KOMAC
KOREA MARITIME CONSULTANTS CO., LTD.

TOTAL DESIGN PACKAGE SOLUTION FOR GREEN SHIP

(주) 한국해사기술
KOREA MARITIME CONSULTANTS CO., LTD.

Proven Global Leader in **Naval Architecture** and **Ship Design Engineering**

Trusted by Shipowner & Shipyard Worldwide Since 1969

Korea Maritime Consultants Co., Ltd. (KOMAC) is a time-honored design house with technical headquarters in the port city of Busan and management headquarters in the capital city of Seoul. KOMAC was established in 1969 as South Korea's very first private maritime design and engineering services company. Since our founding, we have contributed to the design and construction of over 1,800 vessels such as VLCC, LNG Carriers, Containerships, and RO/RO, 5,000 ton class patrol vessels, tuna purse seiner, as well as icebreaking vessels to aid in polar marine expeditions, diving support vessels, geophysical exploration vessels, US Jones Act vessels, and large-scale oil skimmers, and have developed into a globally recognized design house through our involvement in construction supervision of more than 2,000 types of vessels up to date.

Through these diverse experiences and accrued know-how, we ensure lasting trust with our clientele, and for the 50 year road we have walked since our founding, we have outstripped the footsteps of a single business to accompany the development of the greener global maritime industry.

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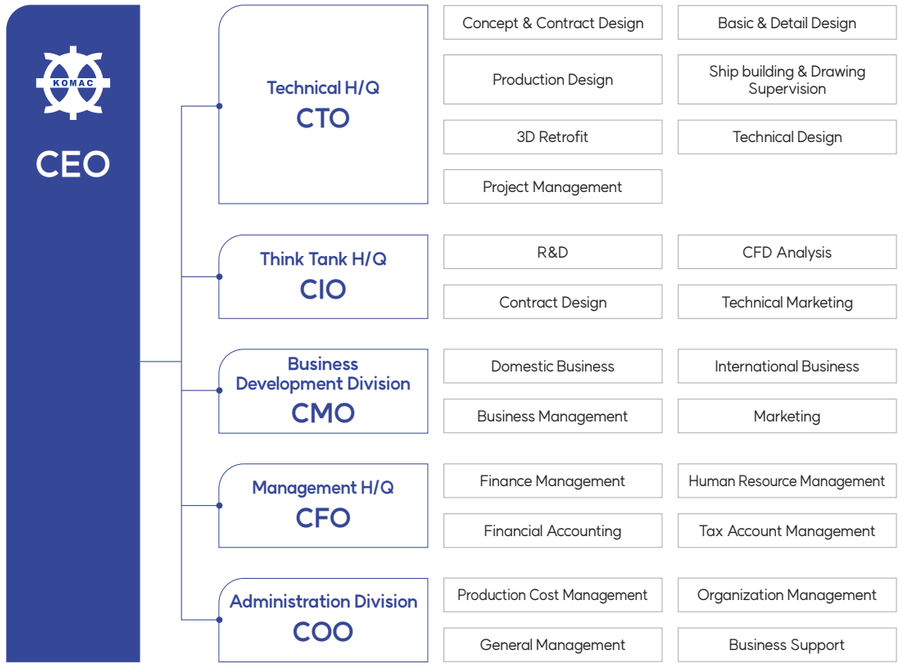
KOMAC INFORMATION

Name of Company	KOMAC Korea Maritime Consultants Co., Ltd.
Date of Incorporation	1969. 03 Korea's First Maritime Consultancy and Engineering Services Firm
Number of Employees	140 Employees Average Engineering Experience of 15+ Years
Technical Headquarters	Busan Digital Valley, 9th Floor, 303 Daedong Ro Sasang Gu, Busan, 46981, Korea (Gamjeon Dong)
Management Headquarters	Media Center Building, 5th Floor 175, Hakdong Ro Gangnam Gu, Seoul, 06046, Korea (Nonheyon Dong)



