

# HD KOREA SHIPBUILDING & OFFSHORE ENGINEERING

MOVE FORWARD WITH INNOVATION





## MOVE FORWARD WITH INNOVATION

HD Korea Shipbuilding & Offshore Engineering (HD KSOE), which is sub-holding company of HD Hyundai group, is certainly a prominent leader in the global shipbuilding industry. HD KSOE has four dedicated members - HD HYUNDAI HEAVY INDUSTRIES (HHI), HD HYUNDAI SAMHO (HSHI), HD HYUNDAI MIPO (HMD) AND HD HYUNDAI VIETNAM SHIPBUILDING (HVS) - all teamed to offer the highest quality shipbuilding services to our customers.

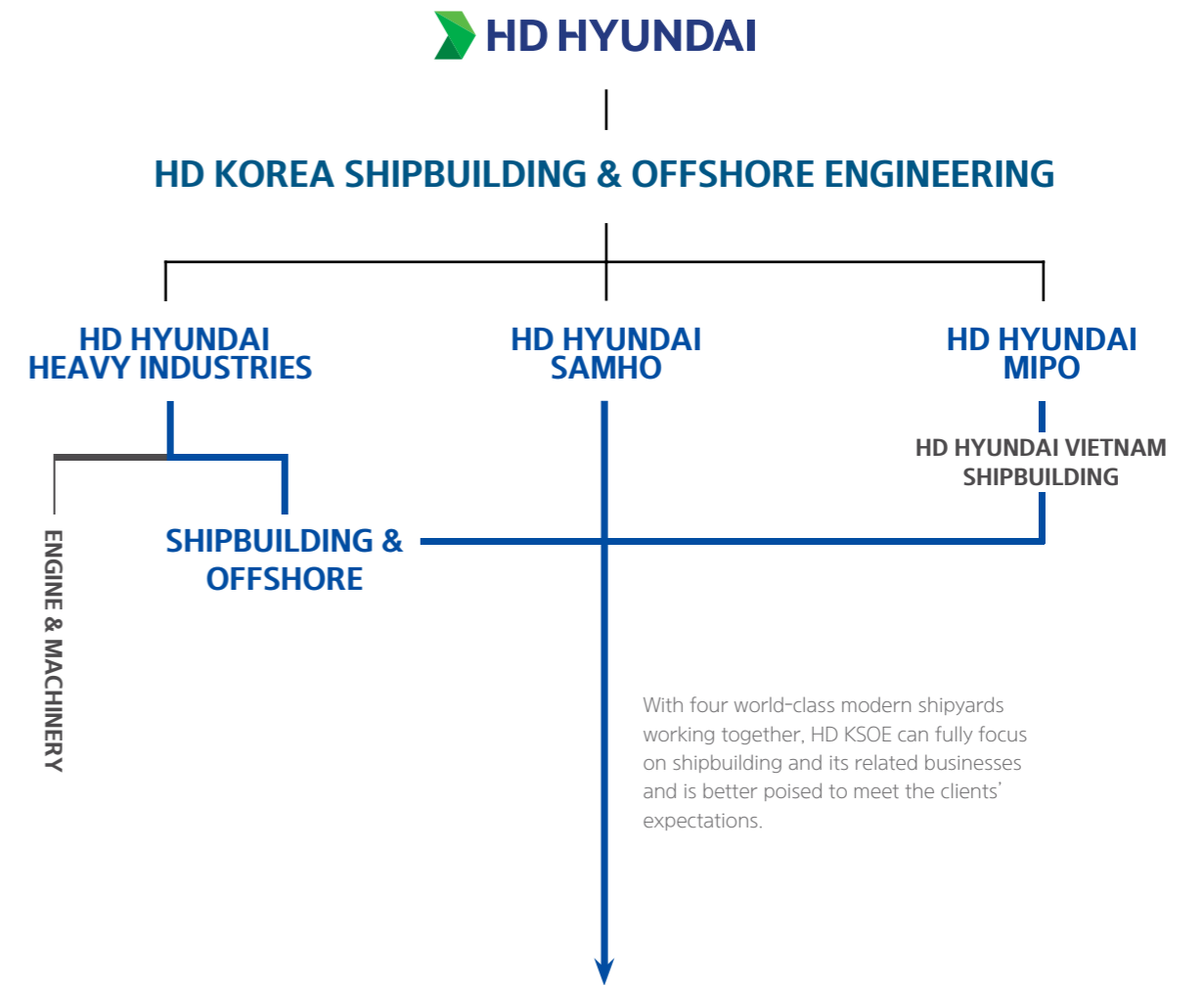
HD KSOE has come a long way over 50 years with value of 'MOVE FORWARD WITH INNOVATION' and tailored to meet clients' needs. Each member of HD KSOE is a well-established player in their market, but their combined efforts will create more value to our clients by leveraging a vast array of the most advanced production facilities and engineering capabilities and sharing technological innovations.

HD KSOE has been building an extensive product mix of commercial and special ships for the shipping, energy transport and exploration, and naval ship markets.



**HD KSOE WITH 4 COMPANIES INTEGRATED**

- HD HYUNDAI HEAVY INDUSTRIES
- HD HYUNDAI SAMHO
- HD HYUNDAI MIPO
- HD HYUNDAI VIETNAM SHIPBUILDING



**HD KOREA SHIPBUILDING & OFFSHORE ENGINEERING**

**HD HYUNDAI HEAVY INDUSTRIES**

- Integrated sales and marketing
- Basic and detail design
- Integrated procurement
- Integrated R&D

**HD HYUNDAI SAMHO**

- Detail design
- Planning and production
- Quality management
- Contract management

