



G-Marine Service Ship Management

.....

2022.11



COMPANY OVERVIEW



SHIP MANAGEMENT



**NEW BUILDIN SUPERVISION
/RETROFIT ENGINEERING**



G-Marine updates



G-MARINE SERVICE

01 Foundation

- 2006 HANJIN SM spun off from HANJIN SHIPPING
- 2017 Acquired by HYUNDAI GLOVIS & changed company name to "G-MARINE SERVICE"

02 Employees

- Off-shore: 140
- Crew: 1700

03 Business Areas

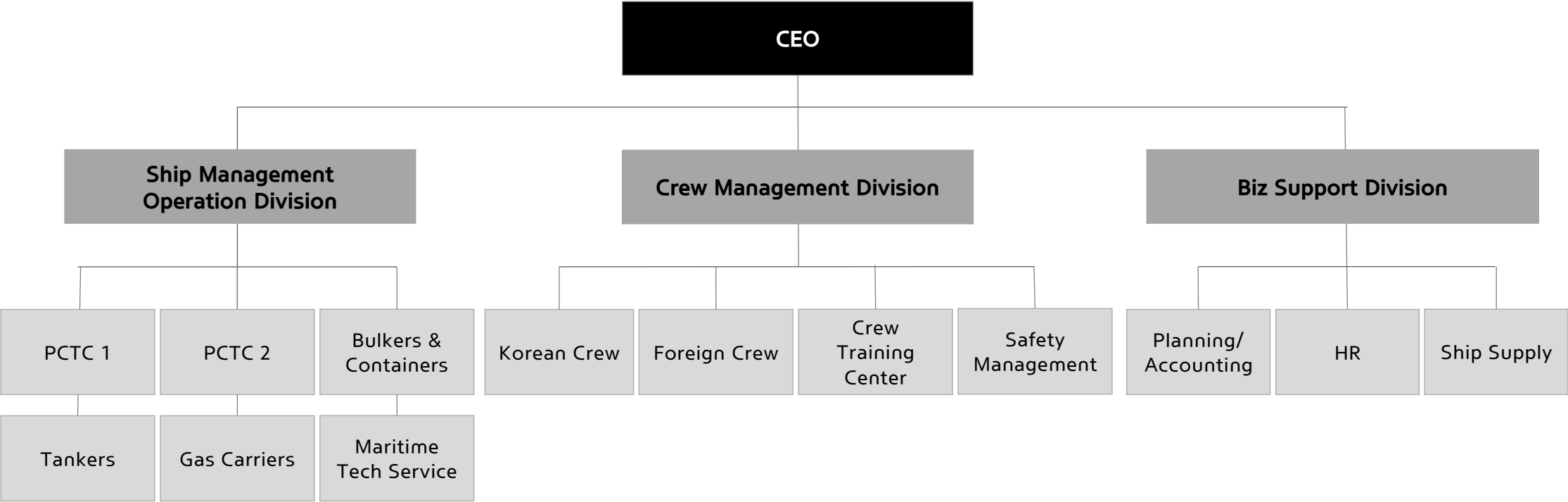
- Ship Management
- Newbuilding Supervision
- Retrofit Engineering
- Crew Training Academy
- Environmental Equipment Sales



04 Corporate Governance

- A member of HYUNDAI MOTOR GROUP
- 100% owned by HYUNDAI GLOVIS

ORGANIZATION



Ship Management Business consists of 4 main parts

► TECHNIAL MANAGEMENT

- G-Marine fleet teams: 24 technical superintendents
- Maritime Univ. graduates with on-board careers
- Planned Maintenance System (Vessel Management System)
- Vessel performance monitoring
- Performance optimization
- Voyage planning, voyage tracking
- Decarbonization solutions(dedicated team): EEXI, EPL, CII
- Digital solutions development: VMS & e-CBM (analytic S/W & dashboard)
- Ship supply

