SYI 2014 | VOLUME 9 | ISSUE 4

GERMAN INNOVATIONS

SuperYacht industry

Sports Stars

MAKING THE DREAM COME TRUE

Redefining the Art

NOBISKRUG'S VISION 22

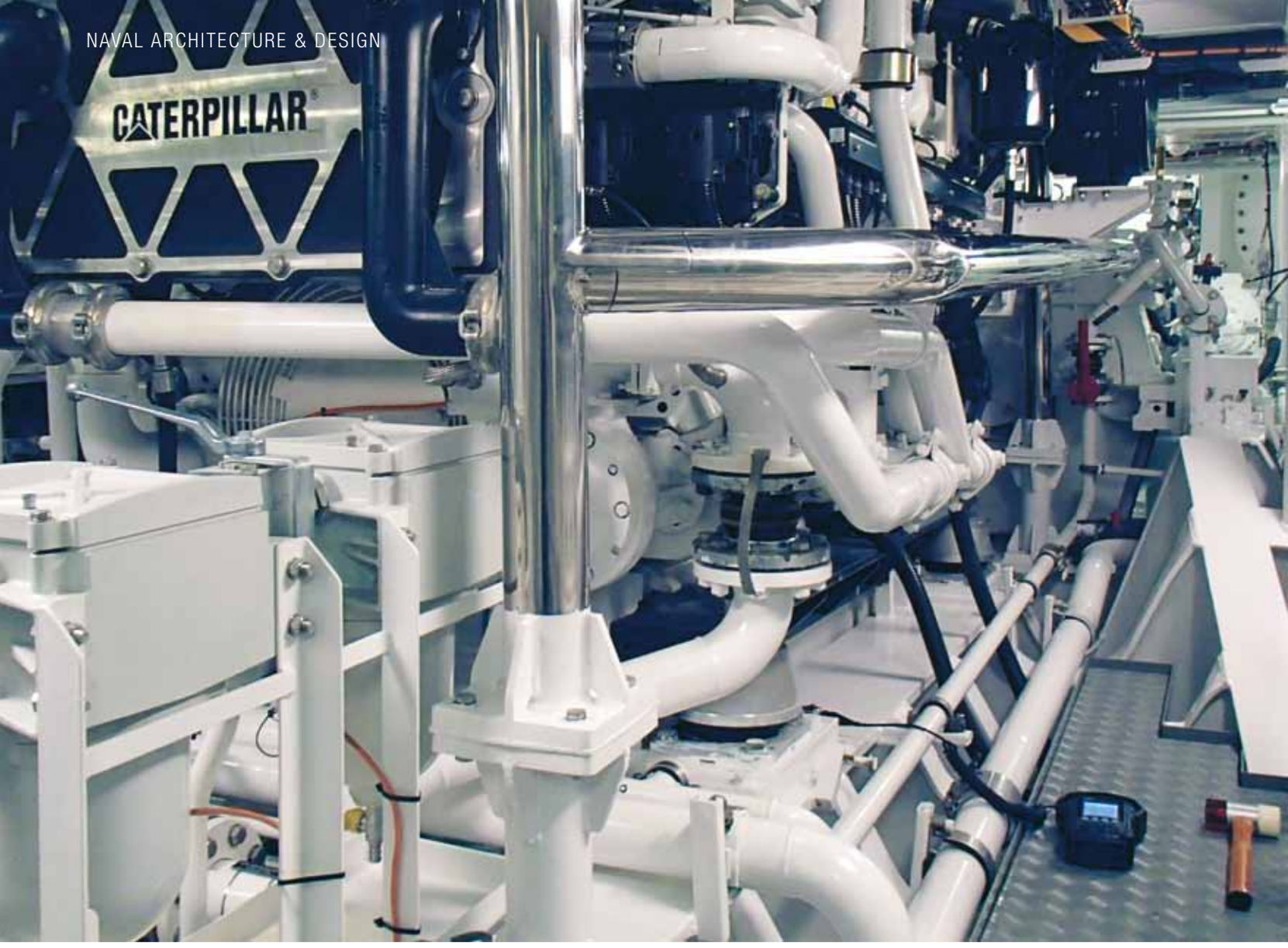
Build Me a Beast

DUBOIS & ROYAL HUISMAN'S NEW DESIGN

PREVIEW INSIDE

30 NOT-TO-MISS EXHIBITORS

METS 2014



SKF AVOID ALIGNMENT & VIBRATION PROBLEMS WITH OPTIMAL DESIGNED SHAFTLINE

ShaftDesigner UPGRADED

SKF SOLUTION FACTORY – MARINE SERVICES ARE ALL SET TO RELEASE AN UPDATED VERSION OF THEIR SHAFTDESIGNER COMPUTER-AIDED ENGINEERING SOFTWARE PACKAGE that features developments that are of particular benefit to the superyacht industry. ShaftDesigner is being developed in collaboration with Intellectual Maritime Technologies (IMT) as a direct response to the requirements of SKF's clients, many of whom are active in the yachting arena.

SKF initially released ShaftDesigner in 2009. Since then they have continually upgraded the software to ensure it remains at the top of its game. Continuous evolution is facilitated via collaboration with a team of programmers at IMT. The package has been created as a bridge between IMT's theoretical expertise and SKF's practical experience in the field of shaft alignment and chocking of machinery.

Observe & Improve

SKF's rationale for introducing ShaftDesigner stems from observation of what the company refers to as three 'problem areas' in available software.