**HD HYUNDAI MIPO**

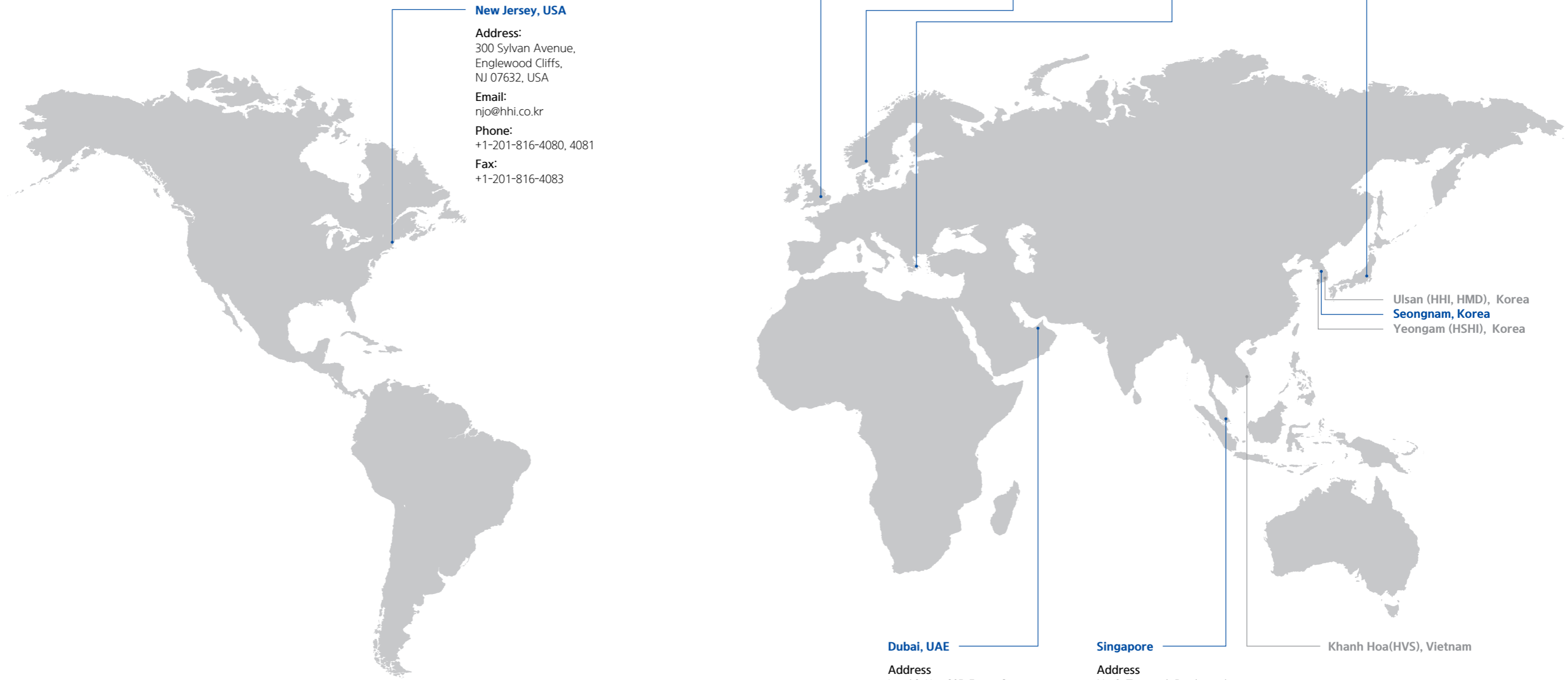
- Basic and detail design
- Planning and production
- Quality management
- Contract management
- **HVS** <sup>1)</sup>
- Planning and production
- Quality management
- Contract management

# GLOBAL NETWORK

HD KSOE has a worldwide network of offices and partners and its integrated marketing organization channels all our sales resources and capabilities toward effective market analysis, competitive marketing strategy and specific contract review.

HD KSOE's Marketing Division serves integrated sales and marketing in Global R&D Center which is located in Seongnam City, including 100 sales staff at HHI and its affiliate companies.

Design team staff members will be working side by side with the sales colleagues to improve coordination and efficiency with the purpose of finding optimal solutions for the needs of our clients.



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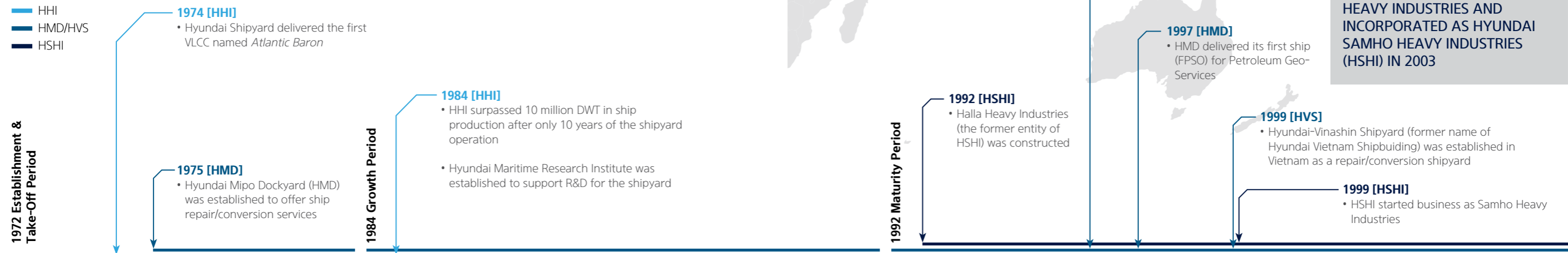
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**Khanh Hoa(HVS), Vietnam**

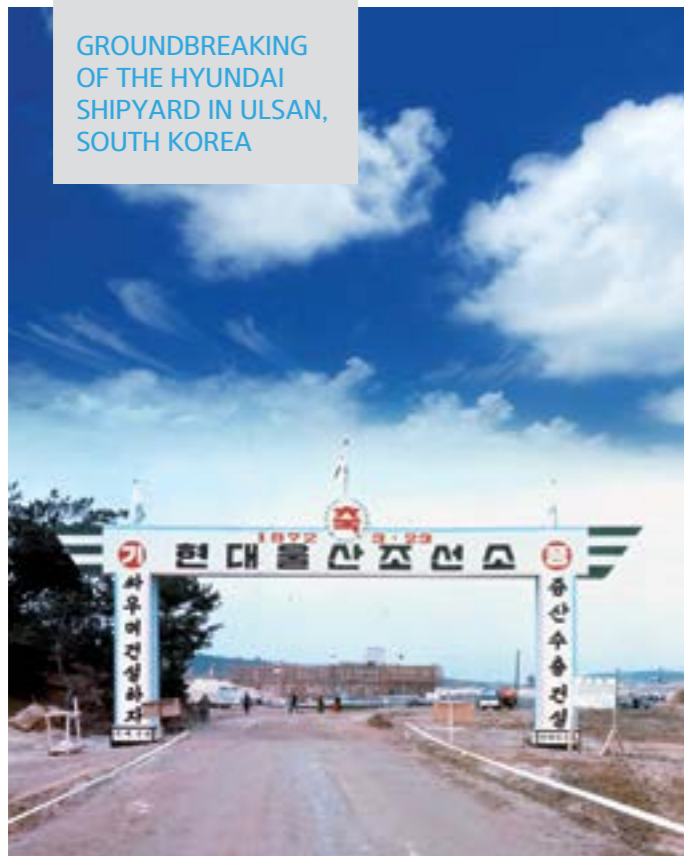
— Shipbuilding Sales Office of HD KSOE  
— Shipyard

