



NAVNAUTIK

NAVAL ARCHITECTS | MARINE ENGINEERS | MARINE SURVEYORS | RECYCLING CONSULTANTS





ABOUT US:

Navnautik started business in the year 1990 in Singapore and has since then been an active participant in the design and development of advanced marine structures and marine vessels as per the marine and offshore industry's demands.

We are a marine consultant company particularly catering for special application vessels.

We specialize in the whole spectrum of varied market on specific customized application. Such customized designs have taken place in many of our projects.

As a result Navnautik works with a number of other companies, individuals, government agencies, computerized technical data bases in various countries to put together a project designed specifically for the purpose.

With a modest beginning in design of conventional marine vessels (such as patrol boats and pontoon barges), Navnautik has now expanded its horizon to include high end specialized vessels such as Ultra Deep-sea Pipe laying and Heavy Lift Vessel, Lift boats, etc.

What started off as a two member office in Singapore has now expanded to cover 4 countries and more than 40 team members from the fields of Ship Design, Ship Conversion & Offshore technology. Our team members are conversant in English, Chinese & Indonesian languages.

SCOPE OF DESIGN & ENGINEERING SERVICES

We offer the following services for marine vessels and offshore structures

- Basic design
- Production engineering (using Ship Constructor, CATIA, AVEVA Marine or CADMATIC)
- Conversion of drawings from hard copy to digital format (3D model optional)
- Preparation of As-built drawings at client site
- Retrofit of Scrubber & BWTS installation
- CFD, FEA, FMEA and Mooring analysis
- Structural analysis of retrofitted structures / equipment
- Feasibility studies for upgradation of existing vessel
- Prepare DPR for feasibility studies on LNG vessels



OUR TEAM includes:

- Senior Naval Architects (with 30+ years experience)
- Senior Mechanical & Electrical engineers (with 25+ years of experience)
- Senior draughtsmen (with 30+ years experience)
- 3D modellers with 15+ years of experience
- CFD, FEA & FMEA analysts
- Project manager for on-site supervision



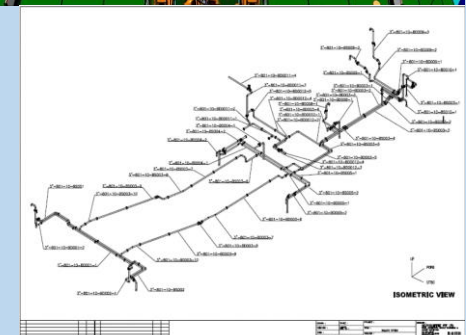
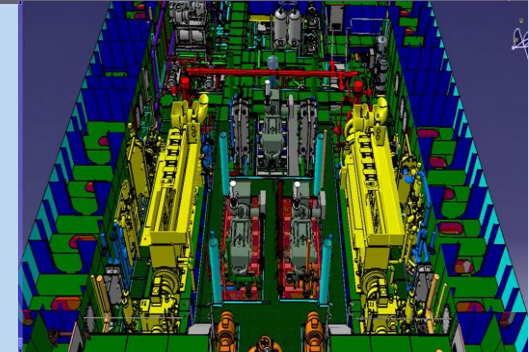
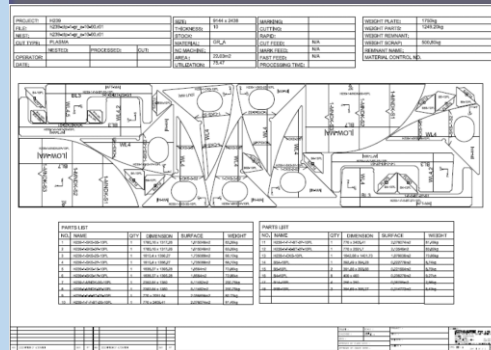
SCOPE OF WORK IN BASIC DESIGN & PRODUCTION ENGINEERING PROJECTS

