

NX Ship Design

Developing ships from design through assembly

Benefits

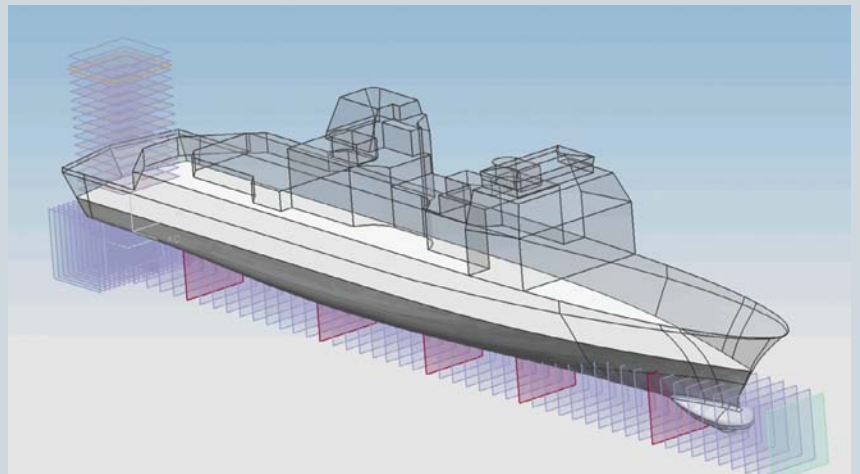
- NX Ship Design operates in accordance with the step-by-step workflow familiar to “real world” ship builders
- Parts and structures developed within NX Ship Design are more readily and efficiently optimized, analyzed, manufactured, assembled and documented in downstream applications
- NX Ship Design clearly and completely articulates a ship’s design, aiding in obtaining regulatory approval for subsequent manufacturing
- Hull design data can be easily imported from third-party hull design programs to use with the subsequent design steps
- NX Ship Design provides an integrated gateway to the PLM capabilities of Teamcenter, which is crucial for managing the millions of parts that comprise a steel ship

Summary

NX™ Ship Design software provides a focused environment for modeling the structural area of a ship, enabling the user to easily conceptualize this structure and model the frames, decks and bulkheads. NX Ship Design provides the ability to design linear and non-linear profiles for ship frames, linear and nonlinear sheets for compartment walls and linear and nonlinear belts for support structures between walls. Once the steel structure is complete, NX Ship Design aids in the assembly of the ship and in the manufacturing of parts.

Designing and building ships such as military craft, commercial freighters and tankers, or even luxury yachts is an extremely complex, labor-intensive task that has been largely paper-based. The complexity grows with the intensive regulatory environment for military craft and maritime standards for commercial craft, and the need to document and track millions of parts and components.

Modern product development technology and methods can have a huge impact on ship design today. That’s where Siemens PLM Software comes in. NX Ship Design is a performance-proven application that provides a disciplined yet familiar step-by-step design process for developing ships. And,



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NX Ship Design

Features

- Imported hull design data is simplified to reduce complexity and reduce part file size. Users can define the frames and bulkheads for the ship and then cut the different sections of the ship
- A designer can use the steel features to create linear and nonlinear belts, profiles and sheets, as well as a variety of other specialty steel applications
- After constructing the steel structure of the ship the individual parts can be distributed from one file into separate part files for manufacturing purposes

because the application is integrated with NX, it provides a gateway to the entire product development process.

More than a suite of integrated CAD, CAM and CAE applications, NX goes beyond individual and departmental productivity to improve efficiency in the overall process and at each step in the process. A comprehensive solution, NX is built on an open foundation and advanced technologies that directly support initiatives to transform business processes. NX is fully integrated with Teamcenter® software, the world's leading PLM system, which ensures that all data on every part and component is fully documented and managed. What's more, NX is seamlessly integrated with Tecnomatix® manufacturing systems to ensure optimal manufacturing and assembly.

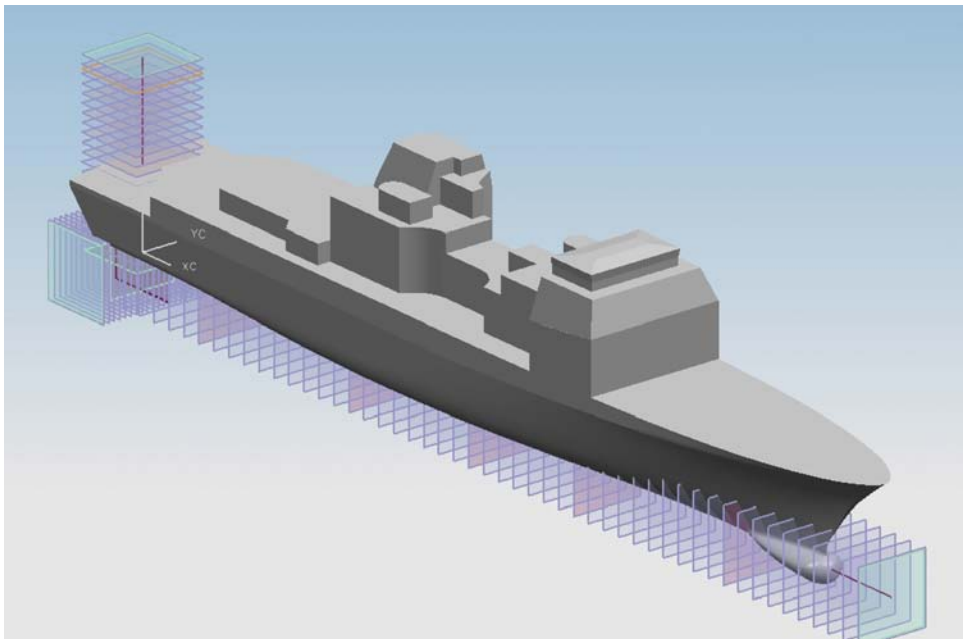
Ship design workflow

NX Ship Design was developed to support ship workflow.

A ship designer:

- Brings in the hull design, simplifies it and unites the hull to the superstructure
- Develops the concept model in a six-step process:
 - Defines the ship envelope in 3D space
 - Specifies the number of decks (planar or nonplanar)
 - Constructs transverse frames perpendicular to the length of the ship from the bow to the stern
 - Constructs bulkheads offset from transverse frame
 - Constructs longitudinal frames from bottom to top and port to starboard
- Creates and details sections of the ship*
- Adds steel features to the ship section to define the frame of the ship
- Distributes each ship component to a separate file for manufacturing
- Creates rolling lines on the hull sections
- Creates templates for use as gauges for the rolling process
- Provides marking lines as guidelines for assembly
- Applies shrink to parts to compensate for welding and then flattens parts when appropriate.
- Outputs a neutral file in XML format for use in manufacturing operations of cutting and scribing

* This is a crucial gating step in the process. NX Ship Design makes it easy to provide naval regulatory bodies the complete information they need to evaluate the ship's design. Once approval is obtained, the rest of the process can go forward.



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