► CREW MANAGEMENT

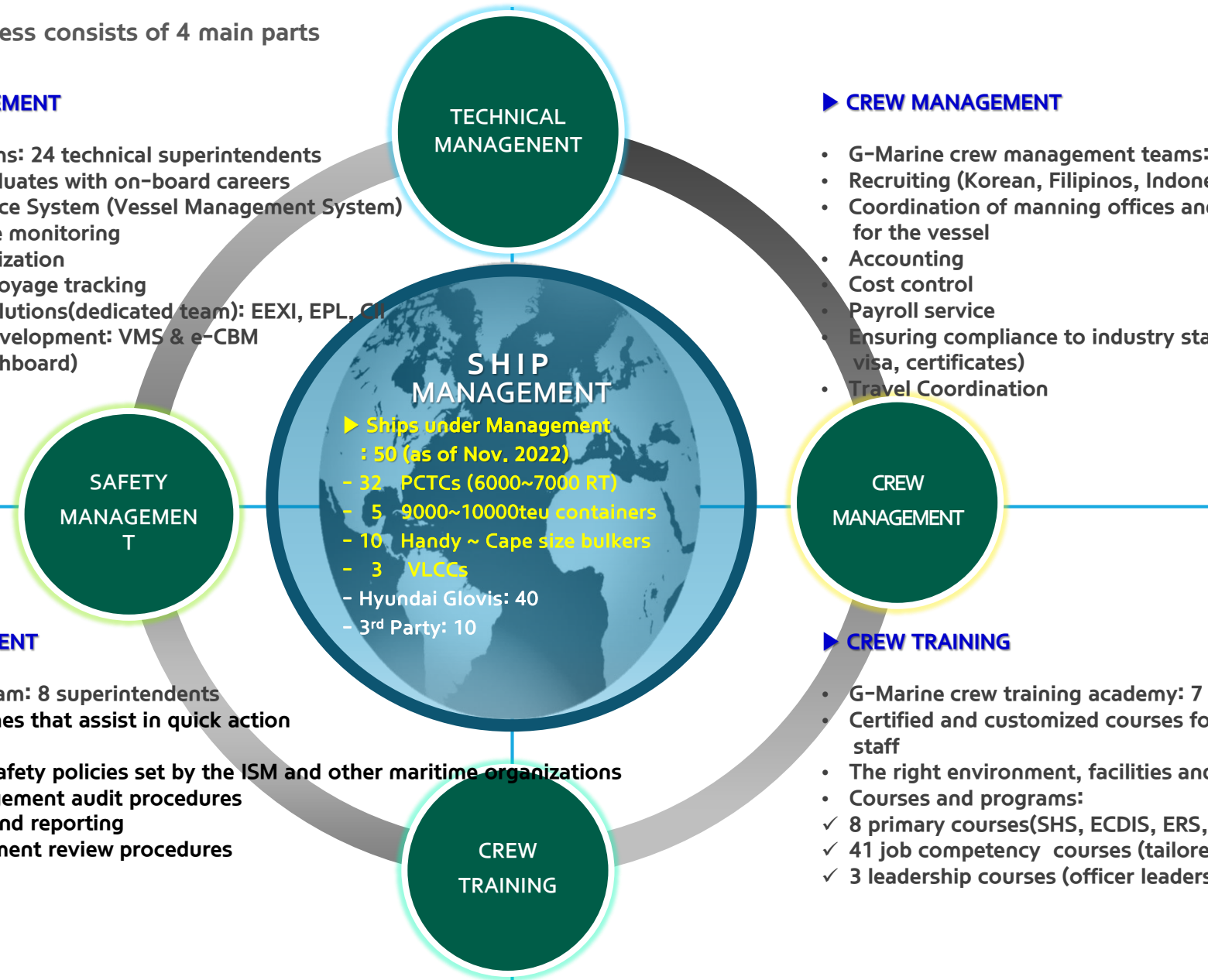
- G-Marine crew management teams: 20 managers
- Recruiting (Korean, Filipinos, Indonesian)
- Coordination of manning offices and crewing needs for the vessel
- Accounting
- Cost control
- Payroll service
- Ensuring compliance to industry standards(MLC, medical visa, certificates)
- Travel Coordination

► SAFETY MANAGEMENT

- G-Marine safety team: 8 superintendents
- Emergency guidelines that assist in quick action
- Risk assessment
- Environment and safety policies set by the ISM and other maritime organizations
- Internal and management audit procedures
- Accident analysis and reporting
- Audit and management review procedures

► CREW TRAINING

- G-Marine crew training academy: 7 professors+4 managers
- Certified and customized courses for onboard and offshore staff
- The right environment, facilities and tools
- Courses and programs:
 - ✓ 8 primary courses(SHS, ECDIS, ERS, fire response)
 - ✓ 41 job competency courses (tailored to each ship type)
 - ✓ 3 leadership courses (officer leadership, workshops)



FLEET LIST under Management

	Ship Name	Ship Type	Capacity		Owner
			RT	Liftable	
1	GLOVIS SONIC	PCTC	7,650	4	H. Glovis
2	GLOVIS SAFETY	PCTC	7,650	4	H. Glovis
3	GLOVIS SKY	PCTC	7,650	4	H. Glovis
4	GLOVIS SUNLIGHT	PCTC	7,650	4	H. Glovis
5	SILVER RAY	PCTC	7,618	4	H. Glovis
6	GLOVIS SUN	PCTC	7,384	4	H. Glovis
7	GLOVIS STELLA	PCTC	7,384	4	H. Glovis
8	GLOVIS SIRIUS	PCTC	7,384	4	H. Glovis
9	GLOVIS SPRING	PCTC	7,384	4	H. Glovis
10	GLOVIS SUNRISE	PCTC	7,353	4	H. Glovis
11	GLOVIS SUMMIT	PCTC	7,353	4	H. Glovis
12	GLOVIS SYMPHONY	PCTC	7,353	4	H. Glovis
13	GLOVIS SPLENDOR	PCTC	7,353	4	H. Glovis
14	GLOVIS CROWN	PCTC	6,741	4	H. Glovis
15	GLOVIS CRYSTAL	PCTC	6,741	4	H. Glovis
16	GLOVIS CAPTAIN	PCTC	6,741	4	H. Glovis
17	GLOVIS COSMOS	PCTC	6,741	4	H. Glovis
18	GLOVIS SPIRIT	PCTC	7,353	4	H. Glovis
19	GLOVIS SUPREME	PCTC	7,353	4	H. Glovis
20	GLOVIS SUPERIOR	PCTC	7,353	4	H. Glovis
21	GLOVIS COURAGE	PCTC	6,670	4	H. Glovis
22	GLOVIS CHAMPION	PCTC	6,670	4	H. Glovis
23	GLOVIS SOLOMON	PCTC	7,724	4	H. Glovis
24	GLOVIS CENTURY	PCTC	6,560	4	H. Glovis
25	GLOVIS CHALLENGE	PCTC	6,560	4	H. Glovis
26	GLOVIS CONDOR	PCTC	6,573	5	H. Glovis
27	GLOVIS CARDINAL	PCTC	6,536	5	H. Glovis
28	GLOVIS COUGAR	PCTC	6,573	5	H. Glovis
29	GLOVIS COMPANION	PCTC	6489	2	H. Glovis
30	GLOVIS CORONA	PCTC	6,634	4	H. Glovis
31	GLOVIS COMET	PCTC	6,634	4	H. Glovis
32	GLOVIS CHORUS	PCTC	6,596	4	H. Glovis

