



Global leader of eco-friendly ship design and development

Greetings from CEO

Seho Marine Solutions(SMS) has been pursuing the goal of zero emission with an eco-friendly ship design & R&D and dedicated to conversion engineering for the ships in service. Furthermore, SMS has been acting as a solution provider for a diversity of marine failures and troubles at sea.

As a unique engineering company located in Ulsan, Korea, SMS covers new ship designs and conversion engineering expanding its business from EGCS retrofit engineering up to the area of design development of hydrogen fuel cell and hybrid propelling system as well as LNG fueled ship conversion.

With a number of competent and long experienced design engineers mostly from those major ship yards such as HHI, HMD, DSME, we are capable of implementing design and calculation for a variety type of ships requiring high-tech and better performance.


Based on cutting-edge technology with strong passion, our challenge will continue in the marine field to achieve a common goal of human being, having a clean ocean and beautiful nature.

Your continued support and patronage would be very helpful for us to accomplish such mission and to be committed to the highest quality of service for our clients.

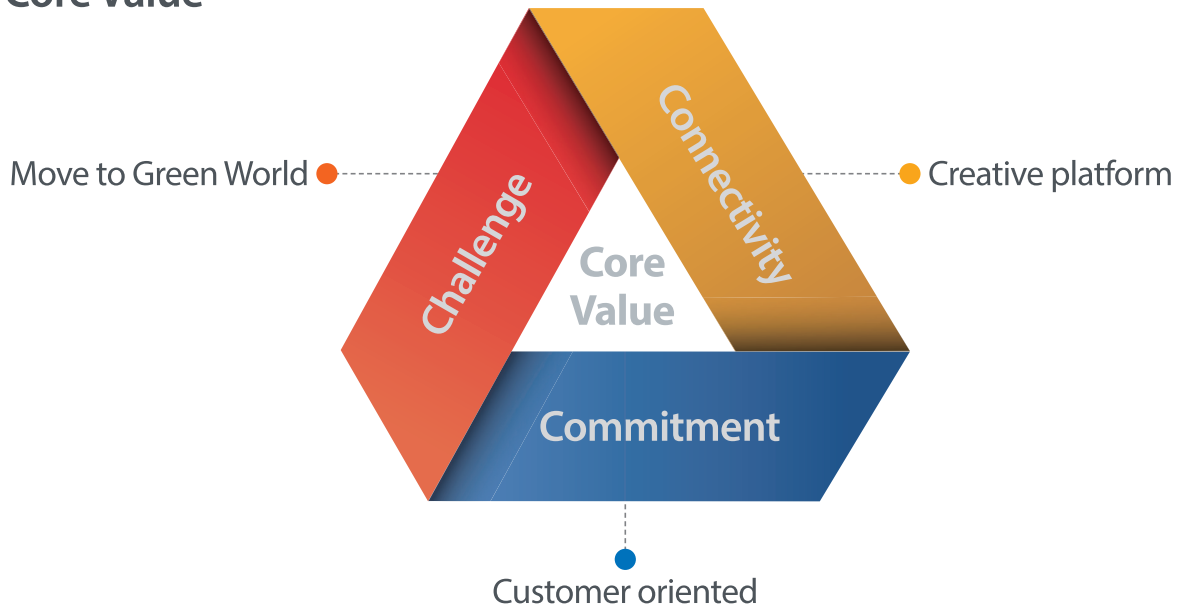
Thank you!

CEO of Seho marine solutions

Young-won, Kim



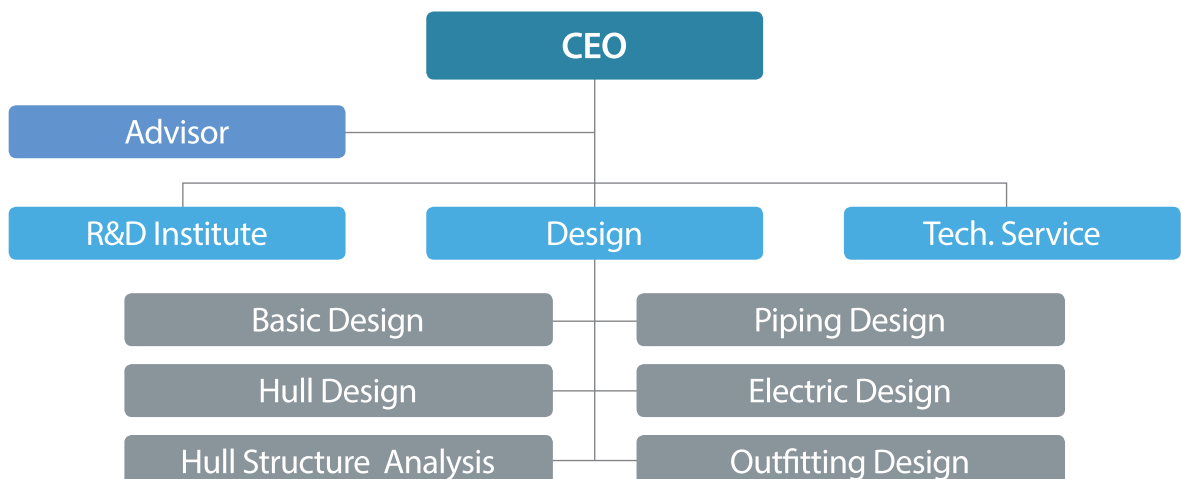
Core Value



Mission & Vision, Goal

Mission	To contribute to the green ocean with cutting-edge technology
Vision	Playing as the first mover of eco-friendly ship engineering & service
Goal	Becoming world class marine design & service provider by 2030