# OUR JOURNEY IN BECOMING THE BEST SHIPBUILDER



## 1972

GROUNDBREAKING OF THE HYUNDAI SHIPYARD IN ULSAN, SOUTH KOREA



## 1985

HHI WAS RANKED THE WORLD'S TOP SHIPYARD BY THE JAPANESE ECONOMIC JOURNAL *DIAMOND*

### GATEWAY TO PROSPERITY [1972-1995]

The year 1972 marked the groundbreaking of Hyundai Shipyard. It was Chung Ju-yung, the founder of Hyundai Group, who initiated the construction of the shipyard in Ulsan, South Korea. At that time he had no experience, capital, nor technology for shipbuilding, but he had inspiration and belief in his resolution to dedicate the world's largest shipyard: "When you are at a dead end, look for a way out. When you look and still can't find a way, pave it out yourself." Two years later in 1974, Hyundai held a ceremony to simultaneously name the two VLCCs and dedicate the shipyard. The event was the first step of Hyundai Shipyard.

Now HD KSOE operates four shipyards - HHI, HSHI, HMD and HVS - to provide top-quality ships and services around the world.

Beyond the horizon, HD KSOE will maintain the leading position by building up trust and mutual relationship with our clients: making ceaseless innovation; and meeting the highest standards and new market demands.



### HMD'S RISE TO PREMIUM BUILDER OF MEDIUM-SIZED SHIPS [1996-2001]

Hyundai Mipo Dockyard (HMD) is the world No.1 shipbuilder specializing in medium-sized ships such as Product/Chemical Tankers, Gas Carriers (LPG & AMMONIA Carriers, LNG Carriers, LNG B/V, LCO2 Carriers), PCTCs, Containerships, Bulk Carriers, Ro-Ro Ships, Con-Ro Ships, and other special ships.

HMD was founded in 1975 and had grown to be the world's largest ship-repair and conversion yard. Based on technology and experience accumulated from the repair and conversion services, HMD has focused on the newbuilding of medium-sized commercial ships since 1996. HMD has been solidifying its presence on this shipbuilding sector by delivering more than 1,340 ships.

Hyundai Vietnam Shipbuilding (HVS) established in 1999 with full support from HMD has been marking its prestigious position in Product/Chemical Tankers, Bulk Carriers and Containerships. HVS has delivered more than 178 ships.

**ESTABLISHMENT OF HYUNDAI HEAVY INDUSTRIES GROUP [2002-2015]**

In 2002, having spun off Hyundai Business Group, HHI has formed independent Hyundai Heavy Industries Group including three major shipyards. That year, HHI incorporated Halla Heavy Industries with HHI Group and changed its

name to Hyundai Samho Heavy Industries in 2003, HSHI has become the world's 4th largest shipbuilder by delivering about 600 ships such as Tankers, Containerships, Bulk Carriers, PCTC, LNG Carriers and LPG Carriers and FPSO.

- 2007 [HMD/HVS]**
  - HMD surpassed 10 million DWT
  - HVS entered into newbuilding business
- 2008 [HHI/HSHI]**
  - Akpo FPSO was constructed and delivered jointly by both companies. HHI completed topside fabrication and HSHI completed hullside fabrication of Akpo FPSO
- 2008 [HSHI]**
  - HSHI completed the construction of the on-land shipbuilding site and delivered the first LNG carrier
- 2008 [HMD]**
  - HMD delivered its first LPG Carrier for Zodiac
- 2009 [HSHI]**
  - HSHI expanded Drydock No.2 and constructed outfitting quays, and achieved 30 million DWT in ship production
- 2009 [HMD/HVS]**
  - HMD delivered its first PCTC for Vroon
  - HVS delivered its first ship (56K B/C) for E.R.Schiffahrt
- 2010 [HMD]**
  - HMD delivered its first CON-RO and its first RO-RO for Grimaldi

- 2003 [HMD]**
  - HMD delivered its first medium-ranged (MR) Product/Chemical Tanker and it was selected as the "World Class Product" by the Korean government
- 2004 [HSHI]**
  - HSHI entered into Material Handling Equipment business

**2012**

**HHI WAS THE FIRST IN THE WORLD TO SURPASS 100 MILLION GT IN SHIP PRODUCTION**



**BEYOND THE HORIZONS: MOVING FORWARD THROUGH INNOVATIONS**

Facing a new era of technical innovation, HD KSOE is not complacently satisfied with past success. We remain committed to moving forward through technological breakthroughs and innovations in the shipbuilding industry by continuing to build top-quality ships; contributing to the development of the world maritime industry; and looking forward to maintaining rewarding business relationships with our customers for the prosperity of all.