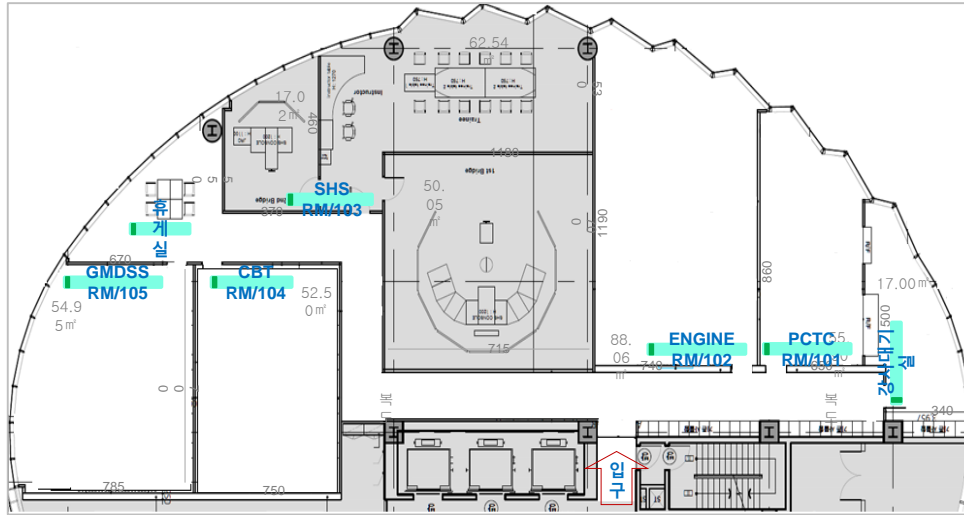
	Ship Name	Ship Type	Capacity	Owner
33	GLOVIS AMBITION	Bulk Carrier	176K	H. Glovis
34	GLOVIS ADVANCE	Bulk Carrier	180K	H. Glovis
35	GLOVIS DESIRE	Bulk Carrier	82K	H. Glovis
36	GLOVIS DAYLIGHT	Bulk Carrier	82K	H. Glovis
37	GLOVIS DIAMOND	Bulk Carrier	82K	H. Glovis
38	VL RENEISSANCE	VLCC	300K	H. Glovis
39	VL BRZZEZ	VLCC	300K	H. Glovis
40	VL BRIGHT	VLCC	300K	H. Glovis
41	Aristomenis	Containers	10,000TEU	Capital
42	Athenian	Containers	10,000TEU	Capital
43	Athos	Containers	10,000TEU	Capital
44	Navios Constellation	Containers	10,000TEU	Navios
45	Navios Unison	Containers	10,000TEU	Navios
46	AMIGO II	Bulk Carrier	Cape	Capital
47	AMORITO	Bulk Carrier	Cape	Capital
48	ATTIKOS	Bulk Carrier	Cape	Capital
49	Boyang Garnet	Bulk Carrier	75K	Boyang
50	Joo Hye	Bulk Carrier	37K	Asan

Ship type	No. of Ships	Owner(s)
PCTC	32	▪ H. GLOVIS
BULKERS	10	▪ H. GLOVIS ▪ CAPITAL EXEC. SHIP MGM'T
CONTAINERS	5	▪ CAPITAL EXEC. SHIP MGM'T ▪ NAVIOS
VLCC	3	▪ H. GLOVIS
Total:	50	