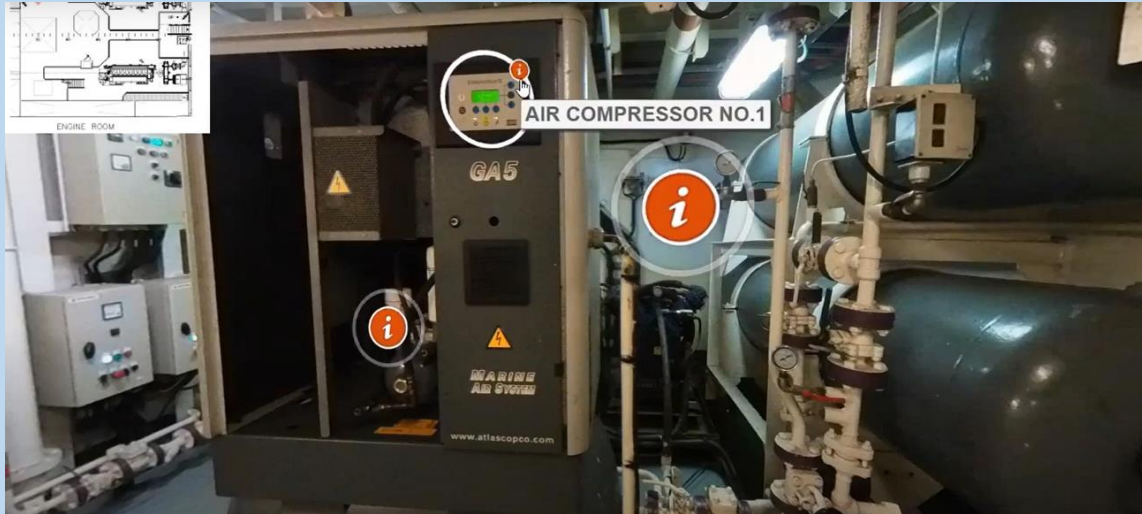
BASIC DESIGN:

1. All Class approved Hull drawings including statutory drawings & eqpt foundation.
2. All Class approved outfit drawings including accommodation layouts.
3. All Class approved P&ID, machinery & equipment layouts for preparing piping systems.
4. All Class approved electrical SLD for preparing cable routing.

PRODUCTION ENGG:

1. Structural - Nesting and stiffener details for the entire vessel including plate bending data, equipment foundation and outfit.
2. Piping - Pipe spool data and composite system in vessel's structural environment.
3. HVAC duct layout and electrical cable tray routing in entire vessel.
4. BOM for structure and piping.





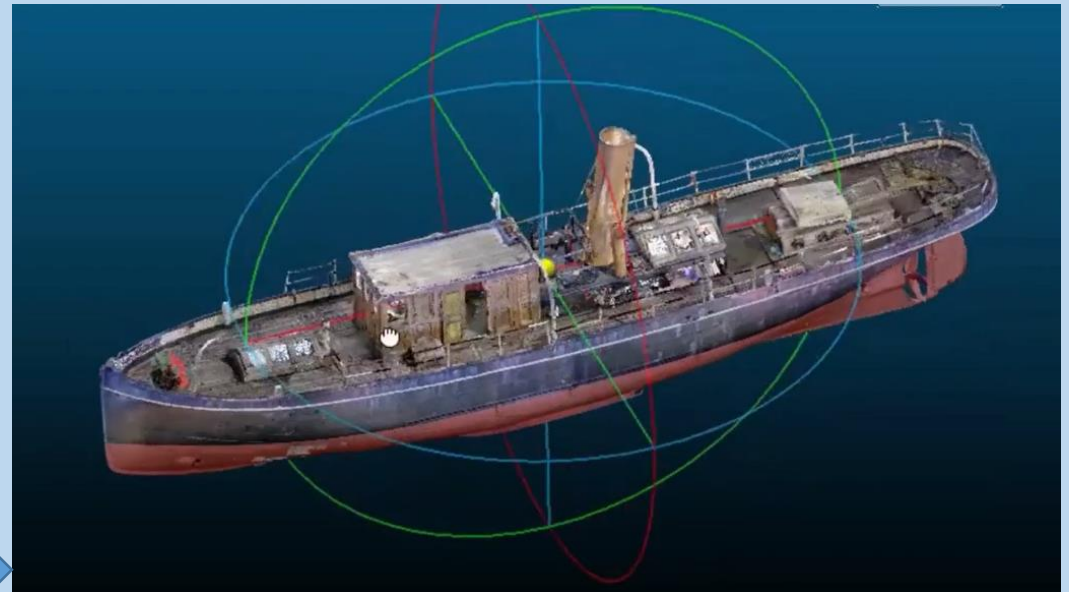
New-age technology for
Reverse engineering
&
Virtual tour
of marine vessels and
offshore structures

NAV-CAM



Two useful applications for
ship owners and shipyards
(cloud-based hence paperless)

NAV-SCAN



NAV-CAM

NAV-CAM allows you to virtually access your vessel anytime from anywhere in the world with 360° 3D walk-through as per your interest area (engine room, mooring deck, wheelhouse, cabins, etc.) of the vessel.

