
जी आर एस ई
GRSE
GARDEN REACH
SHIPBUILDERS &
ENGINEERS LTD.
BUILDERS OF 100+ WARSHIPS
100+
INFINITE PASSION
MEETS UNWAVERING COMMITMENT
INFINITE PASSION MEETS
UNWAVERING COMMITMENT
– Where Tradition meets Innovation
MAKE IN INDIA

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CHAIRMAN'S PROFILE

CMDE PR HARI, IN (RETD.)

CHAIRMAN & MANAGING DIRECTOR, GRSE, KOLKATA

Cmde PR Hari, IN (Retd.) assumed charge as Chairman & Managing Director of GRSE with effect from 10 Jun 22. He is a Mechanical Engineer with Master's Degree in Defence & Strategic Studies. The officer has undergone Defence Services Staff Course at DSSC (Wellington), Higher Defence Orientation Course at Army War College (Mhow) and the prestigious Naval Higher Command Course at the Naval War College (Goa).

He has had an illustrious career spanning over 36 years including 28 years in the Indian Navy, during which he has held various prestigious appointments in key positions of strategy, operations, technical administration and decision making. He has served in nine ships of the Indian Navy, including seven frontline warships. His other notable appointments include field assignments in Naval Repair Yards, Naval Dockyards, Staff appointments at Eastern Naval Command, Command Engineer Officer of Southern Naval Command and Warship Production Superintendent at Kochi, steering the prestigious Indigenous Aircraft Carrier project. A notable contribution of the officer was his tenure as commissioning Engineering Officer of India's first indigenously built Stealth Frigate, INS Shivalik.

Cmde PR Hari, IN (Retd.) joined GRSE as Chief General Manager (Production Planning & Control) in the year 2016 and was in charge of production planning of all new construction ships at that point of time. He assumed charge as Director (Personnel) of the Company from 21 Oct 2019 and headed the Human Resource and Technical Division functions of GRSE.

The Chairman & Managing Director has defined an ambitious Vision for the company and strives to make GRSE as the best Indian Shipyard recognised globally, while also targeting Navratna classification by 2030. Under his helm, the company has been on an upward growth trajectory with strong financial and physical performance. One of the credible achievements was recategorisation of the Shipyard as a Schedule 'A' CPSE during 2024. He envisions to further strengthen the government's 'Make in India' initiative, create a unique identity for the company amongst its peers by becoming self-reliant in design capability and by deploying state-of-the-art manufacturing processes. Towards this goal, his thrust has been on improving productivity, new technology adaptation with specific focus on development of 'Green' & 'Autonomous' platforms, enhancing efficiency, devising new policies, increasing the vendor base, human resource development and most importantly instill a sense of discipline amongst employees of the shipyard.

GENESIS OF GRSE

The genesis of Garden Reach Shipbuilders & Engineers Ltd (GRSE), a Schedule 'A' Mini Ratna Category 1 Company, dates back to 1884 when it started its journey as a small workshop to repair vessels of River Steam Navigation Company. In 1934, the Company was registered under the Indian Companies Act, 1913 and started its new journey as Garden Reach Workshops (GRW) Limited. The Shipyard played an active role during the 2nd World War wherein over 4000 vessels were repaired here. The Company was taken over by the Government of India in 1960. GRSE has the distinction of becoming the first shipyard of independent India to build a warship for Indian Navy, the Seaward Defence Boat (SDB) INS Ajay way back in 1961. GRSE also built the first ever Indian Export Warship "CGS Barracuda". The shipyard was conferred the status of a Miniratna Category I Company in 2006. GRSE is the only Indian Shipbuilder to have four distinct shipyards as an unique infrastructure advantage. GRSE has built over 790 platforms including 110+ warships for Indian Navy, Indian Coast Guard and Government of Mauritius & Seychelles Coast Guard - the highest number of warships built & delivered by any Indian shipyard till date.