CREW MATRIX

PCTC			BULKER(Cape)			VLCC			Container (10000TEU)		
Total: 21 (4 Koreans+13 Filipinos)			Total: 20 (2 Koreans+18 Filipinos)			Total: 21 (9 Koreans+12 Filipinos)			Total: 21 (3 Koreans+18 Filipinos)		
	Rank	Nationality		Rank	Nationality		Rank	Nationality		Rank	Nationality
1	Master	Korean	1	Master	Korean	1	Master	Korean	1	Master	Korean
2	Chief Officer	Korean	2	Chief Officer	Filipino	2	Chief Officer	Korean	2	Chief Officer	Korean
3	2nd Officer	Korean	3	2nd Officer	Filipino	3	2nd Officer	Korean	3	2nd Officer	Filipino
4	3rd Officer(A)	Korean	4	3rd Officer	Filipino	4	3rd Officer(A)	Korean	4	3rd Officer(A)	Filipino
5	3rd Officer(B)	Filipino	5	Chief Engineer	Korean	5	3rd Officer(B)	Korean	5	3rd Officer(B)	Filipino
6	Chief Engineer	Korean	6	1st Engineer	Filipino	6	Chief Engineer	Korean	6	Chief Engineer	Korean
7	1st Engineer	Korean	7	2nd Engineer	Filipino	7	1st Engineer	Korean	7	1st Engineer	Filipino
8	2nd Engineer	Korean	8	3rd Engineer	Filipino	8	2nd Engineer	Korean	8	2nd Engineer	Filipino
9	3rd Engineer	Korean	9	Boatswain	Filipino	9	3rd Engineer	Korean	9	3rd Engineer	Filipino
10	Boatswain	Filipino	10	Quarter Master A	Filipino	10	Boatswain	Filipino	10	Boatswain	Filipino
11	Quarter Master A	Filipino	11	Quarter Master B	Filipino	11	Pumpman	Filipino	11	Quarter Master A	Filipino
12	Quarter Master B	Filipino	12	Quarter Master C	Filipino	12	Quarter Master A	Filipino	12	Quarter Master B	Filipino
13	Quarter Master C	Filipino	13	Sailor A	Filipino	13	Quarter Master B	Filipino	13	Quarter Master C	Filipino
14	Sailor A	Filipino	14	Sailor B	Filipino	14	Quarter Master C	Filipino	14	Sailor A	Filipino
15	Sailor B	Filipino	15	No.1 Oiler	Filipino	15	SLR	Filipino	15	Sailor B	Filipino
16	No.1 Oiler	Filipino	16	Oiler A	Filipino	16	No.1 Oiler	Filipino	16	No.1 Oiler	Filipino
17	Oiler A	Filipino	17	Oiler B	Filipino	17	Oiler A	Filipino	17	Wiper A	Filipino
18	Oiler B	Filipino	18	Wiper	Filipino	18	Oiler B	Filipino	18	Wiper B	Filipino
19	Wiper	Filipino	19	Chief Steward	Filipino	19	Wiper	Filipino	19	Chief Steward	Filipino
20	Chief Steward	Filipino	20	Cook	Filipino	20	Chief Steward	Filipino	20	Cook	Filipino
21	Cook	Filipino				21	Cook	Filipino			

G-MARINE ACADEMY



▪ 18 types of simulators, 210 types of training equipment

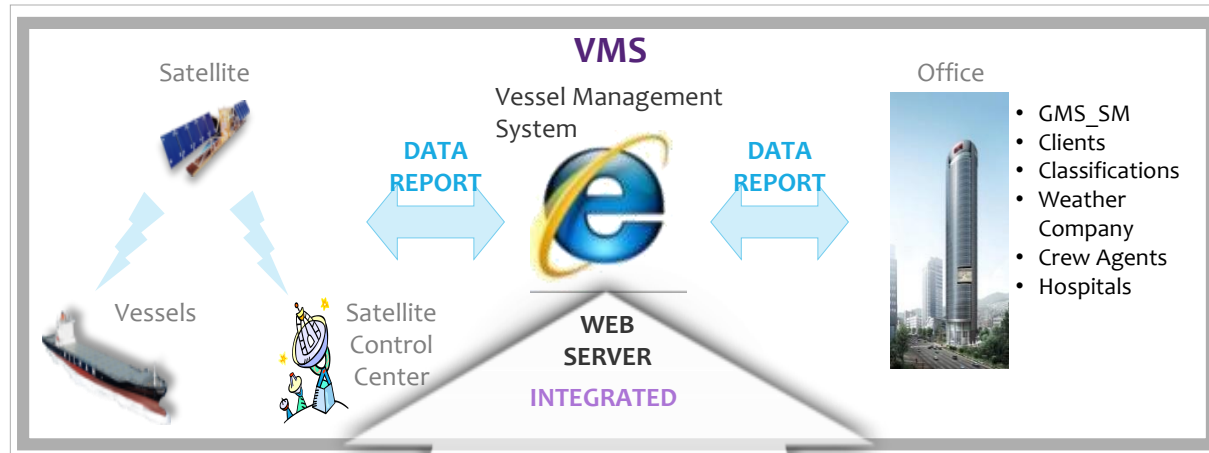
Training Facilities

Ship Handling Simulator	ECDIS Simulators
SHS 2 nd Bridge	Fixed CO2 Extinguisher
ARPA RADAR Simulators x 2	Fire-Fighting System
Engine Room Simulator x 2	GMDSS
Electric Training Module	Oily Water Separator
Bridge Maneuvering System	Alarm Monitoring System
Reefer Container & Simulators	Ballast System Simulator
Pneumatic Control System	ICMS (Alarm Monitoring System)