**2015**

**HD KSOE ACHIEVED A NEW DELIVERY MILESTONE OF HHI'S 2,000TH, HMD'S 800TH AND HSHI'S 600TH SHIP, RESPECTIVELY**

2012 Innovative Rebirth Period

- 2013 [HSHI]**
  - HSHI achieved 50 million DWT in ship production
- 2013 [HHI]**
  - HHI delivered the world's first LNG FSRU for Hoegh LNG
- 2013 [HMD]**
  - HMD delivered its first CON-RO and its first RO-RO for Grimaldi
- 2014 [HMD/HVS]**
  - HMD achieved 30 million DWT
  - HVS delivered the first MR Product/Chemical Tanker for d'Amico
- 2015 [HSHI]**
  - HSHI constructed 10,000 ton capacity floating crane
- 2015 [HMD]**
  - HMD delivered its first LEGC for Eletson
- 2016 [HSHI]**
  - HSHI completed construction of Panama Canal facilities (Valves)
- 2016 [HMD/HVS]**
  - HMD delivered the world's first methanol D/F Product/Chemical Tanker for Westfal-Larsen
  - HVS delivered 70th ship
- 2018 [HMD]**
  - HMD delivered its first LNG D/F B/C for Ilshin Marine, LNG Bunkering Vessel for B.Schulte and Ropax for Weihai Weidong Ferry.
  - HMD delivered 1,000th ship
- 2018 [HSHI]**
  - HSHI delivered Harsh Environment Semi-Submersible Rig and THE WORLD'S FIRST LNG D/F Tanker
- 2019 [KSOE]**
  - Under Hyundai Heavy Industries Group, Korea Shipbuilding & Offshore Engineering (KSOE) was established as sub-holding company of four shipyards. As an leading shipyard group, KSOE will conduct smart and innovative researches and will prepare for future energy solutions.
- 2019 [HVS]**
  - HVS delivered 100th ship
  - HVS changed the name to Hyundai Vietnam Shipbuilding.
- 2020 [HSHI]**
  - HSHI delivered the world's first LNG D/F capesize B/C for H-Line Shipping
- 2020 [HMD]**
  - HMD delivered its first LNG Carrier for Knutsen, LNG D/F RO-RO for CLdN and LNG D/F Product/Chemical Tanker for J.P. Morgan
- 2021 [HMD]**
  - HMD delivered its first LNG Carrier for Knutsen, LNG D/F RO-RO for CLdN and LNG D/F Product/Chemical Tanker for J.P. Morgan
- 2022 [HHI]**
  - 50th Anniversary after foundation of HHI
  - Completed HD HYUNDAI Global R&D Centre Building
- 2023 [HMD]**
  - Delivered the first container Vessels Operating on Methanol

**LOOKING BEYOND THE SHIPBUILDING TO THE SHIP MARKET [2016-]**

HD Hyundai Marine Solution was launched to provide clients' urgent and follow-on demands for Hyundai ships for aftermarket, genuine spare parts, technical support and retrofit services as well. This will create more value for our clients by combining all our shipbuilding and marine service resources to provide total solutions and one-stop service for all Hyundai marine products. We believe that HD KSOE's well-aligned 'ship' businesses will create strong value chain for the ship industry beyond the shipbuilding.



## OUR SHIPBUILDING CAPABILITIES

With 19 drydocks and modern production facilities, HD KSOE can provide the best solutions for our customers by producing all types and all sizes of vessels with cutting-edge technologies.

drydocks **19** m<sup>2</sup> in area **11 million**

DWT in capacity **15 million**

# Any Ship Type of Any Size



### HHI SHIPBUILDING DIVISION (Ulsan)

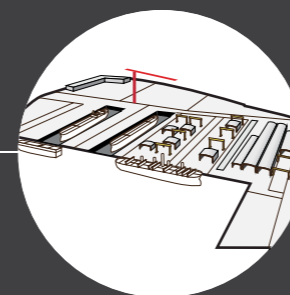
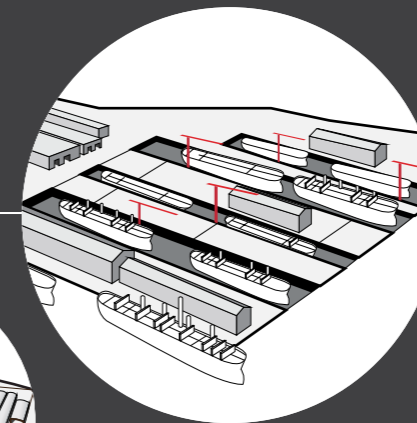
drydocks **10** m<sup>2</sup> in area **5.6 million**  
 goliath cranes **10** DWT in capacity **7.0 million**

- VLCC/Suez/Aframax Tanker
- LNG Carrier/FSRU
- VLOC/Capesize Bulk Carrier
- PCTC/Ro-Ro
- Containership
- VLGC/VLAC/VLEC
- Drillship
- LCO2 Carrier

### HMD (Ulsan)

drydocks **4** m<sup>2</sup> in area **1.0 million**  
 DWT in capacity **2.0 million**

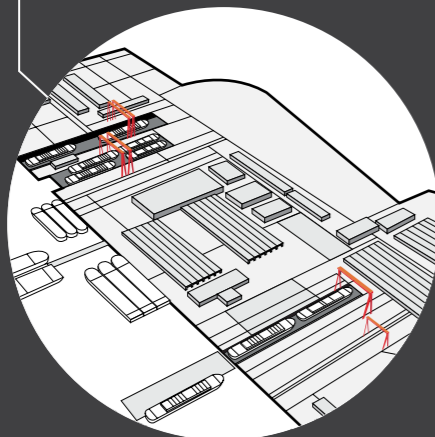
- Product/Chemical Tanker
- MGC (LPG+AMMONIA)
- LNGC, LNG B/V
- PCTC
- Con-Ro
- Ropax
- LCO2 Carrier
- Ro-Ro
- Feeder Containership



### HSHI (Yeongam)

drydocks **2** m<sup>2</sup> in area **3.3 million**  
 berth **1** DWT in capacity **5.5 million**

- VLCC/Suez/Aframax Tanker
- LNG Carrier
- PCTC
- Containership
- VLGC/VLAC
- VLEC/ULEC



### HVS (Vietnam)

drydocks **2** m<sup>2</sup> in area **1.0 million**  
 DWT in capacity **0.65 million**

- Product/Chemical Tanker
- Handy/Panamax Bulk Carrier
- LR2/Aframax Tanker



## HD HYUNDAI HEAVY INDUSTRIES

**2,346** ships

**359** shipowners

**5,600,000** m<sup>2</sup>

**12,500** employees  
\*shipbuilding/offshore 8,500



As the world's leading shipbuilder, HD Hyundai Group has 11% share of the world shipbuilding market.

The shipyard had its ground breaking in 1972 and has since then delivered over 2,346 ships to 359 shipowners from 52 countries. HHI prides itself on its sterling record of client satisfaction.

HHI's shipbuilding facility is something that probably cannot be found anywhere else in the world. With a high level of automation and new production technologies ranging from welding robots and indoor production of 40-meter long blocks to the environmentally controlled paint shop, HHI offers a number of advantages: greater productivity gains, reduced building times and, above all, superb ship quality.

