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## ABS facilitates innovative drone inspection of tank steel thickness

Remote ultrasonic thickness measurement improves survey safety, saves time and improves efficiency for shipowners



20/09/2021



Classification society ABS has certified SIS Srl of Naples, Italy to provide innovative drone-based inspection to shipowner d'Amico Società di Navigazione.

SIS subsidiary Consultec Marine carried out ultrasonic thickness measurement (UTM) of flat longitudinal and corrugated transverse bulkheads, using a drone to collect data on steel plate thickness.

**Drone-based inspection technology is growing in popularity due to the advantages it offers to shipowners. By removing the need to construct staging inside the cargo holds, the owners are able to realise significant savings in cost and time during the survey process.**

Human factor risks are also reduced as it is not necessary for the surveyor, staging supplier or the vessel staff to be exposed to physical inspection risk, including climbing the bulkheads.

Using ABS Guidelines for UAV inspection, 2006-built 51,087-dwt product tanker *High Venture* was inspected under the condition assessment programme and for Class purposes, with co permission from the vessel's flag, the Liberian Register of Shipping and close co-operation with the ABS survey team.

Key to the project's viability was the inspection of a vessel with corrugated bulkheads and external stiffening, featuring fully coated tanks with surfaces in good condition.

For any areas where the UAV could not reach, such as turns in the corrugation, traditional visual survey was conducted. The entire process was witnessed in person by ABS to ensure quality control.

Two drones were used in the inspection, one with a camera for close-up imaging and one with the thickness measurement probe which was only used on flat vertical surfaces that normally require staging for access and not on stiffeners.

The pictures and the thickness measurements captured by the drone provided high-definition images and high levels of measurement detail respectively to a standard equivalent to those commonly collected by conventional inspection techniques.

"As a shipowner and operator, our company's focus is above all safety, efficiency and innovation, so the opportunity to use this new technology was immediately interesting to explore with class and flag state support," said d'Amico Group deputy technical director Cesare D'Api.

"Under the right conditions we believe remote tools can offer significant advantages."

ABS' Paolo Puccio said, "A key factor in intermediate and special survey is the ability to take thickness measurements in conjunction with close up survey, so the ability to apply sensor technology using a drone is of great interest to our clients."

**He added, "UTM survey includes detection of wear and comparison of results with class requirements can provide a quick decision on whether repairs are required."**

The use of drones for UTM survey is considered on a case-by-case basis with permission currently granted only under certain specific conditions and with Flag State approval.

The growing interest in the technique and accuracy of the tools is likely to lead to more regular use in future.

To make the survey possible, SIS was certified as an ABS recognised service supplier following an audit and issued a one-year provisional approval pending a

satisfactory practical demonstration and reporting.

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