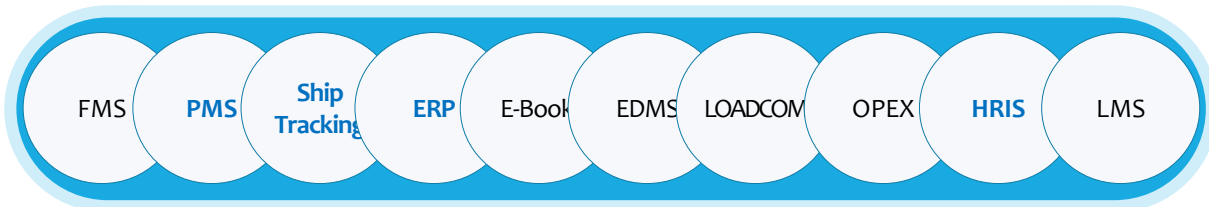


DIGITAL SOLUTIONS

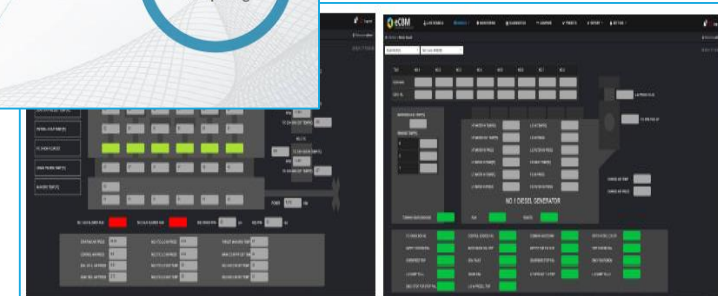
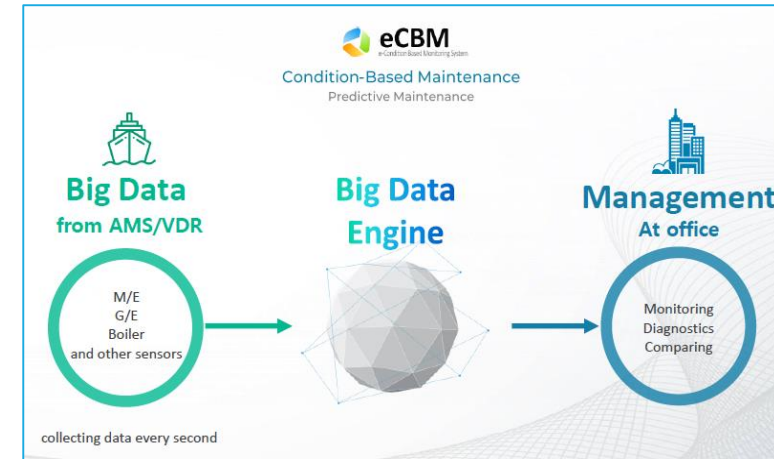
G-Marine Service have established “All in one” system called VMS and maintained all vessels of our partners using it.



- Noon Report
- M/E, G/E Performance Data
- Operation Report
- Safety Report, PSC inspection and Audit Report
- Documents and Certificates
- Crew onboard, their condition and training status



G-Marine Service developed Big data solution called “e-CBM” that collects data from ship’s devices in “real time” and analyzes the possibility of failure immediately, enabling Predictive Maintenance.



- Similar to AMS (Alarm Monitoring System) Display
- User-friendly UI design
- Intuitive Layout
- Experienced Big data Engine and large capacity to process
- Every vessel has its own data (Machine Learning)
- Alarm Monitoring and giving alarm to both on-shore and vessel

SAFETY & QUALITY

ISM CODE	SAFETY MANAGEMENT
ISPS CODE	SECURITY
MLC CONVENTION	MARITIME LABOUR
TMSA	Tanker Management
ISO 9001	QUALITY
ISO 14001	ENVIRONMENT
ISO 45001	HEALTH & SAFETY
ISO 50001	ENERGY
ISO 22301	Business Continuity



TMSA Audit
 -. Shell Management Review
 -. Nov. 02, 2022
 -. Grade 3.0 expected

Tanker Management and Self Assessment 3

A BEST-PRACTICE GUIDE FOR SHIP OPERATORS

Report name TXSM-9738-0515-4160
 Date published 01 Jul 2021
 Operator account 12619
 Operator name G-Marine Service Co., Ltd.
 DOC number BSND0010214
 IMO number 5266703
 Address 15F, 331, Jungang-daero, Dong-gu, Safety Management Team,
 County/State BUSAN
 Post code 48792

Management, Leadership and Accountability

Stage 1

1.1.1 Management commitment is clearly defined in documentation that includes mission statements, policies and procedures. Yes
 The management commitment is clearly defined in company SHEQ manual as stated the mission statements, policies & objectives. SHEQ objectives include Zero Incidents, Zero Spills, Zero Detention, Reduction in Emission and Energy saving for the continual improvement of SHEQ(Safety, Security, Health, Environment, Energy & Quality) Management System(Certified in ISO 9001/14001/45001/50001, ISM Code).

[Refer to SHEQ Manual SMM-2.4, 3.2]

1.1.2 Senior management demonstrates a clear commitment to implementing the SMS. Yes
 In SHEQ manual, it's clearly stated that the management review is regularly(bi-annual) conducted by Top Management to ensure the continuing suitability, adequacy and effectiveness of SHEQ management system by reviewing SHEQ policy, objectives, target, KPI, incidents, NC etc.