### FACILITIES

DOCK	#1	#2	#3	#4	#5	#6	#7	#8	#9	#H
Size (Length)	387m	497m	672m	382m	382m	260m	170m	460m	460m	487m
Size (Width)	80m	80m	92m	65m	65m	43m	25m	70m	70m	115m
Size (Depth)	12.7m	12.7m	13.4m	12.7m	12.7m	12m	11m	12.7m	12.7m	13.5m
Crane (Goliath)	1 x 1,290T 2 x 450T		1 x 1,290T 2 x 450T		-	-	-	1 x 900T	1 x 900T	2 x 1,600T
Crane (Jib)	2 x 40T 2 x 30T		1 x 150T 1 x 80T 2 x 30T 1 x 20T		1 x 350T 1 x 200T(#5) 1 x 150T(#5) 1 x 80T		1 x 200T 1 x 150T(#6)		1 x 30T 2 x 30T(#8) 1 x 30T(#9) 1 x 20T(#9)	
Max. Size DWT	700,000	700,000	1,000,000	400,000	400,000	150,000	150,000	500,000	500,000	1,000,000

Combined Length of Outfitting Quay : 7,624m

## HD HYUNDAI SAMHO

**883** ships

**146** shipowners

**3,300,000** m<sup>2</sup>

**3,900** employees



The shipyard is surrounded by islands, so the location itself serves as a natural breakwater against typhoon, tsunami and other natural disasters. The efficient yard layout coupled with cutting-edge facilities have enabled HSHI to deliver exceptionally competitive vessels to customers.

Ever since its establishment in 1992, HD Hyundai Samho (HSHI) has accumulated the world's best technology and has built world-class containerships, tankers, car carriers, LNG carriers, LPG carriers, semi-submersible rigs, FPU's and FPSO's; all totalling around 883 ships. HSHI also offers offshore plants on a turnkey basis including sales, purchase, design, manufacturing, transportation, sea establishment and test run.

Recently, HSHI has expanded its expertise into emission control technology such as LNG/LPG/Methanol D/F ships and SOx scrubber/SCR/EGR equipped ships; HSHI has delivered the world's first LNG D/F Aframax tanker, very large container ship and capesize B/C. HSHI is ready to provide customers with proper technical solutions in the current uncertain market circumstances, which could lead to greater sustainability and profitability in the long run.



### FACILITIES

DOCK	No. 1 Dock	No. 2 Dock	No. 1 Berth	Floating Dock
Size (Length)	504 m	594 m	524 m	335 m
Size (Width)	100 m	104 m	65 m	70 m
Size (Depth)	13 m	13 m		24 m
Crane (Goliath)	2 x 600 T	1 x 820 T, 1 x 1,000 T	1 x 1,200 T	
Crane (Jib)	4 x 40 T, 1 x 80 T	2 x 40 T	2 x 50 T	2 x 45 T
Max. Size DWT	800,000	1,000,000	500,000	80,000 T (Lifting)

Combined Length of Outfitting Quay: 3,595m





## HD HYUNDAI MIPO

**1,340** ships

**237** shipowners

**1,000,000** m<sup>2</sup>

**3,100** employees

HD Hyundai Mipo (HMD), founded in 1975, has been acknowledged as one of the leading and most versatile shipbuilders in the sectors of medium-sized conventional and specialized vessels.

HMD has specialized in building the medium range Product/Chemical Tankers and Gas Carriers (LPG & Ammonia Carriers, LNG Carriers, LNG Bunkering, LCO2 Carriers) and has much experience to build a wide range of ship types such as Containerships, Bulk Carriers, PCTCs, Container Ro-Ro Ships, Ro-Ro Ships, Asphalt Carriers, Offshore Supply Vessels, Drillships, Cable Layers, Pipe Layers, FPSO, Car Ferry & Passenger Ships or any customized ship design.

HMD is at the forefront of developing the latest "Eco & Green" designs to satisfy increasing global demand. HMD's R&D team of experienced and innovative designers using a state-of-the-art engineering system is constantly searching to improve its portfolio of designs with the latest generation of engines, optimized hull forms and energy-saving and environmental-friendly technologies.

Never resting on its past accomplishments, HMD will always move forward to share its vision of a bright future with customers.

### FACILITIES

DOCK	No. 1	No. 2	No. 3	No. 4	
Size (Length)	380 m	380 m	380 m	295 m	
Size (Width)	65 m	65 m	65 m	76 m	
Size (Depth)	12 m	12 m	12 m	12 m	
Crane	7 x 200 T		5 x 200 T , 1 x 400 T		
Max. Size DWT	400,000	400,000	400,000	350,000	
QUAY	No. 1	No. 2	No. 3	No. 4	No. 5
Size (Length)	720 m	195 m	870 m	520 m	480 m
Crane	3 x 30 T / 1 x 20 T	1 x 20 T	4 x 30 T	-	Tower Cranes

## HD HYUNDAI VIETNAM SHIPBUILDING

**178** ships

**43** shipowners

**1,000,000** m<sup>2</sup>

**3,200** employees

In Vietnam, HMD has devolved its repair and conversion business to HD Hyundai Vietnam Shipbuilding (HVS) with its invaluable and accumulated know-how gained from repair and conversion business.

Since its operation in 1999, HVS performed repair and conversion business including offshore units (platform), upgrading and life extension works, elongation of PCTCs and conversion of various type of ships.

Accumulating diverse experience through repair and conversion business, HVS entered into the newbuilding business in 2007 with the aim of building quality ships to contribute world shipping industry.

With good reputation on Product/Chemical Tanker and Bulk Carrier sectors, HVS will mark its prestigious position in the worldwide shipbuilding industry with the full support from HMD in engineering and procurement of material.



### FACILITIES

DOCK	No. 1		No. 2	
Size (Length)	260 m		380 m	
Size (Width)	45 m		65 m	
Size (Depth)	13 m		13 m	
Crane	1 x 350 T / 1 x 250 T		1 x 700 T / 1 x 250 T / 1 x 150 T / 1 x 80 T	
Max. Size DWT	80,000		400,000	
QUAY	No. 1	No. 2	No. 3	No. 5
Length	500 m	500 m	250 m	100 m
Crane	1 x 30 T	2 x 30 T	1 x 30 T	1 x 30 T



# OUR PRODUCT RANGE

TANKER



CONTAINERSHIP



LNG CARRIER



LPG CARRIER



BULK CARRIER



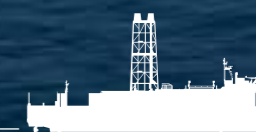
PCTC



RO-RO SHIP



DRILLSHIP





## TANKER

HD KSOE is leading the tanker market with its streamlined eco-friendly designs, especially in VLCC (Very Large Crude Carrier) segment ever since its first delivery in 1974. With delivery of LNG D/F Aframax tanker as well as methanol burning MR tanker, we are striving to take another leap in developing greener and more fuel-efficient technology for tankers for the future as well as designing new systems for next generation smart ships.