The primary role of this ISO 9001, 14001, 45001, 50001 certified shipyard has been building warships and other vessels for the Indian Navy and Indian Coast Guard. With its modern shipbuilding infrastructure, state-of-the-art Virtual Reality Lab and a 100+ strong design team drawing on over 60 years of shipbuilding expertise, GRSE can certainly lay claim to being the 'Master Builder' for Amphibious & Survey ships, Corvettes and Fast Attack Crafts in India. Apart from Ship Building & Ship Repairs, GRSE has also diversified into engineering business with a product profile of pre-fabricated steel bridges, various deck machinery items and assembly, as well as testing & overhauling of marine diesel engines.

GRSE is playing a key role in defence preparedness of India to produce the most modern warships through indigenization for the country aimed at self-reliance. GRSE has the capacity to build 24 ships (08 large & 16 small) concurrently.

BUILDERS OF 100+ WARSHIPS

INFINITE PASSION
MEETS UNWAVERING COMMITMENT

OUR VISION

To become a Navratna Company by 2030 and be globally recognised as the best Indian Shipyard.

OUR MISSION

To be self-reliant in design capability and deploy state-of-the-art manufacturing processes.

To build quality Warships at competitive prices, exceeding customer's expectation in terms of delivery time and product support.

To achieve sustained growth through customer satisfaction, product innovation, capturing export potential, employee and other stakeholder engagement and talent development.

Leverage GoI Initiatives and Technology to "Reform & Transform" in all spheres of Operations to attain "Next Level of Performance".

GARDEN REACH SHIPBUILDERS & ENGINEERS LTD.

KEY MILESTONES

1884 - 1999

Formative Years

- Established as a small factory in 1884.
- Nationalized in 1960.
- Delivered Independent India's first Indigenous warship, INS Ajay in 1961.
- Pioneered shipbuilding with various vessel types (Patrol Ships, Survey Vessels, Landing Ships, Missile Corvettes) throughout the period.

2000 - 2006

Harnessing Saga

- Expanded into new vessel categories (Fleet Tankers, Frigates, Fast Attack Crafts, Hovercrafts).
- Acquired Raja Bagan Dockyard.
- Achieved Mini Ratna Category-1 Status.

2007 - 2010

On the Growth Path

- Delivered a large number of Inshore and Fast Patrol Vessels, and Landing Ship Tanks.
- Developed innovative Designs for Warships.
- Introduced Double Lane Modular Bridge Construction.

2011 - 2015

Triumph of Indigenisation

- Delivered India's first Anti-Submarine Warfare Corvette (INS Kamorta).
- Achieved historic milestone: India's first ever warship for export (CGS Barracuda delivered to Mauritius).
- Focused on technology and process improvements.

2016 - 2021

Innovation and Expansion

- Increased warship delivery pace with multiple vessel types (Corvettes, Landing Craft Utilities, Fast Attack Crafts).
- Expanded into new friendly foreign markets
- Achieved significant milestones (100th warship delivery, ISO certifications).
- Undertook complex infrastructure upgradation projects.

2022-2024

Future-Ready and Setting Global Standards

- Achieved 'Schedule A' Status.
- Launched GRSE Accelerated Innovation Nurturing Scheme : 2023 and 2024.
- Bagged prestigious shipbuilding projects from domestic and international markets.
- Expanded product range of Bailey bridges.

GARDEN REACH SHIPBUILDERS & ENGINEERS LTD.

RECENT ACHIEVEMENTS

1. Only Indian Shipyard to deliver over 100 Warships since 1960
2. Achieved 'Schedule A' Status from Government of India
3. Achieved approximately 90% Indigenous Content on ASW Corvettes, LCUs & SV(L)s
4. Design and R&D Unit of GRSE has been recognized by DSIR, Ministry of Science and Technology, GoI
5. Successful Launch of GRSE Accelerated Innovation Nurturing Scheme (GAINS)
6. Bagged Prestigious Projects for Warship Building and Commercial Vessels from Domestic and International Markets
7. Exported Ships to Cooperative Republic of Guyana, Seychelles and Bangladesh
8. A profit making and dividend paying company for the last 31 years
9. First DPSU Shipyard in the country to secure 100 Intellectual Property Rights (IPRs) from the Government of India
10. Awarded by prestigious forums for Innovation, Indigenisation, AI Implementation, Digital Transformation, Corporate Governance, CSR, Sustainability, HR and Communication Outreach etc.

