EKC2022
Europe-Korea Conference on Science and Technology

KSOE

A Study Direction on Emerging Technologies & Sustainability

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Development of Decarbonized/Unmanned Future Vessels

Korea Shipbuilding & Offshore Engineering

Future ship technology development of new concept ships and core systems

Decarbonized Vessels and New cargo Vessels



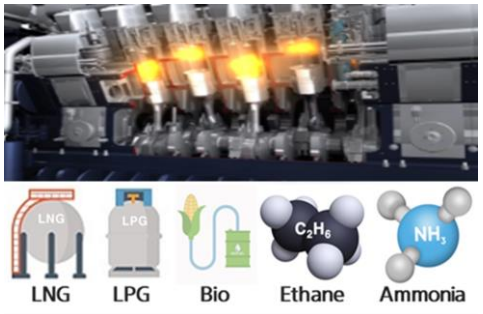
Decarbonized propulsion ships
(H2/NH3/electric/wind propulsion ships)

New cargo vessel (ammonia FSU, liquefied hydrogen carrier)

Fuel economy innovative ship and equipment

Optimal Arrangement, Flow/Structure Analysis

Zero-carbon/low-carbon propulsion package



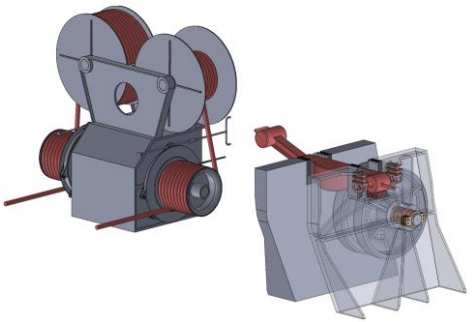
Multi-Fuel combustion engine
(bio, ammonia, hydrogen, methanol))

Floating Nuclear Power Gen.& Hybrid Propulsion Package
(Melt salt reactor, fuel cell)

Clean Emission System

Combustion, Catalyst, Heat Fluid Analysis

Optimal/Rigid Design of Mechanical Equipment

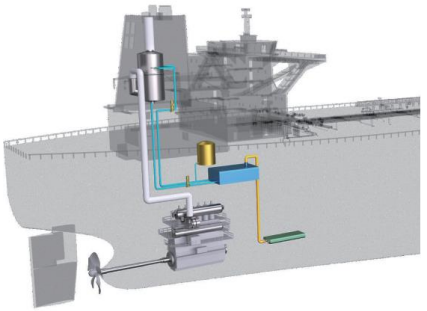


Optimal design of ship machinery and equipment
(propulsion, landing, unloading system)

Robust Design of Production Mechanical Equipment
(LNGC Truss, Winding Aid)

Unmanned/automated machine system
(Axis alignment system, trap special system)

Exhaust gas CO2 Direct Reduction System



On-board CO2 Capture System

CO2 Utilization Technology

Business-oriented LNG and differentiated technology

Total solution for gas carrier and gas fuel propulsion ships;

Liquefied gas carrier Gas System



- LNG Re-liquefaction System
- FSRU[1] Re-gasfication System
- LPG Fuel supply system
- Liquefied Gas Carrier CHS[2]

Gas Propulsion FGSS[3] Solution



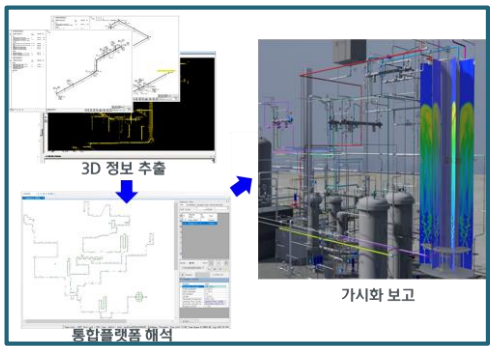
- LNG fuel propulsion FGSS
- Methanol Fuel Supply System High Efficiency Fuel Supply System
- ship cooling/waste heat recovery system

Carbon Neutral CCUS[4] New Tech.