### WHY CHOOSE OUR ECO TANKER

- Highly skilled and fully qualified engineers/workers providing best solution to environmental regulations such as lower SOx limits
- Proven design with unparalleled performance records
- Satisfying customer's needs by providing various technical solutions
- Hull form optimization
- Low friction paint
- Propulsion efficiency with energy saving devices
- Specialized Engine optimization (as an Engine manufacturer)

### PRODUCT RANGE

- VLCC
- Suezmax/Aframax Tanker
- LR3/LR2/LR1 Product Tanker
- MR Product/Chemical Tanker
- Shuttle Tanker
- Asphalt Carrier
- Methanol Carrier

1. HSHI: 157,000 DWT Tanker for EURONAV
2. HHI: 153,000 DWT Shuttle Tanker for KNOT
3. HHI: 112,000 DWT Crude Oil T/K for NESTE
4. HHI: 157,000 DWT P/C for AMPTC
5. HHI: 320,000 DWT VLCC for ASC





# TANKER

## MIPO PRODUCT & CHEMICAL TANKER

- The prestige Product/Chemical Tankers so called "MIPO TANKER" gained a reputation as a world best Tanker from the incomparable performances over 850 vessels with its unbeatable high technology and premium quality.

## LNG D/F AFRAMAX TANKER

- The world's first LNG D/F Aframax tanker was delivered in 2018, by HSHI. It is equipped with dual fuel engine, two LNG fuel tanks located on the upper deck and fuel gas supply system.



1. HSHI: 114,000 DWT T/K (LNG D/F Tanker) for Sovcomflot
2. HVS: 115,000 DWT P/C for Metrostar
3. HMD: 50,000 DWT P/C (Methanol D/F) for Westfal-Larsen
4. HMD: 37,000 DWT P/C for CIDO Shipping
5. HMD: 50,000 DWT P/C for Scorpio Tankers
6. HMD: 25,000 DWT P/C (LNG D/F) for JP Morgan

# CONTAINERSHIP

HD KSOE boasts the world's largest performance record in this Containership segment. As the leading eco-shipbuilder, HD KSOE has set the world record by successfully delivering the world's first LNG D/F containership in 2020 and securing the newbuilding for 12 units of the world's first methanol D/F containership recently. As the future builder, will continue to strengthen our leading capabilities for the development/engineering/construction of eco-friendly containerships in a bid to keep our planet clean.



1

1. HHI: 19,200 TEU Containership for MSC
2. HHI: 16,000 TEU Containership for HMM
3. HSHI: 14,700 TEU LNG D/F Containership for EPS
4. HSHI: 13,000 TEU Methanol D/F Containership for CMA CGM
5. HMD: 2,100 TEU Methanol D/F Containership for MAERSK
6. HMD: 1,800 TEU Containership for MITSUI
7. HMD: 1,000 TEU Containership for CK Line
8. HSHI: 15,600 TEU Container ship TIME SHIPPING



2  
3 4  
5 6  
7 8

## WHY CHOOSE OUR CONTAINERSHIP

- Highly skilled and fully qualified engineers/workers
- Proven design with unparalleled performance records
- Satisfying customer's needs by providing various technical solutions
- Low friction paint
- Specialized Engine optimization (as an Engine manufacturer)

## MIPO CON-GREEN

- HMD Green Containership so called "CON-GREEN" provides customers with an innovative design which ensures maximized cargo capacity with superior fuel consumption in Feeder Containership segment by using neo optimization technique of Hyundai Mipo Dockyard.

## PRODUCT RANGE

- 8,000/11,400/13,200/15,900/23,900 TEU Containership
- 1,000/1,400/1,800/2,500/2,800/3,500 TEU Containership

# LNG CARRIER, FSRU & LNG BUNKERING VESSEL

HD KSOE is the world's leader in newbuilding of LNG (Liquefied Natural Gas) Carriers and FSRUs (Floating Storage & Regasification Unit) with extensive experience and accumulated know-hows.

We are the only shipbuilder in the world capable of providing both membrane and moss-type solutions for LNG cargo containment. We also offer a wide range of propulsion systems including MEGA, XDF, MEG1 and TFDE, allowing us to meet our clients' various operational and technical requirements also in line with environmental requirements.

HD KSOE is always attentive to the needs of our clients and we are constantly striving to offer innovative solutions. With such efforts, we have won the world's first order for FSRU in 2011.

Since then, HD KSOE has managed to sustain its global leadership by securing the largest number of FSRUs (12 FSRUs) in the world and continuously coming up with more cost-effective solutions that make our FSRUs more competitive. In line with the market trend, we also delivered the first high quality LNG Bunkering Vessel in 2018.

## WHY CHOOSE OUR LNG CARRIER

- Low FOC: Hull form, propeller & rudder optimization
- Energy saving devices: Hi-RudderRS, Hi-Fin, Hi-ALS, Hi-FCF, Hi-ARS, Shaft Generator
- Low BOR: 0.085% with membrane Mark III FLEX cargo containment system
- Wide-range of BOG management solutions are provided including SMR, Hi-ERS®, Hi-ERS and Hi-SGAS ready for customization

## WHY CHOOSE OUR LNG B/V

- BOG management: Dual fuel engine & semi-pressurized tanks
- High maneuverability: bow/stern thrusters
- Efficient operation: Power take-off & power take-home

## WHY CHOOSE OUR FSRU

- Performance proven by successful deliveries & operations
- Reliable design of indirect-heating regasification system (Hi-ReGAS)
- Engineering capabilities to satisfy client's diverse operational requirements (reliquefaction plant, mooring system, MSO compressor, etc)

## PRODUCT RANGE

- 200,000/180,000/174,000 CBM Membrane LNG Carrier, 173,000 CBM Moss LNG Carrier
- 180,000/170,000 CBM LNG FSRU
- 30,000/18,000 CBM LNG Carrier
- 18,000/12,500/7,500 CBM LNG B/V

- 1
- 2
- 3
- 4
- 5

1. HHI: 170,000 CBM FSRU for BOTAS
2. HMD: 30,000 CBM LNG Carrier for Knutsen
3. HSHI: 174,000 CBM LNGC for ALPHA GAS
4. HHI: 150,000 CBM LNG Carrier (Moss) for MISC
5. HMD: 18,000 CBM LNG Bunkering Vessel for Korea Line



# LPG, AMMONIA, ETHANE CARRIER

HD KSOE dominates the LPG Carrier market by its technological superiority and outstanding quality. In consequence, HD KSOE is maintaining 60% market share of VLGC & VLAC order-book and 45% market share of VLGC & VLAC fleet. Also, we are maintaining 77% market share of MGC order-book and 59% market share of MGC fleet.