BUILDERS OF 100+ WARSHIPS

INFINITE PASSION
MEETS UNWAVERING COMMITMENT

GRSE BHAVAN

GARDEN REACH SHIPBUILDERS & ENGINEERS LTD.

INFRASTRUCTURE - SHIP PRODUCTION

MAIN WORKS

Main Works is the heart and soul of GRSE's operations. The centrepiece of Main Works is an Integrated Shipbuilding Facility located in Kolkata, India. The facility which occupies approximately 48 acres of land consists of the following :

- One (1) Dry Dock measuring 180 x 29 x10 M of 10,000 DWT launching capacity
- One (1) Inclined Berth measuring 180 x 23 M of 4,500 DWT launching capacity
- Portable shelters over the Dry Dock and Inclined Berth
- Module Hall for constructing large pre-outfitted blocks of up to 200 tonnes
- Blast and Paint Cell
- Two (2) additional River Jetties
- Central Pier
- Amenity Block
- Pavements

Main Works also consists of the following structures

Wet Basin and Dry Dock

80 x 25 x 8 M fully covered Non-tidal Wet Basin with 2 x 10 tonnes EOT Cranes suited for all weather fitting-out of medium and small ships.

160 x 25 x 8 M Dry Dock with 2 x 40 tonnes Goliath Cranes suited for the construction and repair of ships.

Building Berth

Measures 180 x 25 M.

Equipped with 2 x 40/10 tonnes Cranes and supporting fabrication shops.

River Jetties

Two (2) River Jetties which are able of berthing of vessels up to 60 M in length and suited for out-fitting/repair of smaller vessels.

Additional Facilities - Boat Shed for manufacturing Fast Interceptor Boat

Two air-conditioned and humidity-controlled shops with six bays ranging from 18 to 40 M in length Capable of building crafts up to 20 M.

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FITTING OUT JETTY

The Fitting Out of a ship is one of the most crucial processes in shipbuilding. This is when the ship is fitted with equipments, systems & weapons as per the requirements of the customer. GRSE's Fitting Out Jetty (FOJ) is set up on 18 acres in Kolkata. Fitting Out is an intricate process requiring special skills and equipments.

The Facilities at FOJ Unit include :

- Naval Complex Jetty (229 x 10 x 8 M with one 20 tonnes Tower Crane)
- Finger Jetty (184.50 x 11.43 x 7 M with two 15 tonnes ELL Cranes)

Though GRSE's FOJ Unit is primarily meant to handle large ships, it is also capable of fitting out small and medium ones. The Unit has the capacity to fit out up to four large ships at the same time.

RAJABAGAN DOCKYARD

GRSE's Rajabagan Dockyard or RBD is spread across 31.15 acres with a 550-meter open river front in Kolkata and is capable of pre-launch activities of up to five ships that are 105 meters to 205 meters in length at the same time. RBD can also undertake post-launch outfitting of up to four ships at one time at its two River Side Jetties. The facilities at RBD include three dry docks that can accomodate ships requiring draft of up to 4 meters. The Dockyard also has two inclined berth/slipways.

RBD has also emerged as a fabrication hub for Block Preparation for under-construction ships. The facility is equipped with CNC Plasma (Underwater) Plate Cutting Machine to cut through 65 mm Carbon Steel, 30 mm Stainless Steel and 50 mm Aluminium Plates as well as Blasting Machines with a capacity of 30 Plates per 1,500 sq meters.

The Dockyard has various workshops such as Shipbuilding Shop with two bays with a total area of 1,100 square meters and two Block Fabrication Complexes. Block Fabrication Complex - I can produce four block simultaneously within an area of 90 meters x 30 meters. The Block Fabrication Complex - II can produce two blocks simultaneously in an area of 55 meters x 27 meters. These facilities have four EOT cranes of 25 TON capacity each (Two cranes in each BFC).