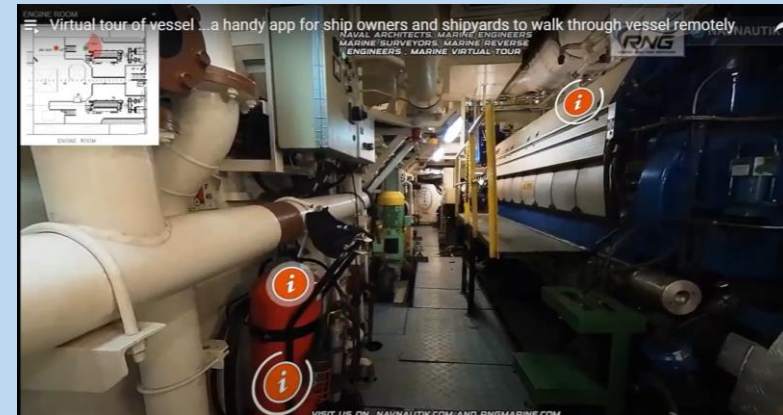
What is the advantage using NAV-CAM?

For New Building & Retrofit / Conversion of existing ships

- Can be kept as an As Built documentation before ship delivery as an evidence and justification whenever any claim / incident / accident happens after delivery
- Can be used for engineering review (ship design evaluation / modification for future) without physically visiting the vessel
- As a digital documentation can be used for ship familiarization & ready reference for trainee crew member before going on-board
- Equipment description and its manual can be incorporated using point tag feature for future upgradation / replacement.
- Can be used as a marketing presentation for potential client during charter / resale before physically visiting the ship (which is a cost element)

Click below for NAV-CAM tour

<https://youtu.be/3Fdftw29pSE?si=OmyN6XR7KOMs7hB>



NAV-SCAN

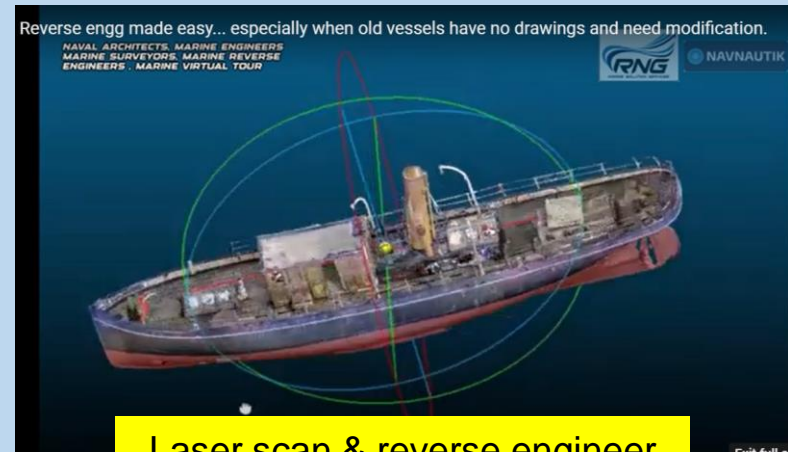
NAV-SCAN is a cost saving application of reverse engineering suitable for hull structure and outfitting modification, piping system retrofit, conversions and creation of database for vessels having limited or no data available on-board.

What is the advantage using **NAV-SCAN**?

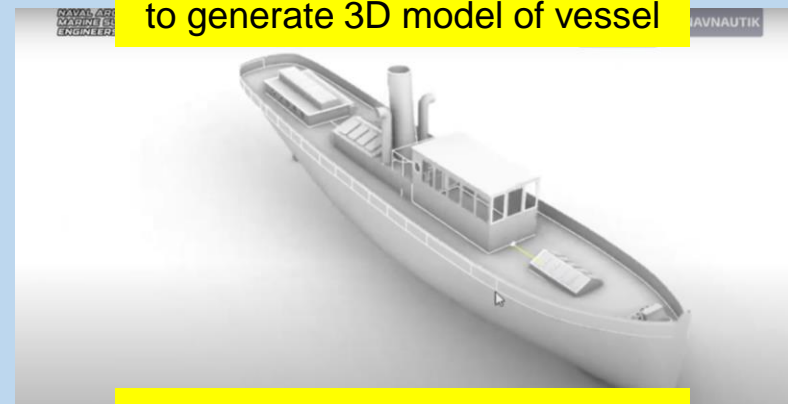
- Vessel modification, conversion, retrofit and upgrade jobs involve tight timeline and limited space at yard and on-board the vessel.
- Hence is typically expensive & time consuming with inaccurate measurement & possibility of on-board interference between equipment / structure.
- To solve we use laser scan as one tool of reverse engineering. It provides higher level of accuracy and can be done while the ship is in operation.
- Simultaneous prefabrication onshore provides a reduction in cost and time since the vessel is still in operation.
- The early availability of engineering data empowers shipyards and ship-owners to plan projects and procure materials for immediate implementation upon the vessel's arrival at dock, thus significantly reducing the vessel's downtime.
- Old vessels with no or little data on-board can use NAV-Scan to generate a digital database as needed.

