

# Intellectual Maritime Technologies

@ShaftDesigner

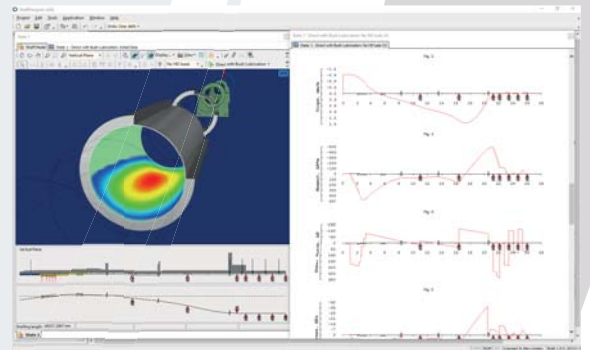
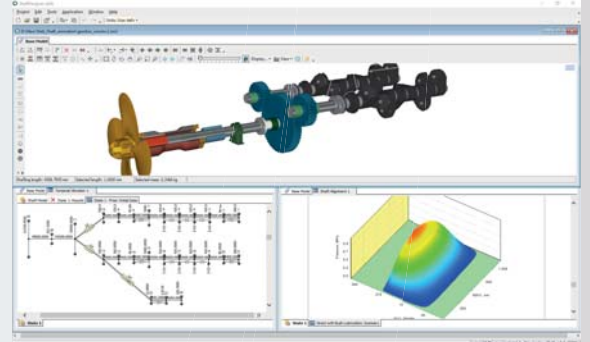
Intellectual Maritime Technologies

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Intellectual Maritime Technologies is a software development and consulting company having a great experience in the maritime industry (since 1992)

## ShaftDesigner software

- Focused on the marine industry, shipbuilding and ship repair
- Proven by many users for decades
- Quick investments return
- All types of calculations are combined in one software package
- Automatic checking classification societies requirements
- High-speed calculations without third-party FEM solver behind
- An intuitive graphical user interface
- Powerful reporting system, repository, units converter
- Flexible modular and floating perpetual licenses
- Software as a service (SaaS) with access per project
- Academic version
- Fully functional trial version for 40 working hours
- Continuous development, rapid users support and training



## Calculations and services

- Shaft alignment design
- CFD analysis of propeller hydrodynamic loads
- Hull deflections calculation
- Bracket bearing stiffness calculation
- Online shaft alignment consulting
- Final shaft alignment in a dry dock
- Marine propulsion shafting design
- Torsional, whirling, axial vibration analysis
- Torsional vibration measurements
- Shaft alignment and vibration training
- Software development on demand



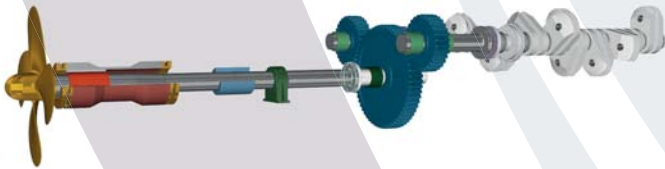
## What is ShaftDesigner?

ShaftDesigner is a CAE software for reliable marine propulsion shafting alignment, torsional vibration analysis, axial vibration analysis and whirling vibration analysis at the design, production, maintenance and ship repair stages.

Continuous development by professional team, strong scientific background, great shipbuilding experience and customer support make ShaftDesigner a strong reliable solution for propulsion engineering, consulting and service companies, shipyards, Classification Societies. Full functional free trial version is available.

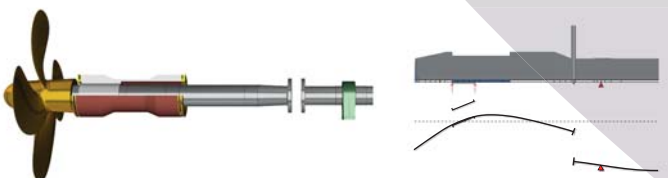
## Modeler core

Provides a 3D environment for simple and rapid creating detailed shafting design model. The model may consist of several shaftlines, engine crankshafts, gearbox, fixed and controllable propellers, stern tubes, brackets, different types of flanges and bearings. This model is the source for all kinds of calculations. Any changes in the base model are automatically synchronized with all calculation modules in the project. Store your models in the Repository for further usage. This module is not mandatory for the Torsional vibration module. However, it helps to determine the properties of a mass-elastic system.



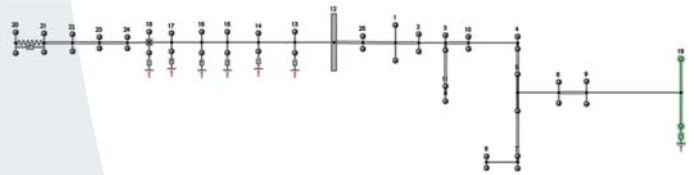
## Shaft alignment

Provides all required calculations concerning marine propulsion shaft alignment and bearing loads. Considers bending in both vertical and horizontal planes, a detailed bearing model with irregular bush shape etc. Implements a full cycle of the shaft alignment procedure: determines current bearing offsets after measuring with reverse calculation, finds best bearing offsets to apply them onboard, checks it with Jack-up test, SAG&GAP, Strain gauges. Additional features: bush contact pressure field, bearing hydrodynamic lubrication, propeller loads, gear tooth loads, hull deflections estimation, technological tolerances.



## Torsional vibration

Generates calculation scheme out of shaft dimensions. Calculates angular deformations between components, vibratory torque and stresses in shaft elements, gear hammering in geared connections, power loss in flexible elements and dampers, normal and misfiring diesel engines conditions. Advanced ice impact and short circuit features provide transient calculations in the time domain. Supports the latest Classification Societies requirements.



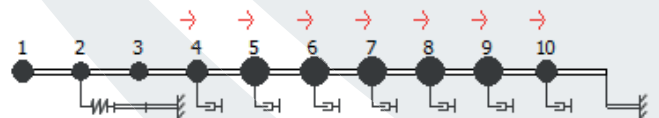
## Whirling vibration

Takes into account the anisotropic bearing model which has direction and frequency-dependent stiffness and damping characteristics. Calculates free vibration's damped natural frequencies, mode shapes, critical and resonance speeds, Campbell diagram. Harmonic response analysis provides all parameters at any section, 3D animation and indicates whether a critical speed will result in harmful vibrations. Whirling vibration depends on the alignment parameters and bearing operational conditions providing a more accurate prediction of shafting behaviour.



## Axial vibration

The free axial vibration calculation shows an overview of the various critical speeds with their corresponding mode shapes. Harmonic response analysis shows actual shaft displacement and thrust bearing loads in relation to the running speed of the installation. Different options are available to set excitation, frequency-dependent stiffness and damping parameters for all equipment.



## Reporting

The customizable reporting system allows exporting calculation reports to the commonly used data formats: MS Word, PDF, XML, HTML, EMF.