RBD also has Fitting, Pipe, Carpentary and Machine Shops, two Industrial Stores, Steel Stock Yard, Scrap Yard and a Weigh Bridge. It has adequate utility services, fire and medical facilities and accomodation for CISF personnel.

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INFRASTRUCTURE - ENGINEERING

TARATALA UNIT

The Taratala Unit (TU) was set up in 1970 with the aim of indigenization and import substitution for different hull machineries & marine pumps envisaged as critical to GRSE's core shipbuilding activity and has been a pioneer in providing solutions for different classes of ships of the Indian Navy and Indian Coast Guard. As a part of GRSE's growth strategy, infrastructure of TU has been augmented in 2023 to add three new business verticals viz. Ship Repair Division, 30mm Naval Surface Gun Division & the Marine Valve Division to the existing Deck Machinery Division.

61 PARK

The 61 Park Unit, which was the company's residential estate for the senior executives, was converted into factory space in 1971. The 61 Park Unit initially started manufacturing RV Diesel Engines, Fiber Glass Boats etc., but later concentrated mainly on manufacturing Portable Bridges & Steel Plant equipment. At present, the Unit is handling manufacture of Pre-fabricated Portable Bridges of different sizes and designs.

GRSE CENTRAL DESIGN OFFICE

From Concept Design to Production, the Central Design Office plays an integral and vital role in the shipbuilding process at GRSE. Company's technical experience has been forged into an elaborate work sequence which keeps evolving to ensure that the clients' requirements are handled in the best possible way.

GRSE is ISO 9001-2015 certified for design and construction of ships. GRSE received Raksha Mantri's Award 2022 for Excellence in Defence & Aerospace Sector for Designing the Most Silent Ship for IN, for ASWSWC Operations during DefExpo 2022. On 30 May 2017, the Shipyard received Defence Minister's Award for Innovation in In-House Design Effort for OPV Built for Govt of Mauritius. Experience and Skilled teams exist in the following disciplines:

- Naval Architecture
- Structural Engineering
- Mechanical Engineering
- Electrical and Electronics Engineering

Functionally the design office staff is organized into six major groups:

- Forward Design
- Hull
- Hull Outfit
- Mechanical Engineering
- Engineering
- Electrical & Weapons

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TECHNICAL TRAINING CENTRE

GRSE's Technical Training Centre at Taratala Unit, is one of the leading ISO 9002 certified Technical Training Centres of Eastern India. It is engaged in imparting training to the Apprentices and Trainee Marine Engineers (TME). The Technical Training Centre conducts following trainings:

- Trade Apprentice Training
- Electrician, Fitter, Mechanist, Pipe Fitter, Welder Training
- Graduate/Diploma Engineer Apprenticeship Training (Naval Architect, Civil Engineer, Computer Science, Electrical & Mechanical Engineer)
- Trainee Marine Engineer Training (One-year Pre-Sea Training course with approval of DG Shipping, Mumbai)

SHIPBUILDING CAPACITY

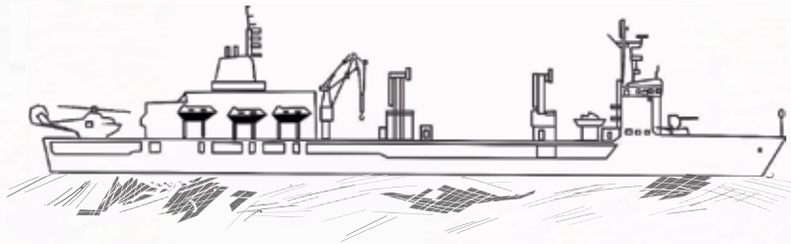
Yard is Capable of Constructing 24 Ships Concurrently

Dimension	Pre Launch	Post Launch
Large ships	4	4
Small ships	8	8

GARDEN REACH SHIPBUILDERS & ENGINEERS LTD.