Click below for **NAV-SCAN** tour

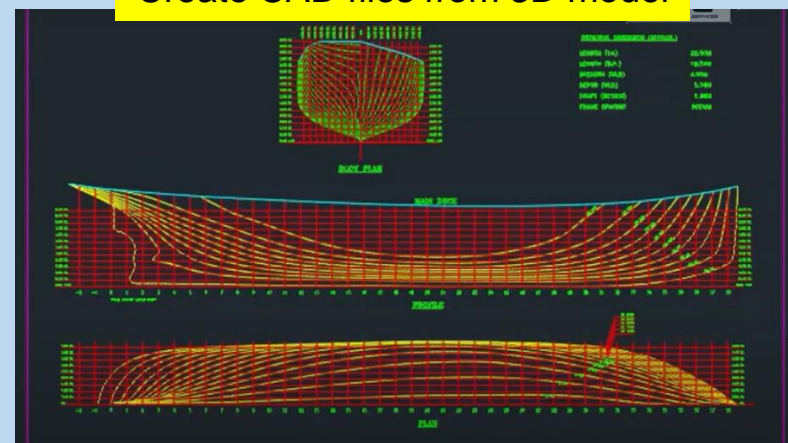
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Laser scan & reverse engineer to generate 3D model of vessel



Create CAD files from 3D model



OWNERS WE COLLABORATED WITH	COUNTRY
A/S EM. Z. SVITZER	DENMARK
AL JABER ESTABLISHMENT	ABU DHABI
DOLPHIN OFFSHORE ENTERPRISES (MAURITIUS) PVT LTD	MAURITIUS
EZRA HOLDINGS	SINGAPORE
INTERNATIONAL SEAPORT DREDGING LTD	INDIA
MAGSAYSAY LOGISTICS	PHILIPPINES
PACIFIC OCEAN ENGG. & TRADING	SINGAPORE
PT. HUMPUSS TRANSPORTASI KIMIA	INDONESIA
PT. PERTANIMA TRANSKO KONTINENTAL	INDONESIA
PT. FREEPORT INDONESIA , JAKARTA	INDONESIA
PT. RIG TENDERS	INDONESIA
ADICO	VIETNAM
RINKAI CONSTRUCTION LTD	SINGAPORE / JAPAN
SARKU ENGINEERING SERVICES SDN BHD	EAST MALAYSIA
SVITZER A/S	DENMARK
TOPNICHE MARINE PTE LTD	SINGAPORE
PACC Offshore Services Holdings Ltd (POSH)	SINGAPORE

SHIPYARDS WE COLLABORATED WITH	COUNTRY
ASL SHIPYARD PTE LTD, SINGAPORE	SINGAPORE
BHARATI SHIPYARD LTD, MUMBAI	INDIA
FUJIAN MAWEI SHIPBUILDING	CHINA
JIANGSU ZHENJIANG SHIPYARD CO LTD	CHINA
JIANGSU WUXI SHIPYARD CO LTD	CHINA
SAMUDRA MARINE INDONESIA	INDONESIA
KEPPEL SINGMARINE PTE LTD	SINGAPORE
KEPPEL BATANGAS SHIPYARD	PHILIPPINES
QINGDAO QIANJIN SHIPYARD	CHINA
RMK MARINE, TUZLA	TURKEY
SHOFT ENGINEERS PVT LTD	INDIA
SAIGON SHIPYARD	VIETNAM
SOFEL	VIETNAM
UNITHAI SHIPYARD LTD	THAILAND

ONE OF OUR MILESTONE PROJECTS (AND THE BIGGEST PROJECT OF NAVNAUTIK)

Our latest Special Application Ship is “LEWEK CONSTELLATION”.

