

## **Thrust Degradation in DP Operations DP Model Test of an Aframax Shuttle Tanker - Methods, Results, Operations**

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### **Abstract**

In the Spring of 2006, Dynamic Positioning (DP) model tests were conducted at Marintek's Ocean Basin Laboratory in Trondheim. The purpose was to study thrust degradation effects in DP operations and DP performance of an Aframax shuttle tanker operating in rough environmental conditions in the North Sea. The shuttle tanker was equipped according to the International Maritime Organization (IMO) DP Class 2.

The DP model tests were conducted for:

- ballasted draught
- loaded draught
- single-screw configuration
- twin-screw configuration

Results from the DP performance tests are presented. Thrust degradation model tests were conducted for:

- tunnel thrusters
- azimuth thrusters
- main propellers with rudders

Results from the thrust degradation measurements are presented.

Software (SW) algorithms for thrust degradation estimates have been developed and incorporated into the DP capability analysis program StatCap. An example of how the calculations compare to the measured thrust degradations is presented.

The project was a joint effort between Teekay Corporation, Kongsberg Maritime and Marintek.

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