

KR Software SeaTrust-HullScan

Introduction

With the increasing size of ships, it is nearly impossible to cover a ship design using traditional methods. An amount of time for modeling is needed because of the complex and large data. Moreover, numerous load conditions must be considered, and considerable time is involved in calculating multiple load cases and evaluating the strength of each load case. Hence, design software has become an important factor in determining a structural design's efficiency and productivity.

SeaTrust-HullScan is a specialized software package developed to analyze the structural strength of bulk carriers, double hull oil tankers, and container ships based on the Korean Register (KR) Rule and Corporate Social Responsibility (CSR). With SeaTrust-HullScan, a designer can instantly, efficiently, and accurately carry out structural strength assessments. The software includes modeling features, pre-/post-processing, and strength assessment modules. Furthermore, users can generate FE modeling data and load cases for structural analysis to assess the rule requirements efficiently. For the shipbuilding industry, SeaTrust-HullScan is the best design solution.

Key Benefits

Reduces person-hours on structural design

Provides ship-specific design verification tools to reduce cost and workload

User-friendly and accessible graphical user interface (GUI)

Handles extensive mesh modeling data

Offers automated generation of boundary and loading condition for structural strength analysis

Proactively supports and ensures compliance with rule changes

Quick response through the user feedback system

SeaTrust-HullScan



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SeaTrust-HullScan

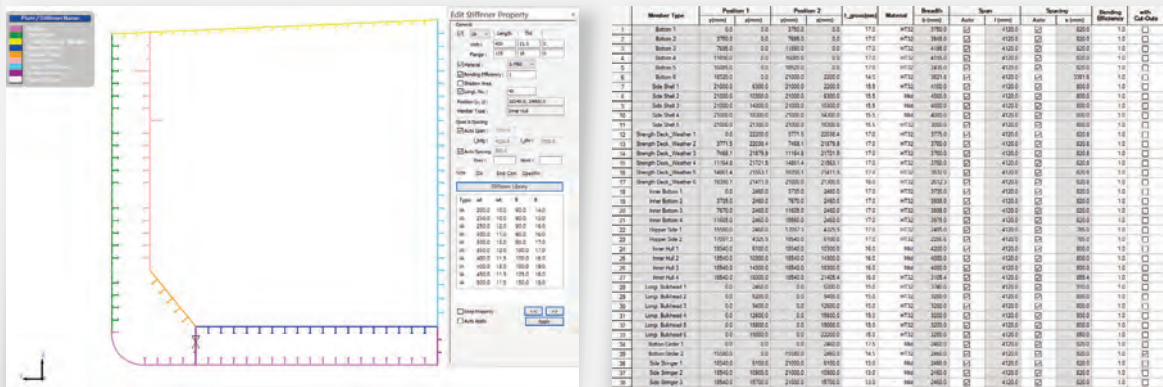


Main Function

Section Creation

To assess the prescribed rule requirements, sections of various ships must be generated instantly and efficiently. Modeling tools that can easily implement the section of each ship are provided.

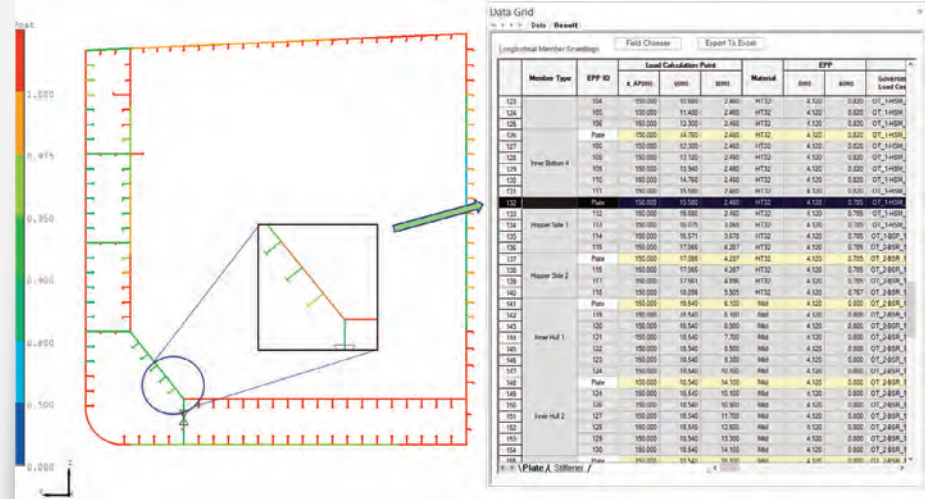
- Provides section wizard to create the section model of various ship types
- Easy generation and management of section model
- Support for modeling and operation on multiple sections



Rule Scantling

Hull girder, a longitudinal and transverse members strength analysis for various rules, can be carried out instantly and efficiently. A designer can verify and review the strength results by the graphical and practical configurations. The results of rule scantling are reported automatically and immediately in formats such as TXT, Excel, and Word.