Winner of “Support Vessel of the Year” at Offshore Support Journal Conference (London) 2016.



Vessel type: Ultra deep water rigid & flexible Pipe lay / Heavy Lift / DP3 Construction Vessel

Summary: Designed to deliver complex projects in a safe, efficient and reliable manner in water depths exceeding 3,000 meters, the Constellation is equipped with an 800 MT top tension multi-lay system that can support both rigid and flexible pipelines and flexibles and a 3,000 MT heavy lift crane for large platform installation or decommissioning activities. Lewek Constellation is an ice-class, DP3 vessel with a high transit speed and superior maneuverability built for worldwide services.



2023 – CONVERSION OF AHT TO ATB

2022 – 37M 70T BP ASD FIFI-1 TUG

2021 – ‘BATTERY ENERGY STORAGE SYSTEMS’ BARGE

2019 – LIGHT UTILITY VESSEL

2018 - 50m MULTI-PURPOSE OFFSHORE TERMINAL TUG

2016 – SHALLOW WATER MAINTENANCE VESSEL

2015 – 80T BP DIESEL ELECTRIC HYBRID ESCORT TUG

2009-13 – ULTRA DEEPWATER PIPELAYING VESSEL (OCV)

2010 – WATER INJECTION DREDGER

2000-2022: 50, 60, 65, 70, 75 & 80 TON BP ASD TUGS (~ 100 TUGS BUILT)

2008 - 320’LIFTBOAT

2007 - SHALLOW DRAFT OIL TANKER

2007 - ICE CLASS TUG

2005 – 50T BP VOITH TUG

2004 – LCDT / BITUMEN CARRIER

2003 – 57M DIVING SUPPORT VESSEL

2002 – 250 MEN DP2 ACCO BARGE

2000 – CONVERSION PROJECTS (TANKER TO FPSO, WORKBOAT TO OSV, ETC)



OUR PORTFOLIO ON VARIOUS CARGO CARRIERS & OFFSHORE / ACCOMMODATION / CRANE BARGES

LPG CARRIER



250 MEN DP2 ACCO BARGE



ASPHALT CARRIER (RO-RO)



BATTERY ENERGY STORAGE SYSTEM (BESS) BARGE



ASPHALT / FO CARRIER (RO-RO)



180 MEN OFFSHORE CRANE BARGE



SHALLOW DRAFT FO CARRIER





TUGS DESIGNED ARE:

- 50-60-65-70-75-80 TON BOLLARD PULL
- ESCORT / FIFI-1 / PUSHER / ATB TUG
- DIESEL ELECTRIC / DIESEL / VOITH / ASD
- ICE CLASS



OUR PORTFOLIO ON SPECIALISED VESSELS



15000 T DWT COPPER CARRIER (ATB)



WATER INJECTION DREDGER



DIVING SUPPORT VESSEL



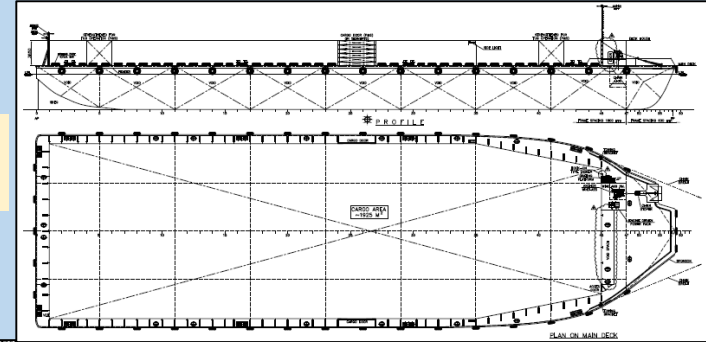
ULTRA DEEPWATER PIPELAYING VESSEL (OCV)



