

Abstract 019 – ABB, OY

From: kimmo.kokkila@fi.abb.com

First Name: Kimmo
Last Name: Kokkila
Presenter (if different):
Other Authors: Ole-Jacob Irgens
Company: ABB Oy
Address: Merenkulkijankatu 1
Address Continued:
City: Helsinki
State/Province: Uusimaa
Postal Code: 00981
Country: Finland
Email: kimmo.kokkila@fi.abb.com
Telephone: +358503326117
Fax:

Presentation Title: Reducing Aft-Thrusters' Forbidden Zones with Advanced CFD Simulation for Offshore Construction Vessel

Abstract:

Three azimuthing main thrusters installed in aft-ship provide high redundancy needed for DP operation. However, in case of relative narrow beam and thrusters located close to each other, forbidden zones – aiming to avoid thruster-thruster interaction and fatigue breakage – become large when using normal recommendations. Large thruster forbidden zones reduce DP capability, for example, in case of strong side current.

In one particular project, ABB reduced thruster forbidden zones considerably by simulating a vessel specific aft-ship thruster setup with dynamic CFD. The simulation showed loads on a downstream thruster relative to the steering angle of a flushing neighbor thruster operating with 100% power. Applying the resulting loads to the thruster FEM model, optimum steering angle and power limitations were concluded – enabling the best possible DP performance for the vessel without risking the thruster lifetime.