Organization chart





Seho Marine Solutions

Eco-Friendly Ship Design & Development

Hybrid Tug Boat

Pleasure Boat

Pilot Boat

Eco-friendly offshore wind farm support ship

Full Electric Pleasure Boat

Fuel Cell Propulsion Pleasure Boat

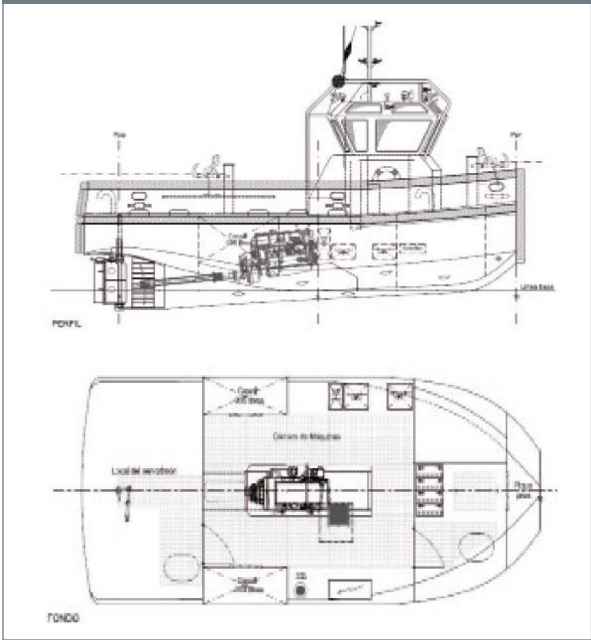
6.5k LNGC

Fuel Cell Cold-Ironing Barge

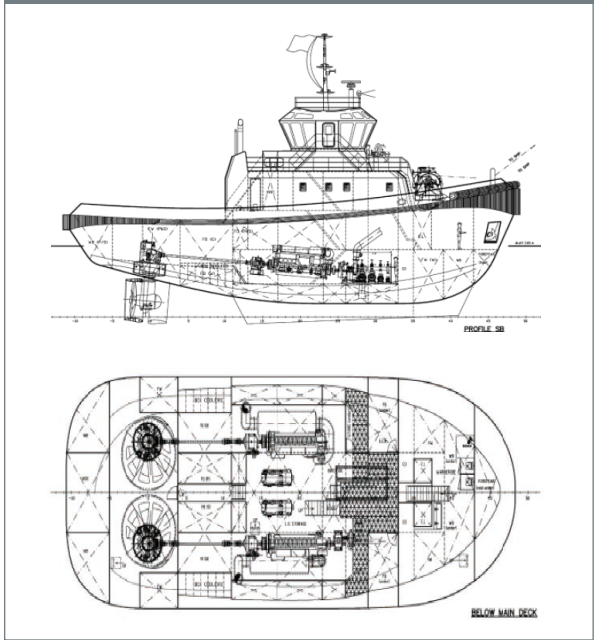
Submarine Tug Boat (Hybrid Propelling System)



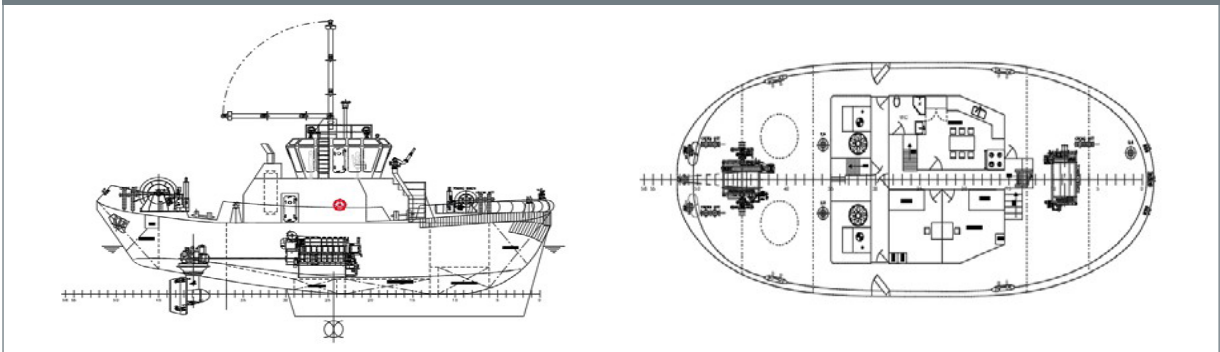
Single screw, Single engine



Twin screw, Twin engine



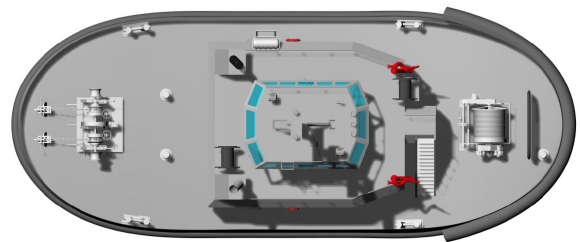
Hybrid propelling



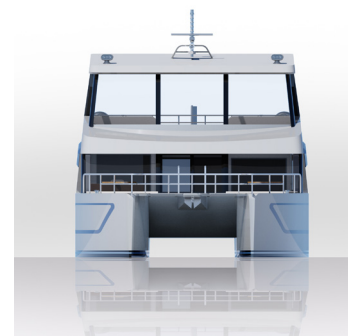
Hybrid Tug Boat



- Length 26.6 m
- Breadth 10.4 m
- Depth 4.8 m
- Displacement 380 tons
- Diesel Power 3,600 BHP
- Battery Capacity 2*400 kWh
- Speed (M/E) 12 knots
- Speed (Battery) 8 knots (2 hour max.)