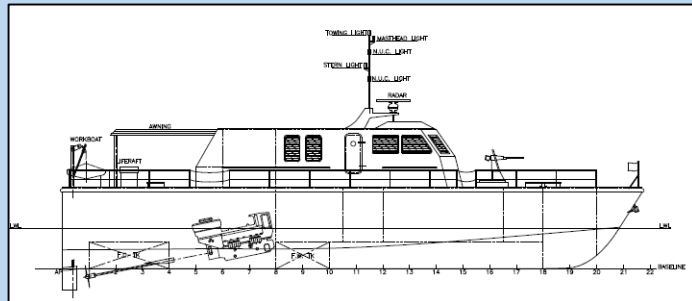
SHALLOW DRAFT MAINTENANCE VESSEL



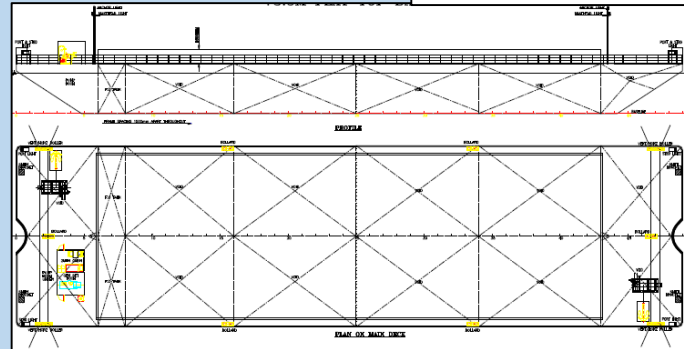
145 PAX PLEASURE CRAFT



9000T OCEAN GOING BARGE



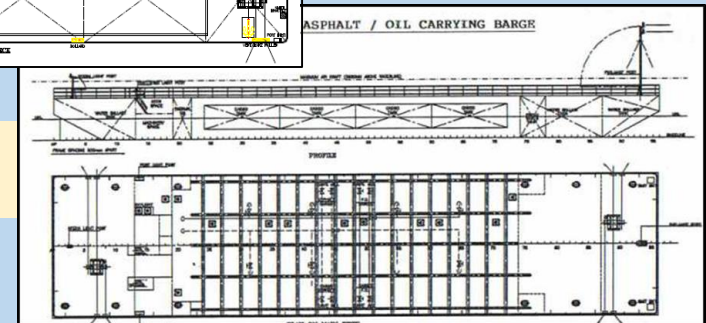
HIGH SPEED PATROL CRAFT



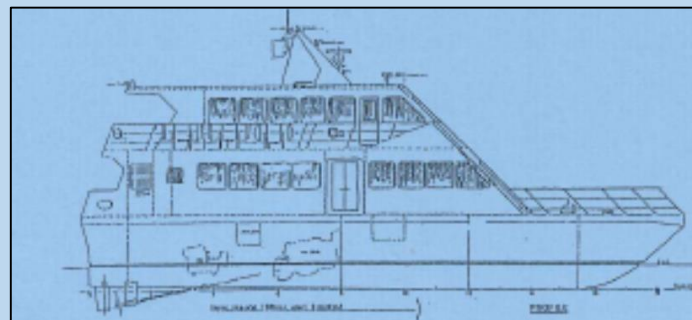
800 CBM ASPHALT / FO BARGE

4500 DWT CARGO BARGE

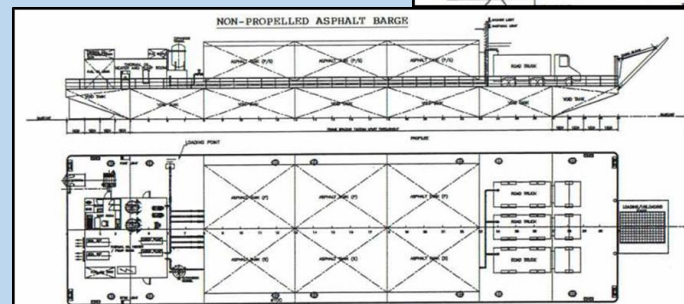
ASPHALT / OIL CARRYING BARGE



ASPHALT BARGE (LCT)



130 PAX CATAMARAN



OUR PORTFOLIO ON CONVERSION PROJECTS



CONVERSION OF
TANKER TO FPSO



LENGTHENING OF HEAVY LIFT
VESSEL "MV SUPER SERVANT 4"