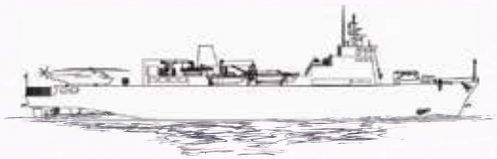
Shipbuilding Product Profile

FLEET TANKER

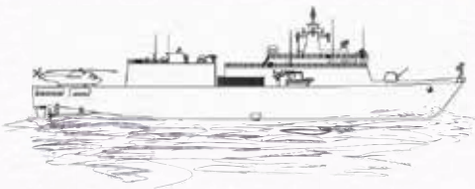


MPV

SURVEY VESSEL (LARGE)

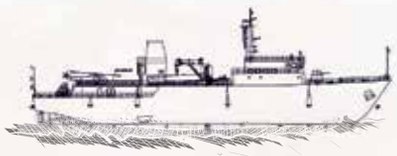


NGOPV



ASW SWC

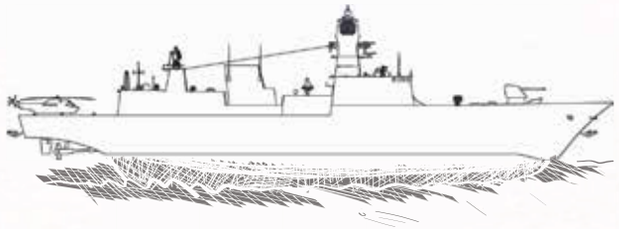
OPV



PASSENGER CUM CARGO FERRY

LCU

FRIGATE-17A



P 16A FRIGATE

LST(L)

ASW CORVETTE

MISSILE CORVETTE

ORV

OGT

TSH DREDGER

FPV

FAC

NG ELECTRIC FERRY

GARDEN REACH SHIPBUILDERS & ENGINEERS LTD.

FLEET REPLENISHMENT TANKER

Primarily designed as a Fleet Support Ship, the Fleet Replenishment Tanker replenishes warships at sea with all kinds of fuel (including aviation fuel), ammunition, fresh water, provisions, hospital facilities, etc. It is capable of transferring 2T load and fueling 4 ships simultaneously. It can carry Helicopter in its Hanger.

Principal Particulars

- Length Overall - 172 M
- Breadth - 23 M
- Design Draught - 9.10 M
- Displacement - 24,600 T
- Dead Weight - 17,000 T
- Speed - 20 KNOTS
- Endurance - 10000 NM at 16 KNOTS

Propulsion Machinery

- Main Engine - 2 x 11970 HP

Power Generation

- Diesel Generators - 3 x 500 KW
- Shaft Generator - 2 x 1500 KW
- EMG DA - 1 x 350 KW

Accommodation

Officers - 16

Sailors - 168

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P17A ADVANCED FRIGATE

P17A Frigates are state-of-the-art Guided Missile Frigates. Integrated Construction Methodology with pre-out fitting has been adopted to improve quality and reduce build periods.

GRSE's maiden foray into the out fitting and installation of Brahmos SSM, MFSTAR antenna and LRSAM during execution of Project 17A, bestows new capabilities on the shipyard and catapults it to the higher league of shipyards capable of building potent stealth frigates for the nation. With P17A, the shipyard has migrated to the digital realm and is successfully implementing AVEVA for the 3D modelling across multiple locations using a secured data network. Moreover, the vessel's work flow has adopted the Siemens 'TEAMCENTRE' for Product Data Model and Product Life Cycle Management (PDM/PLM).

Principal Particulars

- Length (LBP) - 138 M
- Length (LOA) -149 M
- Beam Max. (on Weather Deck) - 17.7 M
- Breadth (BWL at Design Waterline) - 15.9 M
- Depth (at Centre) - 9.9 M
- Deep Draft - 5.1 M
- Design Deep Displacement - 6670 T
- Speed Max. - 28 KNOTS
- Complement - Total : 225
- Endurance - 5500 NM at economical speed and 1000 NM at Max. speed

Propulsion Machinery

- 2 x CODOG propulsion plants

Scan the QR Code for P17A Advanced Frigate

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BRAHMAPUTRA CLASS FRIGATE

The Brahmaputra Class Frigate is a frontline warship equipped with Surface-to-Air Missile, Surface to-Surface Missile, Super Rapid Gun Mounting, Anti-Aircraft Guns, Torpedo Launcher and Chaff Launcher as well as Early Warning, Navigation and Fire Control Radars and Underwater Sensors. It is also equipped with Integrated Communication System and Electronic Warfare System. It can accommodate 02 Sea King Helicopters in its Hangar.