Pleasure Boat



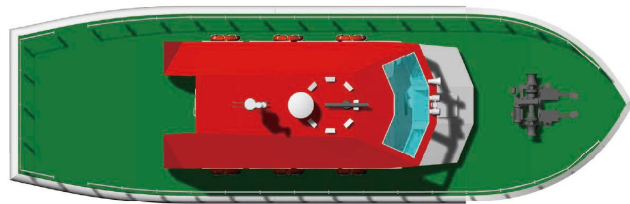
- Length 19.5 m
- Breadth 6.5 m
- Depth 1.8 m
- G/T 50 tons
- Diesel Power 2*700 BHP
- Speed 20 knots



Pilot Boat (SMS-Type 1)



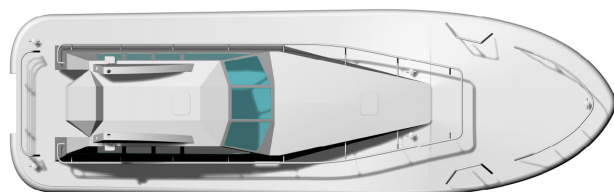
• Length	14.5 m
• Breadth	4.3 m
• Depth	2.1 m
• G/T	50 tons
• Diesel Power	680 BHP
• Complement	2 (Crews) 14 (Passengers)
• Speed	20 knots, 100% MCR (Full Speed) 17 knots, operating speed



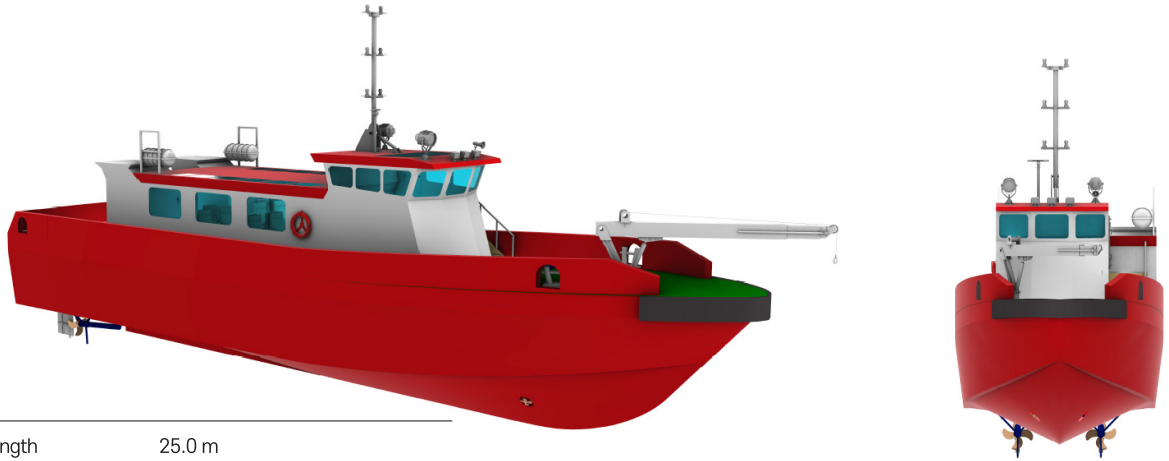
Pilot Boat (SMS-Type 2)



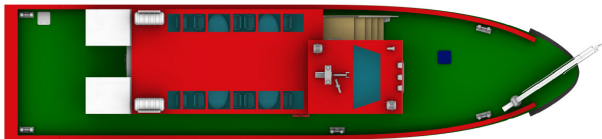
• Length	14.5 m
• Breadth	4.5 m
• Depth	2.1 m
• G/T	50 tons
• Diesel Power	680 BHP
• Complement	2 (Crews) 14 (Passengers)
• Speed	22 knots, 100% MCR (Full Speed) 17 knots, operating speed



Pilot Boat (SMS-Type 3)



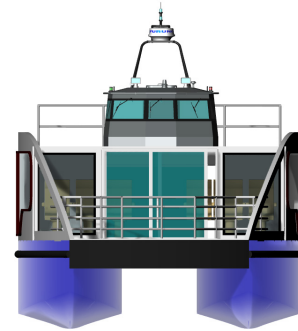
- Length 25.0 m
- Breadth 5.9 m
- Depth 3.6 m
- G/T tons
- Diesel Power 2 x 700 kW
- Complement 2 (Crews)
20 (Passengers)
- Speed 24 knots,
100% MCR (Full Speed)
20 knots, operating speed



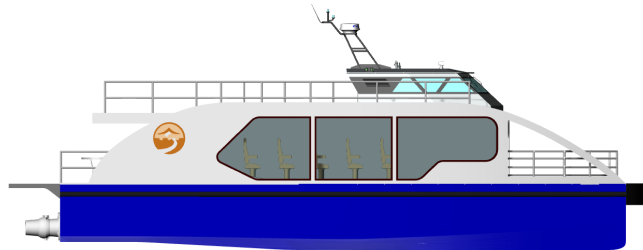
Eco-friendly offshore wind farm support ship



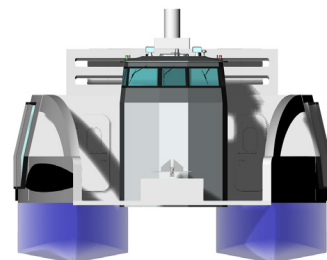
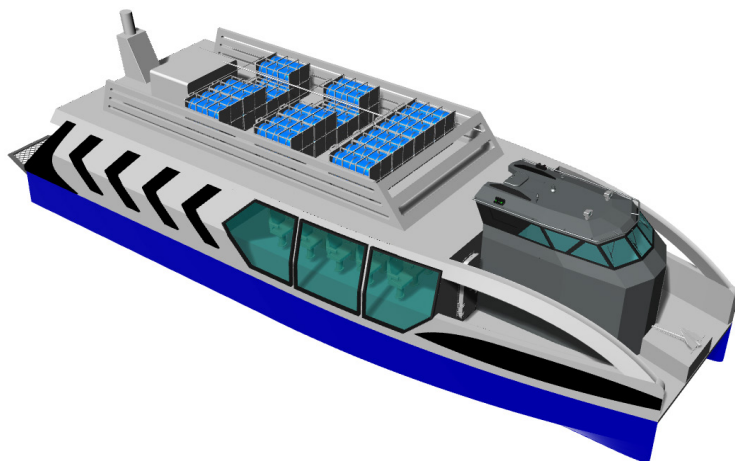
Full Electric Pleasure Boat