SARKU SEMANTAN



SARKU SIPADAN

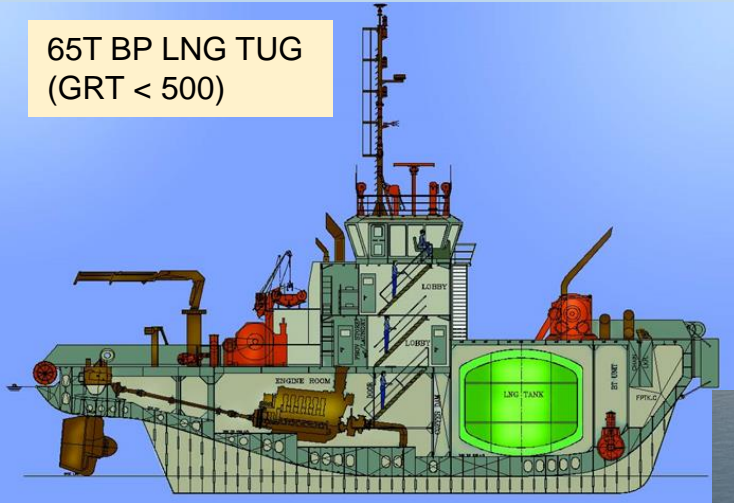


SARKU SANTUBONG



OUR PORTFOLIO ON LNG PILOT PROJECTS

65T BP LNG TUG
(GRT < 500)



7200 m³ STS LNG BUNKERING VESSEL



3600 m³ LNG/ 2000 m³ MDO/HFO
COMBINED BUNKERING VESSEL



7200 m³ STS LNG BUNKERING
VESSEL / OFFSHIP SUPPLY TANKER



2400 M³ LNG LCT

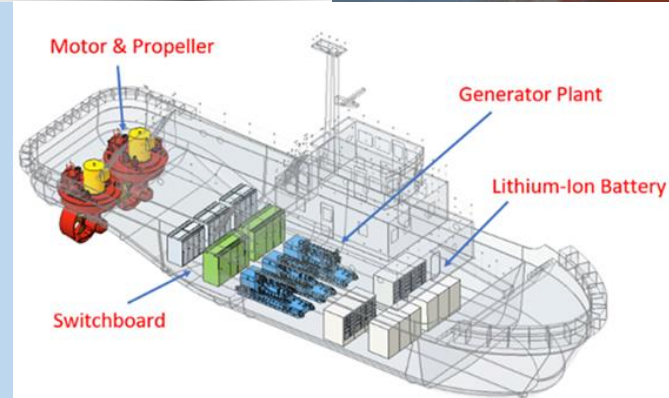


OUR PORTFOLIO ON HYBRID TUGS WITH ELECTRIC BATTERY (NEW BUILD & CONVERSION)



**75T BP ASD HYBRID ESCORT TUG
(for GORGON LNG project, Australia)**

IMO NO.	TYPE OF TUG	NAME OF VESSEL
9673141	75T HYBRID ESCORT TUG	SVITZER EURO
9673953		SVITZER BOODIE
9673965		SVITZER DUGONG
9673977		SVITZER PERENTIE



25-80 ton Bollard Pull Hybrid Tugs

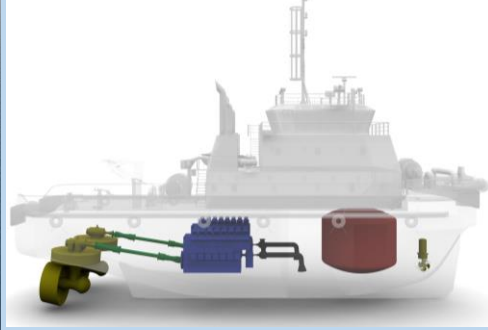
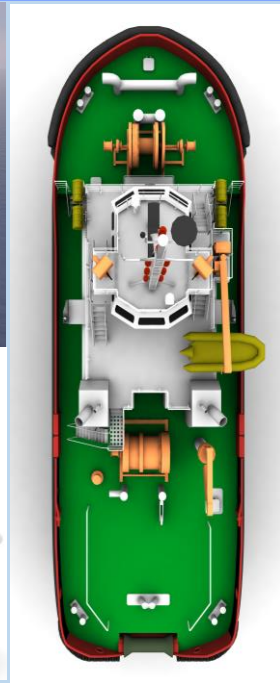
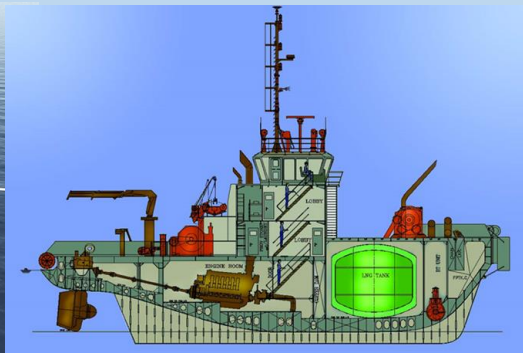
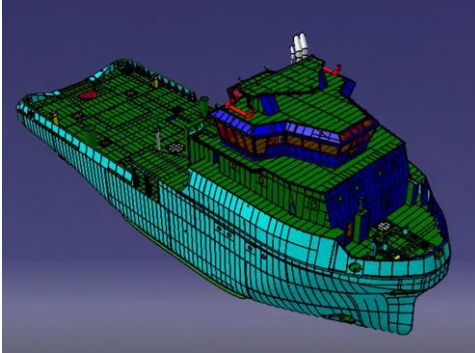
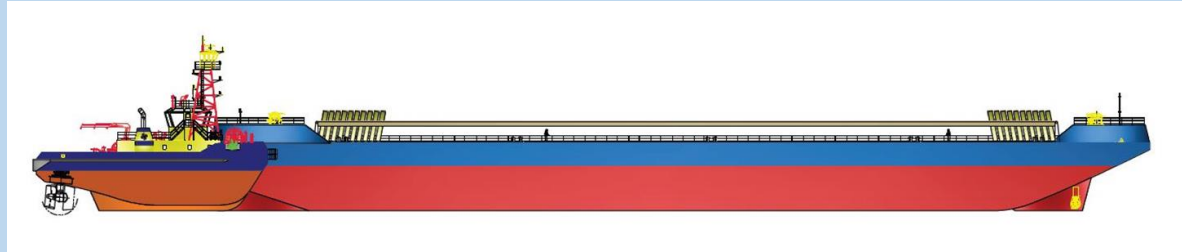
SRP / ASD / Conv rudder propeller / Diesel-Electric propulsion systems with:

