG 114 alternators

Purpose:
Hybrid power for the Skandi Iceman offshore vessel.

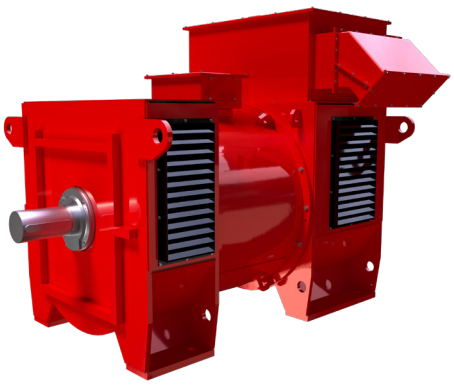
Since 2013, the Skandi Iceman has been supporting critical operations in Norway, powered by over 20 MVA of AvK shaft and propulsion alternators.

Over many years, VARD had come to rely on the STAMFORD and AvK solutions, order handling and application engineering teams for their high level of technical knowledge and quick response to requirements in diesel-electric marine propulsion projects.

So when a hybrid power system requiring alternators was called for on a customer's new oil & gas offshore support vessel, it was a natural decision for VARD to specify AvK.

On the project, VARD were impressed with a swift response in support of final contract negotiations with VARD's end customer, DOF Subsea.

VARD won the contract, which was to supply the onboard hybrid power system for the Skandi Iceman. DOF Subsea's Anchor Handling Tug Supply (AHTS) vessel was designed for offshore operation in the oil & gas sector



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The DOF Subsea design called for a number of modifications, which VARD and STAMFORD | AvK successfully delivered.

VARD

In addition to the features of conventional platform supply vessels, AHTS vessels have winches for towing and anchor handling, and an open stern that allows anchors to be brought on deck.

The Skandi Iceman was designed to be deployable worldwide, and able to operate continuously in order to pay back its investment. The vessel's specification called for high speed, low fuel consumption, excellent manoeuvrability and stability. VARD ensured the overall power system achieved the internationally recognised DNV certification, while DNV Green Passport accreditation was provided by STAMFORD | AvK

DOF Subsea called for a number of modifications, which through collaboration was successfully delivered. The automatic voltage regulator had to be in a separate box from the alternator, while a custom redesign of the alternator's external dimensions was required to fit into limited space in the machining room. Other bespoke work included oil supply and oil cooling of sleeve bearings, plus the locations of water connections and of power cable entry. The system benefits from IP44 enclosure protection with an air/water heat exchanger.

Because of the vessel's deck machinery and its Diesel Electric Propulsion (DEP) capability, including tunnel thrusters and acipod thruster, the power system had to be able to handle high load steps.

And because the vessel has to operate in heavy seas, its power system had to be rugged enough to cope with the demands of a harsh marine environment.

Two AvK DSG 144 alternators function as shaft alternators for non-propulsive hotel power and also for propulsive hybrid power. Three auxiliary generator sets fitted with AvK DSG 114 alternators deliver power for the DEP system while manoeuvring, as well as power for deck machinery and the vessel's FiFi I+II specification fire fighting pumps. Between them, the two 5,500 kVA DSG 144 alternators and the three 3,000 kVA DSG 114 alternators meet the vessel's 20,000 kVA total power requirement.

Since commission, the Skandi Iceman has covered extensive miles to provide reliant field work in harsh environments off the coast of Norway. The vessel's versatile deck machinery and high power have seen it supporting the recent installation of turbines in an off-shore wind farm. The Skandi Iceman has also been in the news recently when it was called upon to rescue a passenger cruise ship, which had run aground in a Norwegian fjord.

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