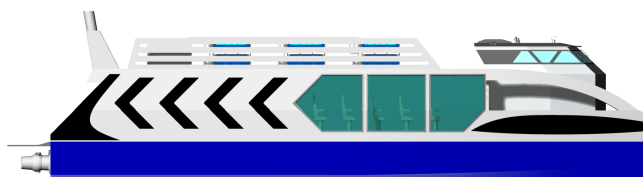
- Length 18.5 m
- Breadth 6.5 m
- Depth 1.8 m
- G/T 50 tons
- Motor Power 2*250 kW
- Speed 15 knots



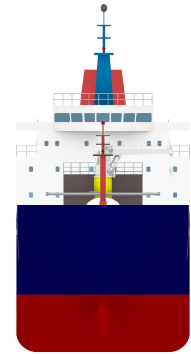
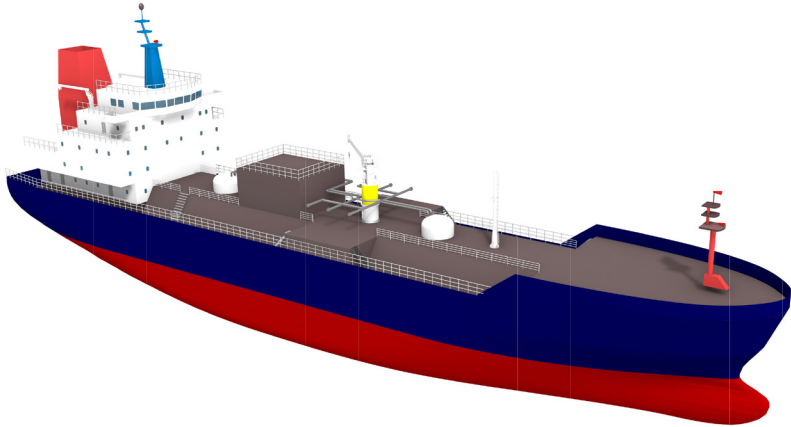
Hydrogen Fuel Cell Propulsion Pleasure Boat



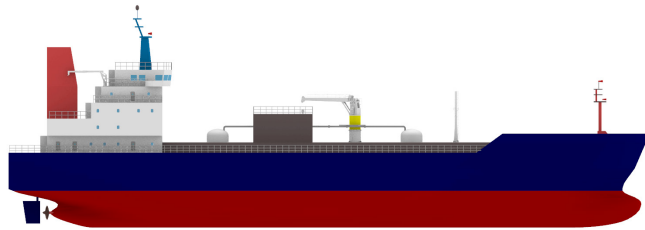
- Length 19.94 m
- Breadth 7.00 m
- Depth 1.35 m
- Motor Power 2*100 kW
- Speed 10 knots



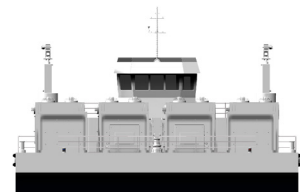
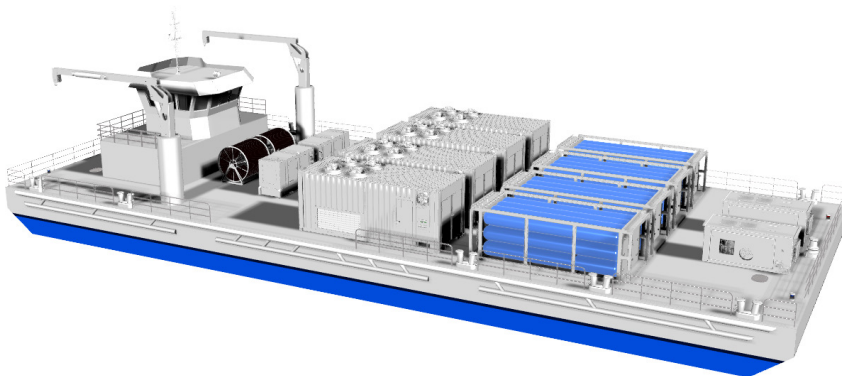
6.5k LNGC



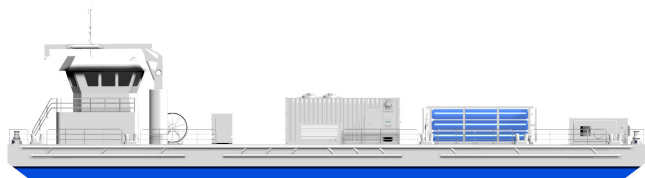
- Length 114.2 m
- Breadth 19.6 m
- Depth 10.5 m
- Weight 8,530 tons
- Diesel Power 3020 BHP
- Speed 12.6 knots



Fuel Cell Cold-Ironing Barge



- Length 34.0 m
- Breadth 14.0 m
- Depth 2.0 m
- H₂ TANK 1,730 kg
- Fuel Cell 1.6 MW