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Principal Particulars

- Length Overall - 126.4 M
- Breadth - 14.4 M
- Draught - 4.5 M
- Displacement - 3650 T
- Speed - 30 KNOTS
- Endurance - 4500 NM at 12 KNOTS

Propulsion Machinery

- Main Engine - Steam Turbine
  2 x 15500 HP

Power Generation

- Generators - 2 x 750 KW
  3 x 500 KW

Accommodation

- Officers - 29
- Sailors - 283

LANDING SHIP TANK

The Landing Ship Tank (Large) is a vehicle and troop carrier, capable of handling vehicles in beach gradient of 1 in 40 or steeper. It can accommodate 1 Sea King Helicopter and 4 Landing Craft Assaults. It is equipped with Anti-Aircraft Guns, Chaff and Electronic Warfare System. It is provided with Automatic Power Management and Battle Damage Control Systems.

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Principal Particulars

- Length Overall - 124.8 M
- Breadth - 17.50 M
- Depth (Main Deck) - 8.60 M
- Design Draft - 3.50 M
- Max. Displacement - 5650 T
- Dead Weight - 2580 T
- Speed - 15.80 KNOTS
- Endurance - 3000 NM at 14 KNOTS

Propulsion Machinery

- Main Engine - 2 x 3888 KW

Power Generation

- Generators - 2 x 500 KW
  2 x 350 KW
  1x100 KW

Accommodation

- Officers - 16
- Sailors - 120
- Troops - 150

GARDEN REACH SHIPBUILDERS & ENGINEERS LTD.

MULTIPURPOSE CARGO VESSEL

7500 DWT Multi-Purpose Cargo vessel shall be designed and built as a single screw medium speed diesel engine, controllable pitch inside nozzle, Ice 1A and single cargo hold to meet the diverse needs of global shipping. The Vessel and its design shall be suitable for worldwide operations as a sea-going vessel.

The Vessel shall be built under survey and in accordance with the rules of Classification Society with following class notations: p 1A, Multi-purpose Dry Cargo Ship, Strengthened (IB), Ice 1A, Container, GRAB (2-20), E0, NAUT (NAV), LCS, DG (B), DG (P), DBC, ER (SCR), Clean, BWM (T), BIS, TMON (Oil lubricated), Recyclable, Fuel Ready (LFL-D, MEca), Hatch coverless (NC).

The vessel shall be capable of carrying the following cargoes:

- Dry bulk cargoes such as grain, metal concentrates, iron ore, scrap metal and coal
- Project cargoes (Windmill blades and components)
- Containers on hatch covers
- Steel products such as hot coils
- General cargoes including packaged freight, palletized cargo, bagged cement, sawn timber, bagged sugar, bagged salt, and other bagged cargoes
- No dangerous cargoes and only non-combustible cargoes are carried with open-top hold
- Dangerous Cargo

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Principal Particulars

- Length Overall - 120 M
- Breadth moulded - 17 M
- Draught - 5.85 M
- Max. Speed - 11.50 KNOTS
- Endurance - 4700 NM
- Deadweight - 7500 T

SURVEY VESSEL (LARGE)

These ships are capable of full scale coastal & deep-water hydrographic survey of Ports & Harbors, as well as approaches & determination of navigational channels & routes. In addition, the ships are also capable of undertaking survey of maritime limits and collection of oceanographic & geographical data for Defence applications. These ships are propelled by two Marine Diesel Engines combined with Fixed Pitch Propellers and fitted with Bow & Stern Thrusters for station keeping and manoeuvring at low speeds during surveys. The ships are designed by the Design team of GRSE and are built & outfitted in compliance with applicable provisions and regulations of the Classifications Society (IRS). Integrated Construction Methodology has been adopted for construction of these ships. Accordingly, a large amount of pre-outfitting is carried out at the block stage itself. The First of Class Ship INS 'Sandhayak' was commissioned into the Indian Navy on February 03, 2024.