[Refer to SHEQ Manual 6.3, SEM-09]
 [Last Management Review : 8th FEB 2021]

1.1.3 HSSE excellence is fully understood and supported by vessel and shore-based management teams. Yes
 The SHEQ excellence is fully applied into SHEQ management system in various ways. The company utilized VMS(Circular etc.)/SNS/Safety Bulletins/Visit/Safety Campaign/Safety Seminar/Sign-off Crew meeting etc. to share the lesson learnt/best practice by communicating both shore and ship.

[Refer to VMS, SNS(Band), Safety Bulletins, Safety Campaign etc.]



03

N/B SUPERVISION



1 BUILDING SPECIFICATION REVIEW

- Shipyard Evaluation
- Full Specification Review
- Equipment Evaluation and Maker List Review

2 PLAN APPROVAL

- Review Shipyard Design
- Find Improvement
- Make it more "User-Friendly"

4 DELIVERY/REPORTING

- Class Cert.
- Store, L/O, Provisions
- Crew Familiarization
- Final Report

3 CONSTRUCTION SUPERVISION

- Site Office Open at Yard
- Inspections & Supervisions
- Sea/Gas Trial

Served for 3rd Party ship owners



On-going

Vessel Type	Period	Ships	Owner	Scope
VLGC (86,000m³)	2022~24	2	HYUNDAI GLOVIS	Plan Approval /Site Supervision
LNGC DF (174,000m³)	2022~24	1	HYUNDAI GLOVIS	Plan Approval /Site Supervision

Recently completed...

Vessel Type	Period	Ships	Owner	Scope
VLCC (318K)	2020~22	4	Hyundai Glovis /SK Shipping	Plan Approval /Site Supervision
LNGC DF (174,000m³)	2015~18	2	KLNG(UK) /Chandris	Plan Approval /Site Supervision

Accumulated completion

Vessel Type	Completed	On-going
Container Carriers (1,100TEU ~13,000TEU)	86	-
Bulk Carriers (27K ~310K)	65	-
Crude Oil Carriers (VLCC)	10	-
PCTCS(DF)	-	3
LNG Carriers (130,000m³ ~ 174,000m³)	6	1
LPG Carrier (VLGC)	-	2
MR Product Carriers	3	-
Coal Carrier	3	-
Heavy Duty Carrier	1	-
Special Purposed Ship	6	-
TOTAL	180	6



Shipyards Experiences



N/B SUPERVISION

LNGCs Ref.

REFERENCE Supervised newbuilding of two Chandris/ K-Line 173.4k ME-GI LNGCs at DSME from 2016 to 2018. Scope included plan approval and site supervision.

	PATRIS	KINISIS
SHIP OWNER	CHANDRIS HELLAS	CHANDRIS HELLAS
DELIVERY	2018-01-05	2018-10-07
DWT	95,742.9	
CARGO CAPACITY(CBM)	174K	
CLASS	LR	
MAIN ENGINE	MAN B&W 5G70ME-C9.5-GI x 2 sets (Derated, NOx Tier II)	
ELEC. GENERATING PLANT	Duel Fuel Generator Engine : 2,750 kW, 720 RPM x 4 sets, Em'cy Generator : 550 kW x 1 set	
STEAM GENERATING PLANT	Aux. Boiler : 6,500kg/hr x 6 bar x 2sets, Exh. Gas Economizer : 1,050kg/hr x 6 bar at NCR load of M/E x 2sets	
Fuel Gas Compressor	5LP250 : 6,400 m3/h(4,700kg/h) at suction temperature of+20°C x 1set 6LP190 : 3,770 m3/h(2,805 kg/h) at suction temperature of+20°C x 1set	
Partial Reliquefaction System	Heat exch' capa' : 2990 kg/hr (LNG side), 4582 kg/hr (BOG side) Re-liquefaction rate : 40~55% NBOG at Laden voyage	
BUILDER	DSME	
		

EGCS & BWTS

[illegible]

04 G-Marine Service Updates

G-Marine Service Certified as the Excellent Ship Manager by the Korean Government

When foreign vessels managed by G-Marine Service enters Korea, they receive a reduction in port facility usage fees.

- 30% reduction in
 - ship entry and departure fees,
 - and berthing fees, respectively

국 문	영 문
	

PSC INSPECTIONS PERFORMANCE

2022	3rd Parties				G-Marine Total			
	No. of Inspections	No. of Deficiencies	Detention	Average Deficiencies per inspection	No. of Inspections	No. of Deficiencies	Detention	Average Deficiencies per inspection
JAN	2	2	0	1.00	14	27	0	1.93
FEB	3	2	0	0.67	13	2	0	0.15
MAR	1	0	0	0.00	14	8	0	0.57
APR	1	0	0	0.00	17	1	0	0.06
MAY	1	0	0	0.00	13	3	0	0.23
JUN	1	0	0	0.00	10	0	0	0.00
JUL	2	0	0	0.00	19	10	0	0.53
AUG	0	0	0	0.00	8	9	0	1.13
SEP	2	0	0	0.00	15	2	0	0.13
OCT	1	1	0	1.00	8	7	0	0.88
Total	14	5	0	0.4	131	69	0	0.53