- Shipbuilding and Marine Engineering CCUS
- Future Decarbonized Fuel Systems
- Hydrogen carrier gas system
- Green Hydrogen Production System

Digital-based safety Design Technology



- Digital Twin-based piping system performance verification Tech.
- System Risk Analysis

[1] FSRU: Floating Storage Regasification Unit / [2] CHS: Cargo Handling System / [3] FGSS: Fuel Gas Supply System / [4] CCUS: carbon capture, utilization and storage

Intelligent Digital Ship Development

Korea Shipbuilding & Offshore Engineering

Intelligent digital ships combining advanced digital and artificial intelligence technologies

Electric Propulsion System



Ship electrical propulsion system

Ship Smart Grid
ship's electrical equipment

Electric propulsion of small and medium-sized vessels

Digital Twin Platform



Ship Digital Twin Platform

Ship Integration Simulation

Ship Virtual Sea trial Solution

Ship Engine Automation Solutions

AI-based innovation solution



AI-based innovation solutions

Ship Asset Management Solution

Ship Unmanned Solution

Ship Cybersecurity Solutions

Data Platform



Ship Data Platform

Smart Ship Solutions

Engine Monitoring Solutions

Autonomous Vessel Platform

Maximize the competitiveness with super-difference production technology

Korea Shipbuilding & Offshore Engineering

The innovation of the manufacturing process for the ship by the digital shipyard & intelligent automation plant.

H-effic&L-cost welding and new steel species



2 electrode EGW welding tech.

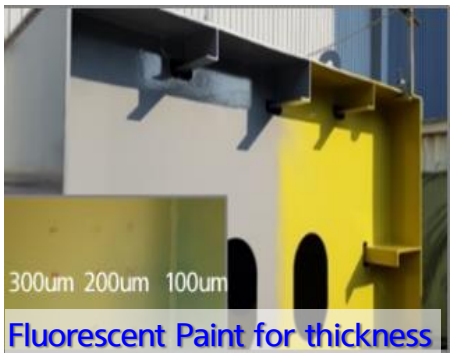
Economical steel and welding materials

High Efficiency/Low Deformation Welding Technology

Digital welding system

Intelligent Welding Device

new eco-friendly high-performance materials



Fluorescent Paint for thickness

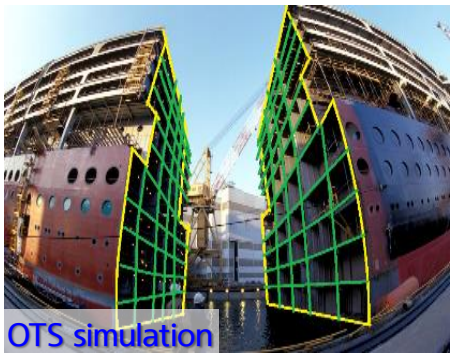
Development of eco-friendly /multifunctional paint

Development of high performance polymer materials

Anti-corrosion materials and anti-corrosion design

Automate painting and surface treatment

CAE-based New Construction Method



OTS simulation

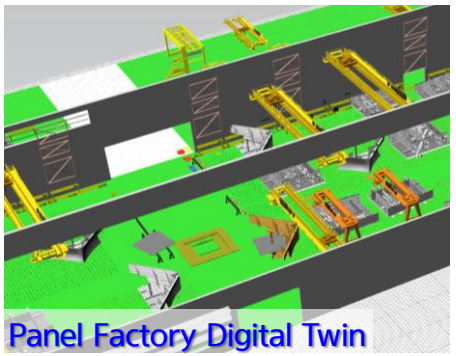
Prediction and control of weld deformation

Optimization of CAE-Based Production Method

Improve structural integrity/durability

Composite Material Application Design

Smart production & robot automation



Panel Factory Digital Twin

Digitizing production performance

Simulation-based Digital Twin Deployment

Intelligent automation of robot applications

Production Process/Line Automation

[1] CAE : Computer-Aided Engineering

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