Our constant innovation has resulted in the maximized cargo capacity who can transit old panama canal and overwhelming market share for old-panama VLGC & VLAC together with neo-panama VLGC & VLAC.

1. HSHI: 86,000 CBM LPG D/F LPG Carrier for Hyundai LNG Shipping
2. HSHI: 91,000 CBM LPG D/F LPG Carrier for EVALEND
3. HHI: 91,000 CBM LPG D/F LPG Carrier for SK Shipping
4. HHI: 98,000 CBM Ethane fuelled Ethane Carrier for EPS
5. HMD: 40,000 CBM LPG Carrier for Thenamaris
6. HMD: 23,000 CBM LPG Carrier for E.A.TEMILE AND SONS DEVELOPMENT COMPANY
7. HMD: 12,000 CBM Ethylene Carrier for Eletson



1



2	3
4	5
6	7



## WHY CHOOSE OUR LPG CARRIER

- Standard application of LPG Dual Fuel
- Deep experience and knowledge
- High technology
- Engineering capabilities and first-class production facilities
- Magnificent performance records with the lion's share of the world VLGC order-book
- Proven designs
- Customer oriented technology (Cargo manifold flexibility: OCIMF & Japanese Ports Compliance, enhanced re-liquefaction plant)
- Flexibility in responding to the client's technical request
- Flexible building capacity
- LPG/Ammonia Carrier oriented newbuilding facilities
- LPG Tank fabrication shop
- Berths specialized for building LPG/Ammonia Carriers

## PRODUCT RANGE

- VLGC & VLAC (93,000/91,000/88,000 CBM LPG/Ammonia Carrier)
- \* 88,000 CBM LPG/Ammonia Carrier is the maximum available design for old Panama canal transit
- VLEC (98,000 CBM ETHANE Carrier)
- MGC (40,000/22,000 CBM LPG Carrier)

# BULK CARRIER, PCTC & RO-RO SHIP

HD KSOE confidently takes on every challenge satisfying needs of times for environmental goals. We have created a new era of Bulk Carrier construction with the successful delivery of the world's first LNG D/F Bulk Carrier.

With accumulated expertise in building vessels with GREEN technology, HD KSOE delivers vessels providing low-carbon transportation to oceantransport and logistics companies for carrying automobiles and other rolling cargo.

## PRODUCT RANGE

- Bulk Carrier
- Car Carrier
- Ro-Ro Ship
- Con-Ro Ship
- Ro-Ro Passenger Ship (ROPAX)

1	2	3
		6
4	5	7

1. HHI: 323,000 DWT VLOC for Bergesen D.Y.A/S
2. HSHI: 180,000 DWT LNG D/F Capesize B/C for H-Line
3. HSHI: 8,000 UNIT PCTC for Wilhelmsen Lines
4. HSHI: 325,000 DWT VLOC for Polaris Shipping
5. HHI: 3,400 L.M. ROPAX for Stena RoRo
6. HMD: 20,000 DWT Ro-Ro Ship for CLDN
7. HMD: 45,700 DWT CLASS CONTAINER, RO-RO, CAR AND TRUCK Carrier for Grimaldi





## DRILLSHIP

Since HD KSOE's first drillship was appraised by our customer with its excellent performance, HHI has delivered about 20 drillships to various drillship owners.

### WHY CHOOSE OUR DRILLSHIP

- Purpose-built drillship design
- Large free deck area
- Better position keeping
- Protected under deck passageway with electric cable/Utility Line Arrangement
- Canister Type Retractable Thruster (Optional)

### PRODUCT RANGE

- Drillship
- Semi-submersible Rig



1. HSHI: Semi-Submersible Rig for Sea Tankers
2. HHI: Drillship for Noble
3. HHI: Drillship for Transocean
4. HHI: Drillship for Fred Olsen

HD KSOE'S  
INTEGRATION  
FOR: RESEARCH & DEVELOPMENT

QUALITY MANAGEMENT

HEALTH, SAFETY &  
ENVIRONMENTAL MANAGEMENT



# RESEARCH & DEVELOPMENT

## VISION

**GLOBAL TOP-TIER RESEARCH CENTER LEADING THE SHIPBUILDING AND OFFSHORE BUSINESS FOCUSED ON TECHNOLOGICAL ADVANCE**

## OBJECTIVE

Securing unrivaled technological capabilities to operate the world's best shipbuilding and offshore business