G-Marine Service(H.Glovis + 3rd Parties)				
	2019	2020	2021	Avg.
No. of Detentions	0.0	2.0	0.0	0.7
Average No. of Deficiencies per inspection	0.5	0.6	0.6	0.6
No. of Inspections	200	124	136	153.3

CAPITAL				
	2019	2020	2021	Avg.
No. of Detentions	0.0	0.0	0.0	0.0
Average No. of Deficiencies per inspection	2.6	0.4	3.3	2.1
No. of Inspections	7	5	4	5.3

NAVIOS				
	2019	2020	2021	Avg.
No. of Detentions		0.0	0.0	0.0
Average No. of Deficiencies per inspection		0.5	2.3	1.4
No. of Inspections		4	4	4

2019~2021 Tokyo MOU, Paris MOU, USCG

Tokyo MOU	No. of Inspections	Detentions	Paris MOU	No. of Inspections	Detentions	USCG	No. of Inspections	Detentions
ABS	3061	56	ABS	5633	2	ABS	5838	0
BV	3190	73	BV	21689	14	BV	3834	7
CCS	2167	23	CCS	10679	12	CCS	607	1
CRS	32	1	CRS	7726	13	CRS	41	0
DNV	5602	107	DNV	10263	23	DNV	9790	3
IRS	44	3	IRS	4794	11	IRS	38	0
KR	2037	41	KR	850	1	KR	998	1
LR	3414	61	LR	2096	5	LR	7273	6
NK	8337	135	NK	1402	3	NK	6991	4
PRS	54	2	PRS	501	5	PRS	65	0
RINA	1013	17	RINA	134	0	RINA	1242	1
RS	125	1	RS	177	2	RS	132	1
Total	29076	520	Total	65944	91	Total	36849	24

source: NK PSC 21Y Report

- During the period of 2019-2021, The ratio of Detention to the number of Tokyo MOU/Paris MOU/USCG PSC inspections is 0.48%.
- Deficiencies per inspection are provided only by the Tokyo MOU, which shows that 2.43 cases of Deficiencies have occurred per inspection.

FREQUENCY OF LOSS (2022)

Indicators		PCTC 1	PCTC 2	BULK & CNTR	Tanker	Total
LTIs	Jan~Oct '22	0.00	0.00	0.00	0.00	0.00
LTIF	Jan~Oct '22	0.00	0.00	0.00	0.00	0.00
TRCs	Jan~Oct '22	9	12	4	0	25
TRCF	Jan~Oct '22	4.53	3.68	1.88	0.00	3.21
SMIs	Jan~Oct '22	0.00	0.00	0.00	0.00	0.00
SMIF	Jan~Oct '22	0.00	0.00	0.00	0.00	0.00

A lost time injury (LTI) is an injury sustained on the job by an employee that results in the loss of productive work time.

	Goal in 2022 (Frequency)	No. of occurrences	Frequency of loss
		Jan ~ Oct	2022 forecast
LTIF	0.85	0	0.00
TRCF	4.01	25	2.71
SMIF	6.17	0	0.00

- LTIF(Lost Time Injury Frequency) : The number of LTI occurrences per 1 million hours of exposure
- TRCF(Total Recordable Case Frequency) : Total recordable case frequency rate is calculated as the total number of recordable cases (medical treatment injuries and lost time injuries) per million hours
TRC: Death + LWC + RWC + MTC (- LWC : Lost Workday Case - RWC : Restricted Work Case - MTC : Medical Treatment Case)
- SMIF(Serious Marine Incident Frequency) : The number of serious accidents (Class B or higher) per 100 ships

VLCC MANAGEMENT RESUMED

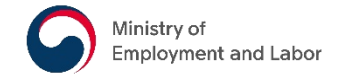
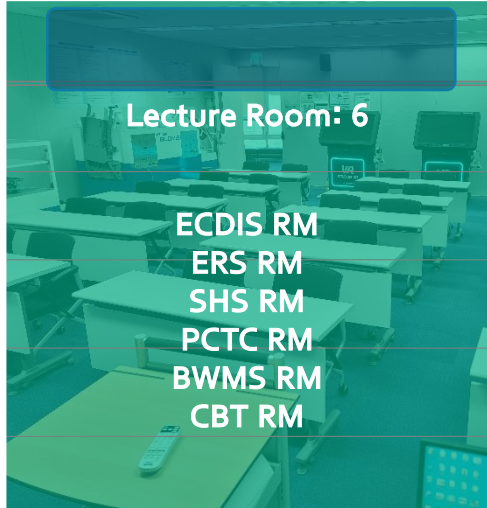


Ship Type	318K VLCC
Name of Ships	<ul style="list-style-type: none"> • VL RENAISSANCE • VL BREEZE • VL BRIGHT
Ship Builder	Hyundai Samho Heavy Industries
Ship Owner	Hyundai Glovis
Ship Manager	G-Marine Service
Crew Matrix	21 (9 Korean officers + 12 Filipinos)
Distinctive feature	LNG Ready design based on space reservation and hull reinforcement for LNG fuel tank
TMSA Auditing (SHELL)	<ul style="list-style-type: none"> - Nov. 11, 2022 - Grade 3.0 expected