BUSINESS SECTOR

Design Engineering Services Overview

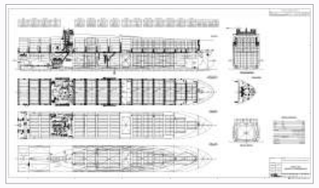
01

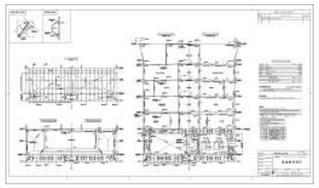
Concept / Contract design

We thoroughly comprehend, analyze, and aim to accommodate our clients' specific needs in order to derive the optimal specifications for each vessel's key components, such as loading capacity, desired speed, propulsion method, hull fidelity, and ultimately provide a meticulous diagnostic of the technical and economical feasibility of such elements, fully compliant with all the latest requirements from Rules and Regulations.

Service Detail

- Implement concept gestation and proposal for the optimal vessel which ultimately satisfies each client's unique needs.
- Compile technical documents regarding basic planning, bidding, contractual specifications, placement, budget estimates, and etc.
- Draft general layout, material estimation and other fundamental design documents.
- Provide on-going technical support and consultation in line with ever changing Rules and Regulations.
- Administer need-basis support per client specific requirements, such as liaising with proprietors.





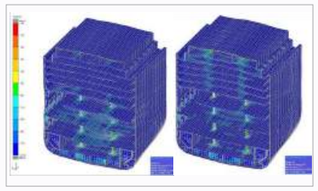
02

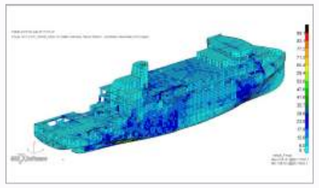
Basic / Detail design

KOMAC's highly experienced team of basic design engineers have accumulated vast experience and knowledge through their involvement in the design of more than 1,800 variegated vessels. Through thoughtful and consistent collaboration with our in-house production and structural engineering teams, our designers have also garnered a wealth of knowledge in the demands of vessel construction, and are aptly able to provide optimized designs that satisfy production timelines and methods, the latest IMO regulations, various international accords, and environmental regulations.

Service Detail

- Provide R&D of high-performance propulsion systems utilizing Star CCM (CFD Analysis), OptHull, NAPA, and etc.
- Perform structural analysis (global & local) utilizing Patran, Nastran and etc.
- Perform detailed noise and vibration Analysis and model test.
- Draft detailed structural plans, general and machinery arrangements, and systematic diagrams per design discipline.
- Perform technical review and approval of third party machinery offerings, and draft purchase order specifications.
- Submit applications and reports on inclination tests and sea trials.





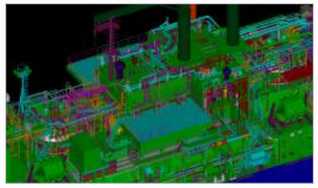
03

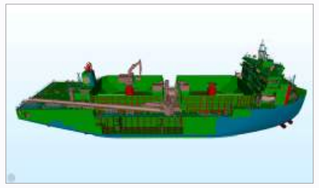
Production Design

KOMAC's production and structural design department utilizes the latest industry standard Aveva Marine (AM) 3D software to create and provide highly accurate production documents for shipyard contractors as well as scrutinizes the potential risk and errors involved in production, thereby contributing to the ultimate efficiency of the construction process.

Service Detail

- Provide excellent manufacturing and installation plans utilizing high-fidelity 3D modeling.
- Derive client-specific, highly customized production plan.
- Derive material budget and procurement assistance.
- Formulate and implement just-in-time recommendations in the case of problems at production site.
- Provide consultation regarding peripheral production needs.





Construction Supervision Engineering Services Overview

Construction & Design supervision

So that vessels of exceptional quality may be delivered to clients in a timely manner, we provide both supervision personnel and drawing compliance check services equipped with experiences from numerous domestic and overseas projects, thereby ensuring thorough management of construction process, production plans and documents, specifications, and regulations.

