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DIGITAL SOLUTIONS

NAUTICUS™ MACHINERY

Controllable Pitch Mechanism

Strength capacity analysis for the components in pitch control mechanism and propeller hub.

Nauticus Machinery - Controllable Pitch Mechanism is developed in close cooperation with DNV GL Maritime. The calculation methodologies are based on DNV Rule Part 4 Chapter 5 Section 1, Class Guidelines 0039 (main class strength) and Class Guidelines 0041 (ice class strength). It calculates both basic strength capacity and ice class (Finnish-Swedish ice class and IACS Polar ice class) strength capacity.

The following components are assessed in the calculation: blade bolt, shear pin, blade carrier and propeller hub, servo cap and fittings, crank pin, guide block, retaining wall and push-pull rod.

In the static strength check the following load conditions are considered: two blades are prevented against pitching, design pressure, maximum hydrodynamic loads, blade failure load (ice class) and maximum ice load (ice class). In the fatigue strength check the following load conditions are considered: start/stop of

propeller, change of pitch setting, dynamic loads from propeller blades and dynamic ice loads (ice class).

Benefits

- Based on DNV GL's extensive experience
- Efficient determination of the strength capacity for controllable pitch system
- Supports the ice class calculation according to latest ice class rules
- Ability to import results from FEM-calculations
- Predicts pressure and stress on components
- Predicts friction in bearings
- Provides default values based on DNV GL's experience
- Provides complete calculation report

Application

- Crosshead type of pitch mechanism