

DP Conference Houston 2019
Abstract

Dr. Dirk Jürgens, Michael Palm – J.M. Voith SE & Co. KG, Germany

Voith Schneider Propulsion (VSP) - Efficient and Safe DP through Enhanced CMS Analyses and Electronic Thrust Control

Voith Schneider Propellers are ideal thrusters for very effective Dynamic Positioning (DP) due to their very fast and accurate thrust allocation.

In the recent past incidents were reported where thrust direction and magnitude deviated from demands of the DP system due to thruster malfunctions leading to unwanted thrust.

In order to prevent unwanted thrust, Voith has developed an intelligent electronic thrust monitoring system. This system enables an effective correction in the event of an error in the electronic thrust control unit of the VSP. The information of the thrust control system is directly linked to Voith's CMS.

An efficient Condition Monitoring System (CMS) has been designed by Voith that records and analytically evaluates a large number of sensor data from the VSP itself as well as from the ship control system. The automated evaluation takes place immediately after receipt of the CMS data and provides valuable information: On the condition of the propellers, the efficiency of the ship's DP with regard to the accuracy and the fuel consumption, as well as information for a condition-based service. Based on this analysis, proposals are made to the ship-owner how the fuel consumption can be further reduced or how the ship position and ship heading can be safely maintained even in very bad weather conditions.

Through the efficient use of the CMS, the operation of the ships with VSP is significantly improved with regard to fuel costs, service costs regarding parts to be exchanged as well as a CMS-based extension of the service intervals.

The special features of the Voith-CMS system as well as the efficient prevention of unwanted thrust will be presented by means of real examples.