Service Detail

- Review equipment specifications, inspect and evaluate technical schematics.
- Supervise construction process with on-site monitoring.
- Scrutinize work regulations, construction methods, and purchase order specifications.
- Support trial operation of key equipment and sea trials.
- Perform compliance inspection against shipbuilding specifications.

3D Retrofit Engineering Services Overview

Retrofit design

Utilizing high-fidelity 3D modeling data obtained through state of the art 3D scanning, we provide a diverse portfolio of eco-friendly retrofit design options such as SOx Scrubber, BWTS, and LNG Dual Fuel.

Service Detail

- Apply 3D data to simulate optimal equipment installation and arrangement.
- Advise on the optimal retrofit system through thorough examination of shipbuilding specifications and plans.
- Carry out detailed feasibility studies on specific retrofitting needs and recommend optimal solutions.
- Support trial operation of key equipment and trials.

KOMAC's Proven Shipyard Development Technology

KOMAC provides end-to-end consultancy services for greenfield shipyard development, including feasibility studies, and production facility system design.

KOMAC also supports the modernization of existing shipyards by offering technical assessments, layout reconfiguration, and productivity improvement strategies.

Through its systemized One-Stop Solution framework, KOMAC delivers optimized designs and engineering solutions for efficient and future-ready shipyard operations.

Total Package Service From "A" to "Z" ▶ KOMAC **Consortium Leader (Overall Shipyard Planning)**

- Civil & Building Work Design
- Site Evaluation & Market Study
- Utilities Planning & Design
- Production Methodology & Logistics Planning
- Ship Design & Technical Assistance
- Manpower Training
- Machinery & Equipment Procurement
- Production Facility Design
- Construction Supervision & Management
- Shipyard Layout & Facility Optimization (Simulation)

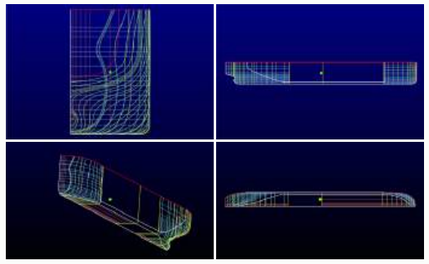
RESEARCH & DEVELOPMENT SECTOR

Hull Form Optimization for Superior Fuel Efficiency

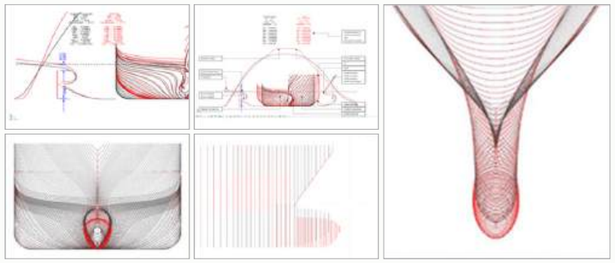
01. Optimal Hull Form Development / Design

KOMAC's utilizes 3-D Hull design systems that take into consideration hull form production and modification to provide efficient and variegated in-house designs for all types of vessels, ranging from commercial to special purpose vessels. Therefore, we possess a diverse portfolio of hull form case studies as reference for drag force optimization.

Hull Form Production



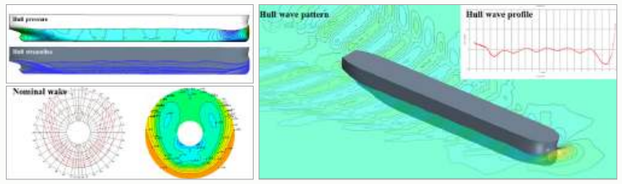
Hull Form Modification



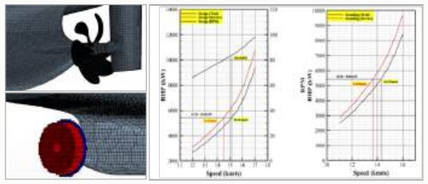
02. Hull Form Performance Analysis and Optimization

KOMAC's applies CFD data acquired through Star-CCM+ to analyze hull performance in resistance and self-propulsion and implements the ITTC analytical method to predict vessel speed and horsepower. In addition, we study and analyze the flow field and pressure distribution on the surface of the hull, as well as fluid waveform and wake distribution in order to best reflect the improvements to subsequent hull form design and optimization.