Geoffrey de Vlaam, Marketing and Sales Manager at SKF Solution Factory – Marine Services, says, "We were looking to improve on these areas that we identified, which were, the lack of a single shaft model to perform all types of shaft related calculations, an inability to analyse different operation conditions – forcing users to maintain many files, and a disparity between knowledge of the propulsion train and the capability of software solutions available."

Superyacht Potential

ShaftDesigner is of notable use to the superyachting industry, where relatively long and thin shafts are typical. Such shafts often feature great distances between shaft support bearings, making them sensitive to whirling vibrations. Tackling such a scenario has been the aim of the latest updates to ShaftDesigner, which will be released on the market later this year.

New features are calculation of whirling vibration damped natural frequencies, calculation of forced whirling vibration and 3D animations for the presentation of the whirling vibration calculation results.

Because superyachts operate at multiple critical RPMs, further levels of vibration can have an adverse effect on passenger comfort. The new ShaftDesigner features, therefore, are particularly well suited to this industry.

Creating a Model

SKF and IMT have developed ShaftDesigner to be of use during vessel design, construction and maintenance and repair phases. During design, the user creates an accurate representation of components. ShaftDesigner features a drag and drop function that ensures the fast and smooth development of a 3D model. Any alterations made subsequently to the model automatically update in all applications.

To assist in analysis, the software automatically generates graphical output to support the results. From an engineering point of view this provides a useful tool for the exploration of offsets, leading to optimisation of component parts, based on acceptance criteria set by the user.

Because ShaftDesigner can identify any alignment and vibration issues during the design phase, time-consuming and costly re-alignment delays are avoided.

Building the Design

During the vessel construction phase the builder enters exact measurements of components and ShaftDesigner produces the data for various alignment techniques including jack-load, laser and strain gauge alignments, which can be used at stages throughout the shaft line installation.

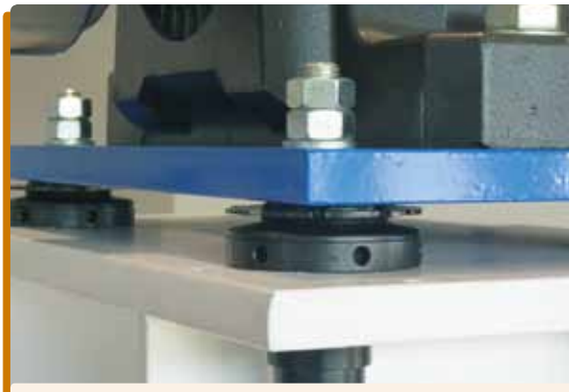
For maintenance and repair functions a model of the shaft line is developed before commencing. With the subsequent calculation of the alignment and possible vibrations, potential issues can be identified at an early stage. The recognition and checking of stress points avoids costly down time in the event of failure down the line.

Responding to Client Needs

Mr De Vlaam: “We have developed the software in response to client requirements and many of these clients are active in the superyacht industry, such as major propeller and shaft component manufacturers as well as propulsion and yacht designers.”

Recently, the company have been using ShaftDesigner technology on a yacht in Ancona, Italy, as Mr De Vlaam explains. “We received the request to check the alignment of the complete propulsion line of this completed new build yacht. During the vessel’s first sea trial there were some vibration issues. We made a plan of approach to check and verify the current condition of the alignment and performed vibration measurements. We found some minor issues, such as run-outs on the propeller-intermediate shafts and some pipework was pulling the engines aside.

“However, as we could identify this at a relatively early stage, the outcome of the project was that noise and vibration levels were reduced and alterations were made before there was any damage.”

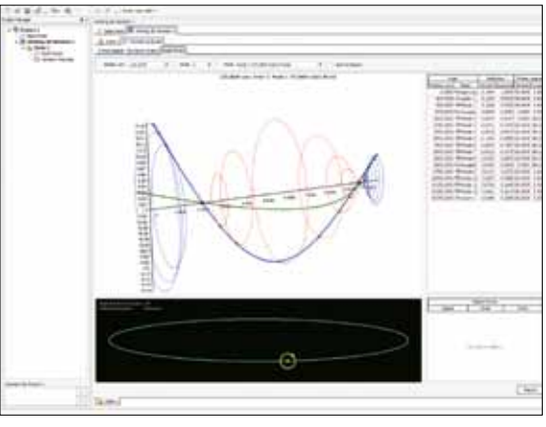


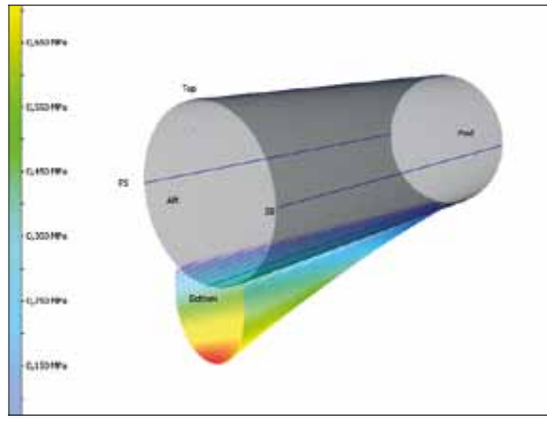
SKF Vibracon Chocks

SKF Vibracon chocks also offer benefits to the superyacht industry. These permanent and re-useable machinery mounting chocks are suitable for all types of rotating or critically aligned machinery. Over the last 20 years, SKF has sold over a million SKF Vibracon units. Developments have been a low profile model for tight spaces and, more recently, a surface treated version for harsh marine environments.

i. www.skf.com/marine

i. www.shaftdesigner.com





ShaftDesigner features a drag and drop function that ensures the fast and smooth development of a 3D model.