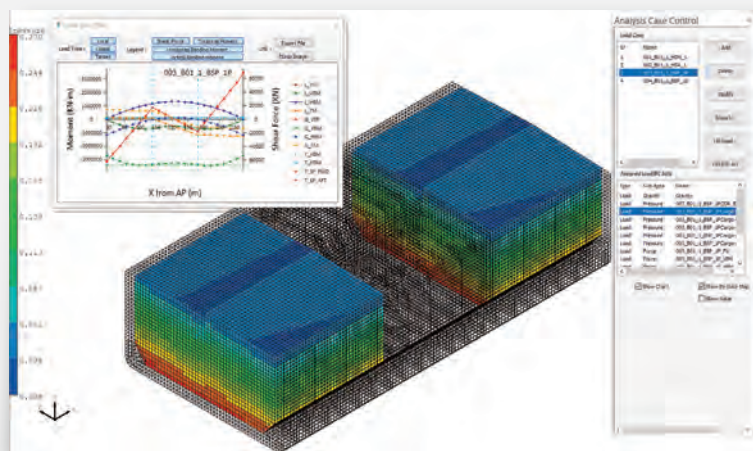
- Fast and accurate rule scantling
- Support for optimized calculation considering the longitudinal strength
- Immediate assessment according to design modification



Direct Strength Assessment

To evaluate the yield, buckling, and fatigue of the ship, the modeling method, as well as the load and boundary conditions, must follow the rules. For Direct Strength Assessment, the rule requires a three-hold analysis. SeaTrust-HullScan enables a user to conduct a three-hold analysis of the vessel conveniently. Different modeling methods can be applied, and load and boundary conditions are automatically generated based on the rule.

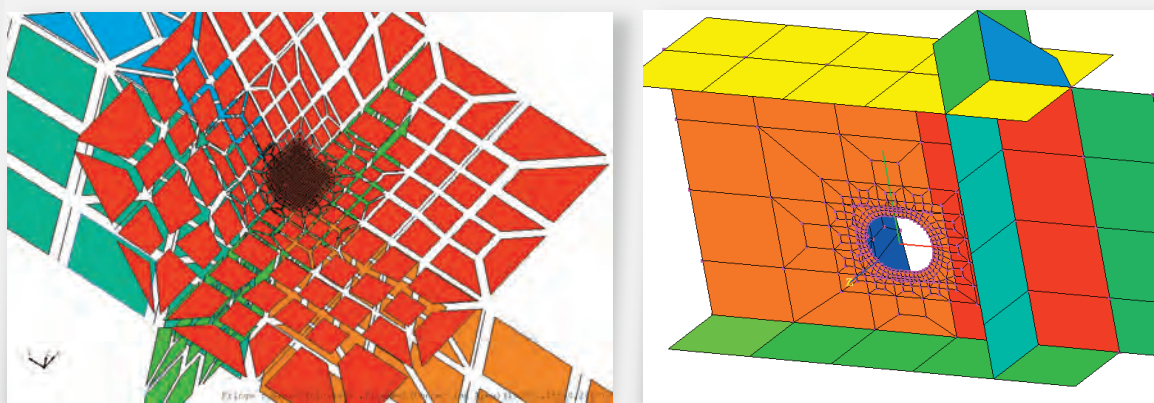
- Auto generation of loading and boundary conditions for three-hold strength assessments
- Feature of load combination and load balancing for structural analysis
- Provides automated mesh grouping to apply corrosion and loading



Mesh Modeling

Useful Auto Mesh functions are provided, and various mesh shapes can be created. Moreover, property input is highly convenient. Using these powerful functions makes it possible to create a good-quality mesh instantly.

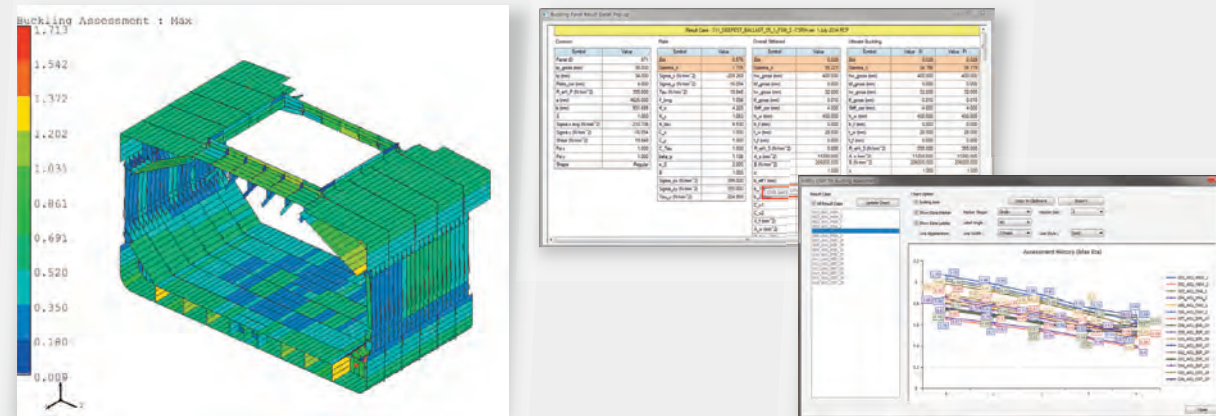
- Auto FE maintains high-quality modeling based on various modeling data
- Auto FE modeling for specific shapes (connection, opening, toe, slot)
- Support for various pattern mesh
- Provides tools for checking and healing mesh



Buckling Assessment

Using the buckling strength evaluation of SeaTrust-HullScan, buckling analysis can be done instantly and efficiently with the built-in solver. The buckling panel can be generated and evaluated from finite element modeling. Furthermore, users' efficiency and productivity can be improved by providing various designer-oriented functions that can meet the design values for the required buckling strength.

- Fast auto generation of bulking panel from a mesh modeling
- Provides user-defined assessment tools to review buckling results effectively
- Shows the details of the buckling calculation process
- Support for various buckling rules



Interface

The interface function of SeaTrust-HullScan allows various modeling data to be shared and integrated from computer-aided design (CAD) and computer-aided engineering (CAE) software. It can reuse and increase the applicability of the existing modeling data.

- Hull form and geometry data (IGES, NAPA, and DXF)
- Support to the various FE data formats
- Real-time and direct interface with the 3D-CAD Software (NAPA Steel, AVEVA Marine, S3D)