Retrofit Engineering

LNG fueled ship retrofit engineering & turn key based service

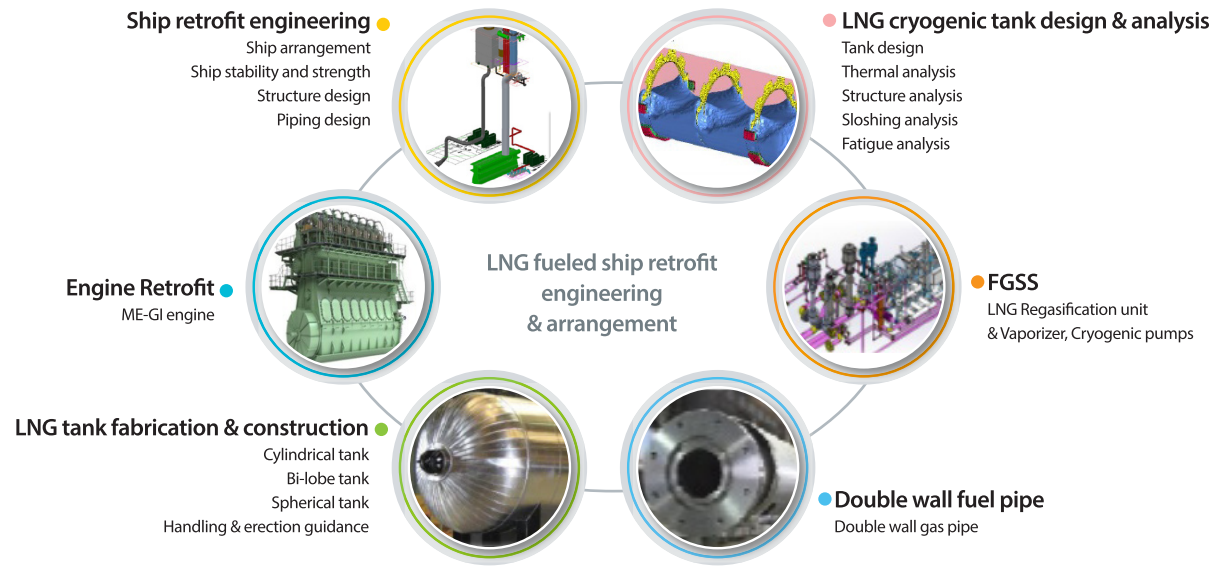
EGCS retrofit engineering & turn key based service

BWTS retrofit engineering & turn key based service

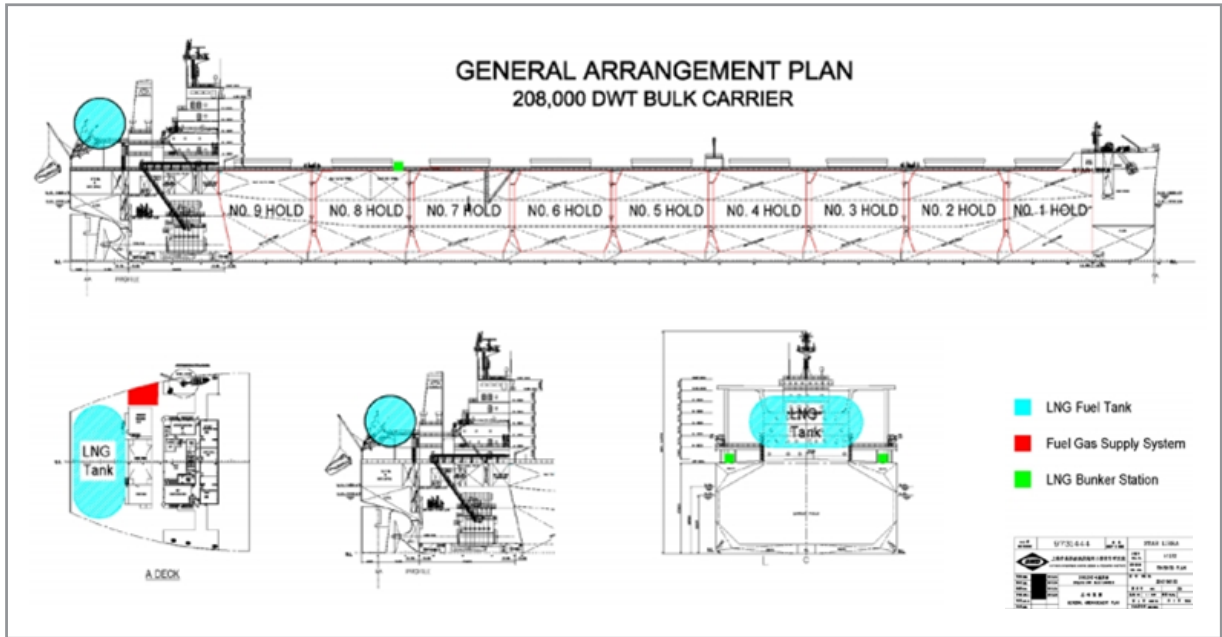


LNG fueled ship retrofit engineering & EPC total service

- SMS provides total service including retrofit engineering & procurement, installation, commissioning for the conversion of diesel propelling ship into LNG fueled ship.



■ SMS provides a top level of feasibility study report as the 1st stage of LNG DF conversion process.



■ SMS offers the quotation and EPC schedule for LNG DF conversion project.