- PMSM (for electric mode)
- Battery pack ~ 300-700 kWh (battery used only for transit / loitering / idle operations)

A FEW OF OUR PRODUCTION ENGINEERING PROJECTS



3D MODELS OF VARIOUS PROJECTS CREATED FOR OUR CLIENT



NAVNAUTIK offers technical assistance and advisory services to ship owners in choosing the suitable recycling yard for their ships - yards that meet expected standards of safety for their work force, practice environmentally sound recycling processes and are geographically best suited for the ship being recycled to reach.

After a vessel is released from service and considered for decommissioning, she must not trigger risks to human health, safety, and the environment.

Sustainable ship recycling substantially reduces the amount of waste and also keeps the waste materials from shipbreaking away from the beaches in order to guard the environment and avoid any harmful impact.

We offer on-site monitoring on behalf of the ship owner regarding the progress of recycling, from arrival of the ship until completion of recycling, to ensure safety, environmental and health procedures as required by regulations and as laid down in the Ship Recycling Plan are closely followed at site.

A ship recycling plan should include a Safety & Health Plan, an Environmental Compliance Plan and an Operational Plan.

NAVNAUTIK can ably manage the whole procedure of the recycling of the ship, from the port exportation until the deliverance of the "Statement of Completion" in full compliance with applicable regulations.

OUR TECHNICAL SERVICES FOR SHIP RECYCLING:

PRE-CONTRACT STAGE:

- Yard shortlisting & SWOT analysis
- Yard auditing as per client requirement



THE STEPS TOWARDS SUSTAINABLE SHIP RECYCLING:

Step 1 – Contract for ship recycling

Step 2 – Inventory of Hazardous Materials (IHM) preparation

Step 3 – Ship Recycling Plan (SRP) development

Step 4 – Ship Recycling Plan (SRP) approval process

Step 5 – Approved Ship Recycling Plan (SRP)

Step 6 – Final survey by class

Step 7 – Report and start of ship recycling

Step 8 – Statement of Completion (SOC)



WHY NAVNAUTIK:

- Ground presence in all national and international SRFs such as India, Bangladesh, Indonesia & Turkey.
- Strong technical team of Naval Architects & Marine Engineers with hands-on experience in all pillars of marine industry i.e., Ship Designing, Ship Building, Ship Conversion & Retrofit, Ship Operational Survey & Monitoring and Ship Recycling.
- Individual team assigned to individual projects.
- CLASS authorized service providers for IHM solutions.
- Qualified Internal and External Auditors of ISO: 9001:2015/ ISO: 14001:2015/ ISO 45001:2018/ ISO 30000:2009.
- Technical team has 25+ Yrs. of experience in Ship Survey / Monitoring / Ship Building & Ship Recycling.
- Industry knowledge and requisite training in all the rules and regulations applicable for ship recycling.
- Offer customized IT solution / application to ship owners via end-user interface with site team for real time monitoring & online documentation of the entire ship recycling process.

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<https://www.navnautik.com>