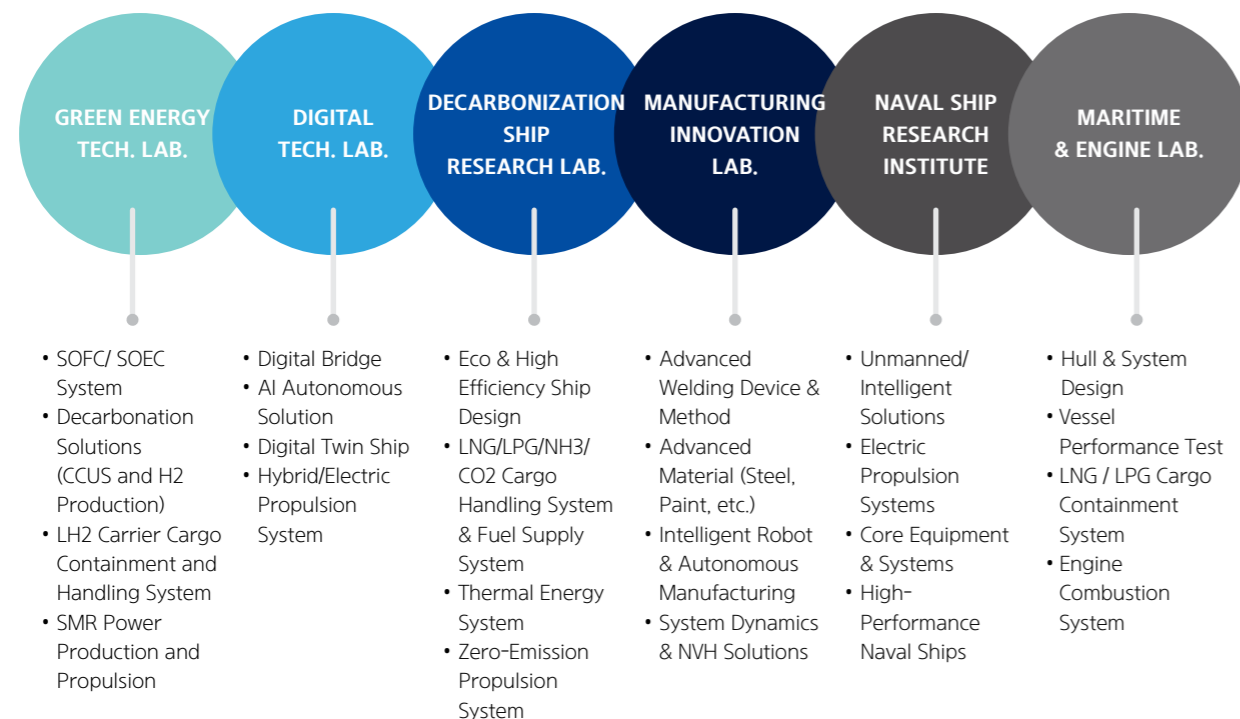
## FUTURE UNRIVALED TECHNOLOGY

To achieve the goal of building advanced ships, the main R&D areas are focused on developing technologies for

- I. Improving competitiveness of gas carriers
- II. Realizing eco-friendly propulsion such as ammonia/hydrogen in response to the IMO environmental regulations
- III. Reducing greenhouse gas emissions
- IV. Autonomous navigation vessel combined with intelligent navigation/engine automation system etc.

We are also targeting to secure future unrivaled technologies, such as building a futuristic autonomous shipyard that combines cutting-edge ICT and intelligent robot technology.

## ORGANIZATION



# QUALITY MANAGEMENT

Under the basic belief that the quality of our products and services is key to customer satisfaction, HD KSOE and its shipbuilding subsidiaries adhere to safety and quality principles at every stage from sales to after-sales. Furthermore, we have maintained the ISO 9001 Certificate, an international standard for quality management systems. Based on this standard, we manage the quality of all our products and services thereby enhancing our competitiveness and delivering reliable products. We have established quality policies aimed at elevating and consolidating our quality through various efforts including the development of unrivaled eco-friendly technologies, enhancing value chain capabilities and minimizing quality failure cost.

## VISION

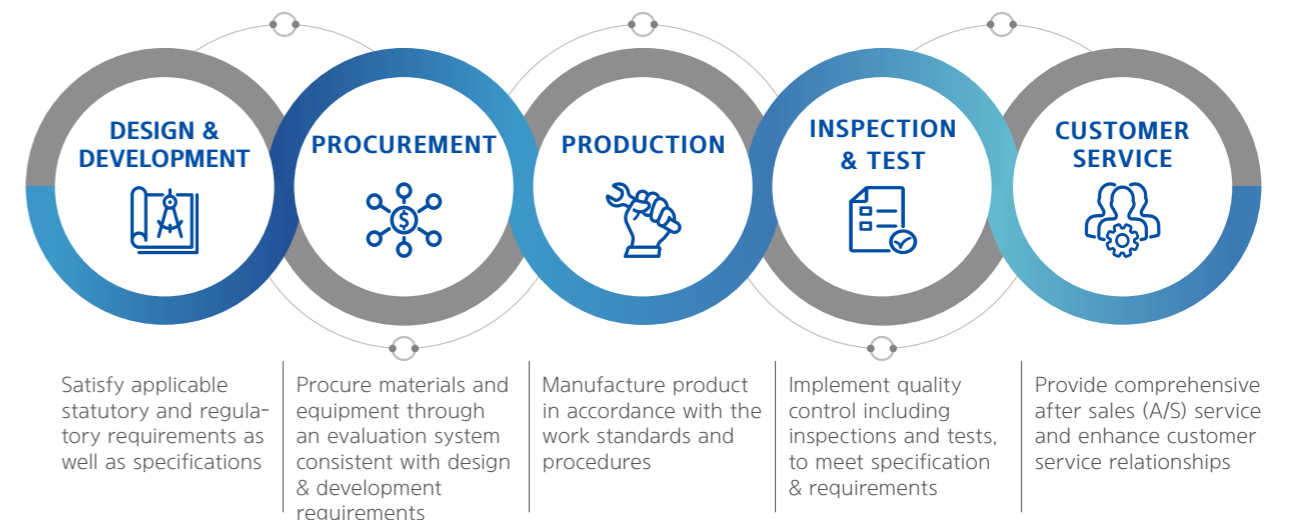
**DELIVERING HIGH-QUALITY VALUE TO ENSURE CUSTOMER'S SUSTAINABILITY**

## QUALITY POLICY

Company	QUALITY POLICY
<b>HD KSOE</b>	<ul style="list-style-type: none"> <li>• Advancement of Standard System</li> <li>• Quality Stabilization of New Business/Product</li> <li>• Stable Management of Supply Chain</li> </ul>
<b>HHI</b>	<ul style="list-style-type: none"> <li>• Proactive quality management to reduce critical quality risks</li> <li>• Achieving customer confidence through the enhancement of the independent quality system</li> <li>• Smart quality innovation</li> <li>• Improving the quality of eco-friendly technology</li> </ul>
<b>HSHI</b>	<ul style="list-style-type: none"> <li>• Proactive quality response to meet the lead time and minimize failure costs</li> <li>• Establishment of quality standards to settle self-inspection system</li> <li>• Inspection innovation based on Smart AI to expand commissioned inspections</li> <li>• Strengthening Human Resources to secure quality competitiveness</li> </ul>
<b>HMD</b>	<ul style="list-style-type: none"> <li>• Building Sustainable Quality Competitiveness</li> <li>• Digital Transformation for Advancing Quality Solutions</li> <li>• Improvement of Integrated System Quality to Minimize Risk</li> <li>• Guarantee Independent Quality through Quality Transparency</li> <li>• Enhance Manufacturing Competitiveness by Developing and Transferring Core Production Technologies</li> </ul>
<b>HVS</b>	<ul style="list-style-type: none"> <li>• Strengthen Sustainable Quality Competitiveness</li> <li>• Minimize quality costs through prevention – focused activities</li> <li>• Implementation of Smart Technology-based Quality Innovation</li> <li>• Strengthening quality competitiveness through securing eco-friendly construction technology</li> </ul>

## PROCESS

HD KSOE and its subsidiaries – HHI, HMD, HSHI and HVS – can achieve higher level of product quality by sharing policies, methodologies and principles throughout the entire process of design & development, procurement, production, inspection and customer service.





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