Support, Outer Pipe, Inner pipe, Insulation, Clamp

Double wall pipe

LNG fuel storage tank
Insulation
Top module unit

SCF
Safety Comes First
NO SMOKING

Gas Valve Unit

Chain & Helix pipe

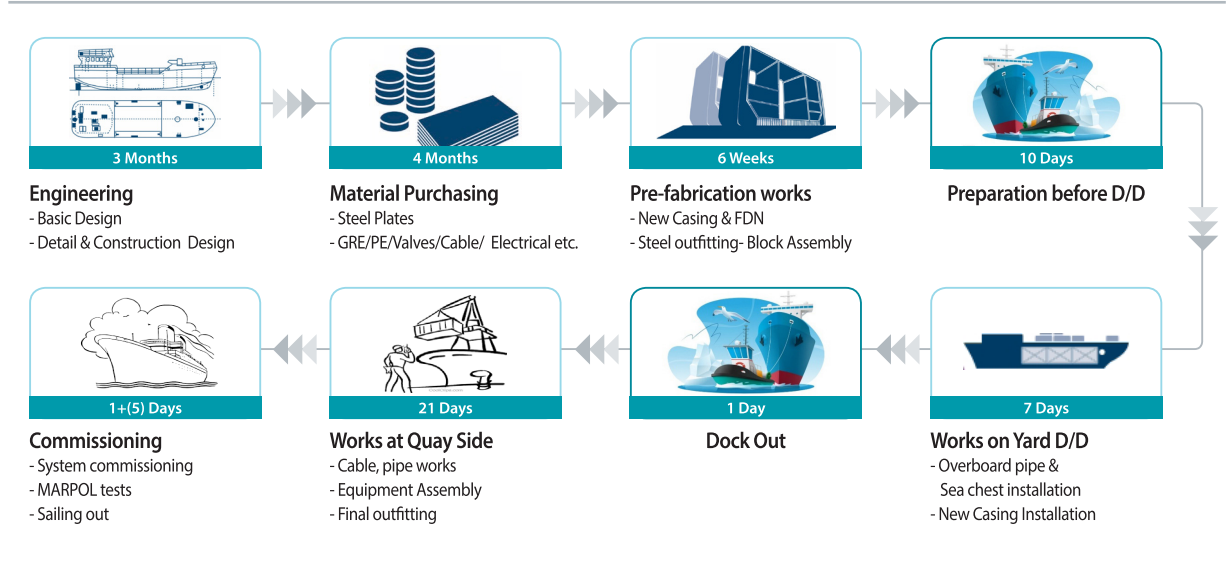
Bunker Station

LNG fuel gas supply room

Cargo pipe fabrication & pre-connection
Pipe insulation & Gel coating
Electric cable pulling & Connection

EGCS retrofit engineering, procurement & commissioning

■ SMS provided excellent EGCS retrofit engineering & procurement, commissioning for 27 various type of ships and equipment.



Record for EGCS retrofit engineering & commissioning

SHIP OWNER	VESSEL		EQUIPMENT MAKER	Q'TY OF VESSEL	TYPE OF SERVICE	
	NAME	TYPE				
Andros	Amorgos	300,000 DWT Crude oil carrier	HPS SCRUBBER	1 vessel	EGCS Engineering	
Capital	Miltiadis Junior	320,000 DWT Crude oil carrier	HPS SCRUBBER	1 vessel		
Andros	Kassos I	319,000 DWT Crude oil carrier	HPS SCRUBBER	1 vessel		
JX Ocean	Leo Green	82CBM LPG carrier	HPS SCRUBBER	1 vessel		
Capital	Hyundai Prestige	5,000 TEU Container	HPS SCRUBBER	1+4 vessels		
Capital	Karbala	297,500 DWT Crude oil carrier	HPS SCRUBBER	1+1 vessel		
Andros	Syfnos	298,000 DWT Crude oil carrier	HPS SCRUBBER	1 vessel		
JX Ocean	G. Symphony	83CBM LPG carrier	HPS SCRUBBER	1 vessel		
KSS Line	Gas Summit	84CBM LPG carrier	HPS SCRUBBER	1 vessel		
Capital	Cape Agamemnon	180,000 DWT Bulk carrier	HPS SCRUBBER	1 vessel		
Capital	CMA CGM Amazon	9,100 TEU Container	HPS SCRUBBER	1+2 vessels		
KSS Line	Gas Wisdom	84CBM LPG carrier	HPS SCRUBBER	1 vessel		
KSS Line	Gas Power	79CBM LPG carrier	HPS SCRUBBER	1 vessel		
Hyundai Glovis	Glovis Sun	7,400 PCTC	HPS SCRUBBER	1+2 vessels		
Vitol holding	Elandra Angel	115,000 DWT Crude oil carrier	MS SCRUBBER	1 vessel		
Vitol holding	Elandra Falcon	158,000 DWT Crude oil carrier	MS SCRUBBER	1 vessel		
Zodiac	Wugang Haoyun	298,000 DWT Ore carrier	MS SCRUBBER	1 vessel		
Enterprises Shipping	Elandra Osprey	158,000 DWT Crude oil tanker	MS SCRUBBER	1 vessel		
New Shipping	New Giant	320,000 DWT Crude Oil Carrier	MS SCRUBBER	1 vessel		
Samjoo Maritime	SJ Asia	177,000 DWT Bulk Carrier	MS SCRUBBER	1 vessel		
SW Shipping	Sea Coen	176,000 DWT Bulk Carrier	MS SCRUBBER	1 vessel		
Seanergy	Lordship	180K Bulk Carrier	KC COTTRELL	1 vessel		EGCS Commissioning
Seanergy	Partnership	180K Bulk Carrier	KC COTTRELL	1 vessel		
XT shipping	Genova	4,000 TEU Container ship	KC COTTRELL	1 vessel		
Seanergy	Championsip	180K Bulk Carrier	KC COTTRELL	1 vessel		
Fantastiks shipping	Navios Fantastiks	180K Bulk Carrier	KC COTTRELL	1 vessel		
XT shipping	X press guernsey	4,700 TEU Container ship	KC COTTRELL	1 vessel		

Record for BWTS retrofit engineering

SHIP OWNER	VESSEL		EQUIPMENT MAKER	Q'TY OF VESSEL	TYPE OF SERVICE
	NAME	TYPE			
Pan Ocean	Pan Edelweiss	33,200 DWT Bulk carrier	PANASIA	1 vessel	BWTS Engineering
Pan Ocean	Pan Mutiara	81,500 DWT Bulk carrier	PANASIA	1 vessel	
Pan Ocean	Pan Gloris	33,200 DWT Bulk carrier	PANASIA	1 vessel	

Performance Record for the Installation of SO_x Scrubber(EGCS) (by JKSS+SMS)



1. Ship Name : Koro Sea

- 1) Construction : April 2019
- 2) Ship Type : 106K Tanker
- 3) Classification : ABS
- 4) Scrubber Maker : Clean Marine (Open Loop Type)



