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1. With its hybrid propulsion system, Transfluid aims to combine the performance of diesel with the benefits of electric propulsion

2. Anatoliy Klimov, the first commercial vessel in Russia to be equipped with hybrid propulsion, launched in January 2020



# Hybrid pilot boats

In the commercial boating sector, an important geographical market has now embraced the shift to hybrid

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Transfluid recently worked on the hybrid propulsion systems for a fleet of revolutionary pilot boats. Following two important projects in the UK, the company was recently challenged with a request from an important client in Russia, which commissioned two pilot boats. Eventually the fleet could be expanded to several vessels, all of which will operate in the Pacific Ocean. The two boats were successfully launched and are now operational.

Each boat is 24m long, has a 90-ton displacement and is equipped with two diesel Man V6 engines capable of producing 600hp at 2,100rpm. The hybrid system for each shaft line consists of Transfluid's HM3350 module with two PM synchronous electric motors rated 75kW at 3,000rpm, fed by a 288V battery pack.

This configuration enables four different navigation modes. Pure diesel mode enables maximum speed and long-range cruising. Electric mode enables sailing at speeds above 7kts up to a peak of 10kts. Booster combines the power of the diesel engine and electric motor for an extra thrust when needed. Regeneration mode with the electric



machines operating as generators enables fast recharging of the 56.7kWh battery pack.

## Best of both worlds

The goal with the hybrid propulsion system is to combine the performance of diesel with the advantages of electric propulsion, such as silent sailing, zero emissions operation when needed, and greater levels of comfort thanks to a lack of vibration and noise on board. Also, when patrolling at very low speed, electric propulsion enables preservation of the diesel engines due to the reduction in excessive wear caused by operation outside the ideal working point.

Another advantage of using Transfluid hybrid modules is the possibility to have additional PTOs actuated directly by the

e-motors. This enables implementation of onboard systems such as pulleys, hydraulic pumps and compressors for onboard auxiliary services, which become independent of the diesel engine.

Transfluid's hybrid system includes all the mechanics, electric motors, batteries with integrated BMS and the complete management system - developed entirely in-house. The company is also able to supply a full plug-and-play solution covered by warranty and with worldwide service provided through a network of branches and distributors.

The two new pilot boats were built with a national Maritime Register certification - a challenge that Transfluid willingly accepted to demonstrate the reliability of its products. These solutions have formed the basis for the company maintaining its position as a leader in parallel hybrid propulsion systems for the last 10 years.

As installers of the first hybrid propulsion system in the Russian Federation, the Transfluid team had to work closely with Russian Maritime Register of Shipping (RMRS) inspectors to ensure its technology is compliant with RMRS regulations. +