Analysis of Resistance Performance



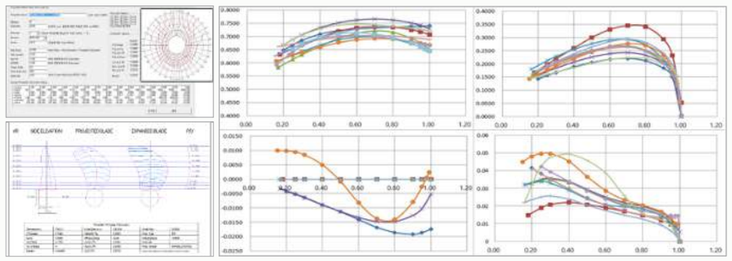
Analysis of Self-Propulsion Performance



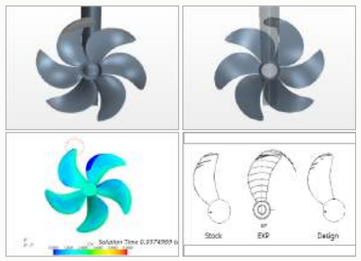
03. Development/Design of Optimal Propulsion Systems

KOMAC's designs Propellers in accordance with the KRISO Propeller Design Code, and implements STAR-CCM+ to qualitatively evaluate and analyze cavitation effects on designed propellers, conduct research on various forms of cavitation, as well as estimate the risks of propeller erosion through said cavitation in order to best optimize vessel propulsion design.

Propeller Design



Cavitation Analysis



Alternative Fuels and Future Vessels

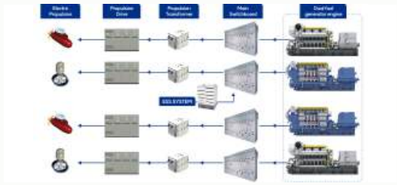
01. Alternative Fuel Propulsion Systems

KOMAC, in response to the IMO's environmental regulations, develops new propulsion systems – including those that rely on alternative fuels such as methanol, ammonia, and hydrogen, electric systems such as batteries and fuel cells, or hybrid systems – as well as designs new vessels to which those hybrid systems would be applied. In addition, for both the developed propulsion systems and the vessels to which they are equipped, utmost safety is ensured through thorough risk assessment by an authorized third party institute.

Alternative Fuel System

- LNG Fuel System
  - LPG Fuel System
    - Methanol Fuel System
    - Ammonia Fuel System
- Hydrogen Fuel System

Eco-Friendly Elec. Propulsion



- Battery Propulsion
  - Methanol Fuel Cell Propulsion
  - Hydrogen Fuel Cell Propulsion
- Hybrid Propulsion

02. R&D for Alternative Fuels Future VesselsSystems

KOMAC, in compliance with IMO Environmental Regulations, applies eco-friendly alternative fuels to a wide range of existing vessels, from commercial to special purpose, including government operated vessels, and simultaneously implements R&D of new vessels for transporting and providing cargo and services that are expected to be in demand in the future.

LNG BV

LH2 Fuel Cell Patrol Ship

NH3/LPG/CO2 Carrier

Rock Installation Vessel

LNG(Ammonia-Ready) CV

DFDE Tanker

03. External Cooperation and Support

KOMAC regularly cooperates with ship owners and other industry partners to enable alternative GREEN fuels driven future proof vessels, and through such efforts, we are proud to provide technical support and joint R&D opportunities to shipyards and ship owners that are able to secure competitiveness in the field through our accumulated set of expertise.

여가친화인증 ISO 9001:2015 ISO 14001:2015 ISO 27001:2013 ISO 37001:2016 ISO 45001:2018

NO PROJECT IS TOO LARGE
TOO SMALL OR TOO SPECIALIZED

KOMAC
SINCE 1969
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