2. Ship Name : Lake Geneva

- 1) Construction : June 2019
- 2) Ship Type : PCTC
- 3) Classification : LR
- 4) Scrubber Maker : Clean Marine (Open Loop Type)



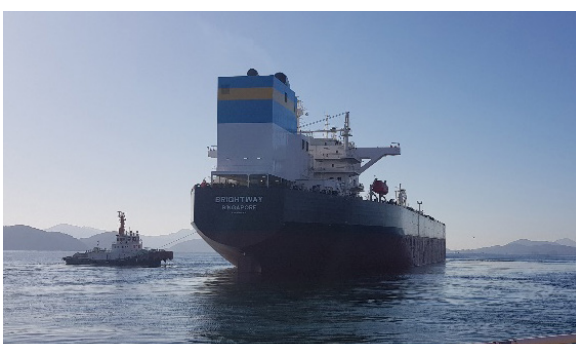
3. Ship Name : Solomon Sea

- 1) Construction : August 2019
- 2) Ship Type : 106K Tanker
- 3) Classification : LR
- 4) Scrubber Maker : Clean Marine (Open Loop Type)



4. Ship Name : Caspina Sea

- 1) Construction : September 2019
- 2) Ship Type : 114K Tanker
- 3) Classification : ABS
- 4) Scrubber Maker : Clean Marine (Open Loop Type)



5. Ship Name : Bright Way

- 1) Construction : October 2019
- 2) Ship Type : 160K Tanker
- 3) Classification : LR
- 4) Scrubber Maker : Clean Marine (Open Loop Type)



6. Ship Name : MSC Altamira

- 1) Construction : October 2020
 - 2) Ship Type : 8900 TEU Container Carrier
 - 3) Classification : LR
 - 4) Scrubber Maker : Jungwon (Hybrid Type)
-



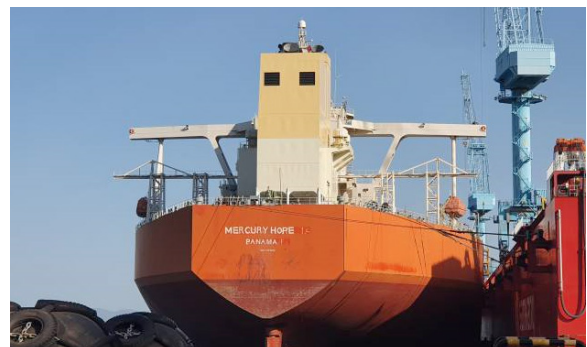
7. Ship Name : Serene Sea

- 1) Construction : November 2020
 - 2) Ship Type : 105K Tanker
 - 3) Classification : ABS
 - 4) Scrubber Maker : Clean Marine (Open Loop Type)
-



8. Ship Name : Stellar Ace

- 1) Construction : January 2020
 - 2) Ship Type : 300K Tanker
 - 3) Classification : ABS
 - 4) Scrubber Maker : Langtech (Open Loop Type)
-



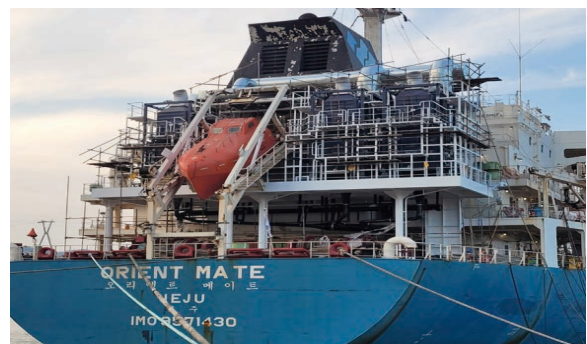
9. Ship Name : Mercury Hope

- 1) Construction : March 2020
 - 2) Ship Type : 297K Tanker
 - 3) Classification : ABS
 - 4) Scrubber Maker : Langtech (Open Loop Type)
-



10. Ship Name : Gas Power

- 1) Construction : June 2020
 - 2) Ship Type : 79CBM LPGC
 - 3) Classification : KR
 - 4) Scrubber Maker : HPS (Open Loop Type)
-



11. Ship Name : Orient Mate

- 1) Construction : November 2020
 - 2) Ship Type : 32K LPGC
 - 3) Classification : KR
 - 4) Scrubber Maker : Delco & Atics (Open Loop Type)
-

O&M Technical Service

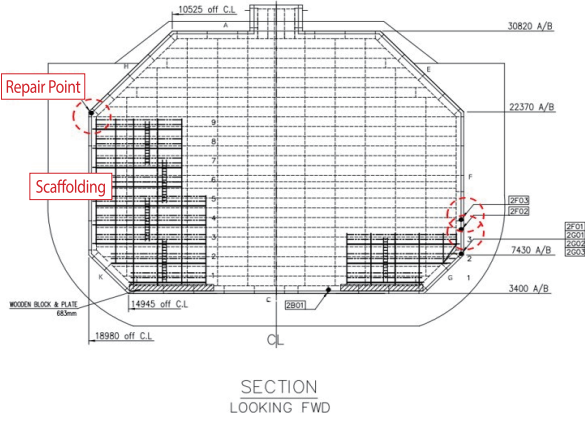
SMS provides optimal solutions and services including D/D special service through its highly experienced experts and its networks in marine industry for several decades.