NEWBUILDING SUPERVISION ON-GOING

	VLGC (86K)	LNGC (174K, MARK III FLEX)	PCTC (LNG DF) (8700AEU)
Ship yard	HSHI	HSHI	HSHI
No. of Ships	2	1	3
Ship Owner	Hyundai Glovis	Hyundai Glovis	Hyundai Glovis
Charterer	Trafigura	Woodside Energy Trading	-
M/E	LPG Hybrid	ME-GA	ME-GI or XDF
Delivery	Jun. 2024	Aug. 2024	Jun. 2025
G-Marine scope	<ul style="list-style-type: none"> • Spec. Review • Plan Approval • Site Supervision 	<ul style="list-style-type: none"> • Spec. Review • Plan Approval • Site Supervision 	<ul style="list-style-type: none"> • Spec. Review • Plan Approval • Site Supervision

G-MARINE ACADEMY RENOVATION

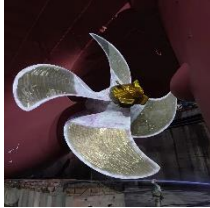


HRDK 한국산업인력공단



- Assignment courses by the Ministry of Oceans and Fisheries
 - 5 Courses required by regulations
- Ministry of Employment and Labor Assignment Training Courses
 - Consignment Training Course 7
- 37 Consortium courses

EEXI & CII RESPONSE STATUS

	Countermeasures	Devices/Products							Timing of Application	Remarks																																											
1	ESD Installation (Hi Fin)								<ul style="list-style-type: none">Installation completed while drydocking this yearNext year, five ships will be installed during drydocking.	<ul style="list-style-type: none">BEP point<ul style="list-style-type: none">With EGCS installed: 38 monthsWithout EGCS installed : 20 monthsEstimated fuel saving: 0.7%Additional ESD feasibility study on-going																																											
2	Antifouling paint	<table><tr><th>Antifouling paint (Maker-Product)</th><th>Average speed loss per 60 months (보증기준)</th><th>Efficiency loss DD interval</th><th>Potential fuel saving compared to used paint</th><th>Additional fuel consumption (ton)</th><th>Additional fuel cost</th><th>Fuel saving cost</th></tr><tr><td>JOTUN - SeaQauntum X200</td><td>1.5%</td><td>4.5%</td><td>7.5%</td><td>2,759</td><td>\$1,230,692</td><td>\$2,051,154</td></tr><tr><td>JOTUN - SQ X200 + SMM ㉞1</td><td>2.2%</td><td>6.6%</td><td>5.4%</td><td>4,047</td><td>\$1,805,016</td><td>\$1,476,831</td></tr><tr><td>CMP - Seaflo Neo CF Premium + M1 Plus ㉞1</td><td>1.4%</td><td>4.2%</td><td>7.8%</td><td>2,575</td><td>\$1,148,646</td><td>\$2,133,200</td></tr><tr><td>IPK - Inter-sleek 1100SR</td><td>1.5%</td><td>4.5%</td><td>7.5%</td><td>2,759</td><td>\$1,230,692</td><td>\$2,051,154</td></tr><tr><td>KCC - EgisELF</td><td>1.5%</td><td>4.5%</td><td>7.5%</td><td>2,759</td><td>\$1,230,692</td><td>\$2,051,154</td></tr><tr><td>IPK - Intersmooth 7475Si</td><td>4.0%</td><td>12.0%</td><td>0.0%</td><td>7,358</td><td>\$3,281,846</td><td>\$0</td></tr></table>	Antifouling paint (Maker-Product)	Average speed loss per 60 months (보증기준)	Efficiency loss DD interval	Potential fuel saving compared to used paint	Additional fuel consumption (ton)	Additional fuel cost	Fuel saving cost	JOTUN - SeaQauntum X200	1.5%	4.5%	7.5%	2,759	\$1,230,692	\$2,051,154	JOTUN - SQ X200 + SMM ㉞1	2.2%	6.6%	5.4%	4,047	\$1,805,016	\$1,476,831	CMP - Seaflo Neo CF Premium + M1 Plus ㉞1	1.4%	4.2%	7.8%	2,575	\$1,148,646	\$2,133,200	IPK - Inter-sleek 1100SR	1.5%	4.5%	7.5%	2,759	\$1,230,692	\$2,051,154	KCC - EgisELF	1.5%	4.5%	7.5%	2,759	\$1,230,692	\$2,051,154	IPK - Intersmooth 7475Si	4.0%	12.0%	0.0%	7,358	\$3,281,846	\$0	<ul style="list-style-type: none">Completed application on 3 vessels6 vessels are scheduled in 2023	<ul style="list-style-type: none">Ship operation data will be collected and verified
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3	WNI CIM Service	Carbon emission monitoring system							<ul style="list-style-type: none">Launched CII monitoring system in Oct. and testing	<ul style="list-style-type: none">Utility of service<ol style="list-style-type: none">CII rating real-time verification functionCII rating through navigation and routing simulation																																											
4	BIO FUEL	30% biodiesel							<ul style="list-style-type: none">Trial Test scheduled in Dec. 2022	<ol style="list-style-type: none">Checking heat stress on fuel injection devicesChecking fuel hardening at low tempChecking the amount of heat generated compared to HFO																																											