- Shaft system
- Main engine & aux. engine
- Electric equipment incl. motor, panel
- Ship elevator
- Pump, cooler, air compressor, heat exchanger
- LNGC CCS inspection & repair scaffolding
- General steel & pipe repair works
- Special welding works
- Deck machinery maintenance work

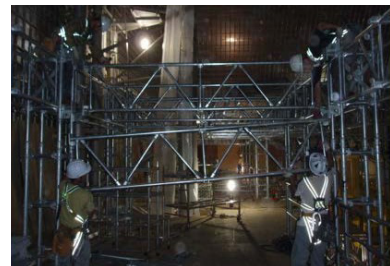
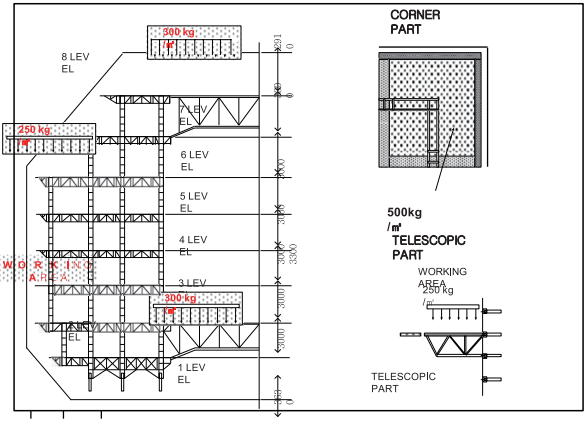


Survey & Repair scaffolding for LNGC CCS

■ Repair work for leakage area



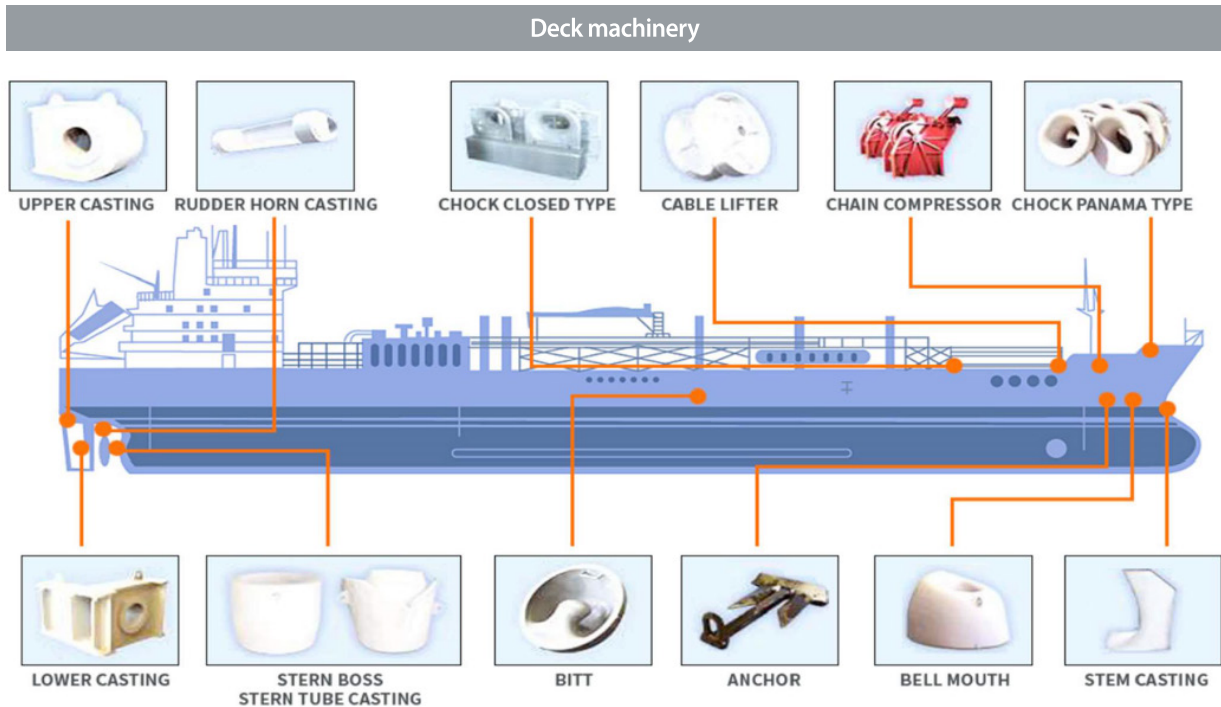
■ Reference Design Loads for scaffolding



■ Services for machineries and electric panels



SMS provides a variety of spares, materials, equipment for the ships in service



How to meet Amendments to MARPOL Annex VI

Services Proposed by the Seho Marine Solutions (SMS)

- ♣ Review existing EEDI technical file and convert to EEXI technical file (only for EEDI ship and complied with EEXI requirement)
- ♣ Calculate EEXI and generate EEXI technical file (for pre-EEDI ship or EEDI ship not complying EEXI requirement)
Following measures shall be applied to meet EEXI requirement
 - Shaft / Engine power limitation (SHaPoLi / EPL)
 - Installation of energy-saving devices
 - Fuel conversion to the low-carbon fuel
- ♣ EPL service (subject to permit of MAN ES)
- ♣ Feasibility study and EPC providing for conversion to alternative fueled ship (LNG or LPG)

Required data and documents for EEXI calculation

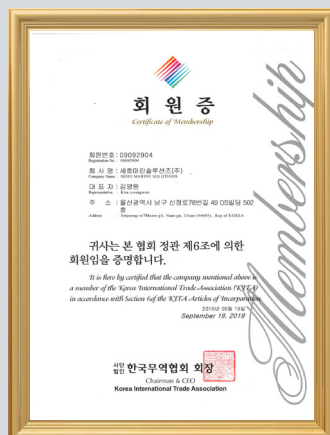
- EEDI Technical Files (for EEDI ship)
- NO_x Technical Files of M/E and A/E
- Final Trim & Stability Booklet including Result of Inclining Experiment
- Result of Sea Trial including Speed and Power Curves
- Model Test Report including Speed vs. Power Curves at Ballast/Design/EEDI (Summer Load) drafts



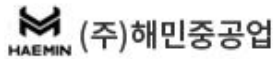
Certificate & Patent Partner company



Certificate & Patent



Partner company



Seho Marine Solutions

Global leader of marine retrofit engineering & O&M services



Seho Marine Solutions

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