Principal Particulars

- Length (LBP) - 110 M
- Beam - 16 M
- Draught - 3.75 M
- Displacement - 3408 T (Approx.)
- Speed - 18 KNOTS
- Complement - 21 Officers & 210 Sailors
- Endurance - 6500 NM at Economical Speed
- Helicopter - 01 x ALH

Scan the QR Code for
Survey Vessel (Large)

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NEXT GENERATION OFFSHORE PATROL VESSEL

These ships are capable of fulfilling roles such as Seaward Defence, 'Out of Area' Contingency Ops (OOAC), Non-Combatant Evacuation Ops (NEO), Convoy Operations/ Anti-Piracy Missions, Counter Infiltration Ops, Anti Poaching/Trafficking, HADR, Search and Rescue Missions, Hospital Ship, Fleet Maintenance Support and COMINT Ship.

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Principal Particulars

- Length Overall - 113 M (Approx.)
- Length on WL - 107.5 M
- Breadth Moulded - 14.6 M
- Depth Moulded to No. 1 Deck at Side - 8.70 M
- Draft (Design) - 4 M
- Displacement (Design) - 3000 T
- Frame Spacing - 600 MM
- Design Speed - 23 KNOTS
- Endurance at 14 KNOTS - 8500 NM
- Officers - 20
- Sailors - 130 Bunks for 125% of the Complement

ANTI SUBMARINE WARFARE CORVETTE

Anti Submarine Warfare Corvette — (Kamorta Class Ship) is designed as the super-sophisticated frontline warship with Stealth features. The ship has Anti- Submarine Warfare Capability with a low signature of radiated underwater noise. The ship is equipped with Super Rapid Gun Mounting, Anti-Aircraft Guns, Torpedo Launcher, Rocket Launcher and Chaff Launcher as well as Early Warning, Navigation, Fire Control Radars and Under Water Sensor. It is also equipped with Integrated Communication System and Electronic Warfare System.

Scan the QR Code for ASWC

Principal Particulars

- Length Overall - 109.1 M
- Breadth - 14.17 M
- Displacement - 3200 T (Approx.)
- Max. Speed - 25 KNOTS
- Endurance - 3450 NM (Approx.) at 14 KNOTS

Propulsion Machinery

- Main Engines - 4 x 3888 KW at 1050 RPM

Power Generation

- Diesel Generator -2 x 1000 KW & 2 x 500 KW

Accommodation

- Officers - 17
- Sailors - 106

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MISSILE CORVETTE

Missile Corvette is a frontline warship armed with SRGM Gun, Surface-to-Surface and Surface-to-Air Missiles and Anti-aircraft Guns. It is also equipped with Electronic Warfare System and CIWS. It has a Helo Landing Deck.

Principal Particulars

- Length Overall - 91.1 M
- Breadth - 10.50 M
- Displacement - 1370 T
- Max. Speed - 25 KNOTS
- Draught - 3 M
- Endurance - 4000 NM at 16 KNOTS
- Main Engines - 2 x 7100 BHP
- Diesel Generators - 4 x 350 KW

Armament -

- Electronic Warfare System
- SRGM Gun
- SSM (Surface to Suface Missile)
- SAM (Surface to Air Missile)
- CIWS

Accommodation -

- Officers : 9
- Sailors : 70

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BUILDERS OF 100+ WARSHIPS

INFINITE PASSION
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ACOUSTIC RESEARCH SHIP

GRSE has entered in new arena with the design and construction of Acoustic Research Ship (ARS) which will be fitted with 'state-of-the-art' equipment to fulfil the vision and mission requirement of acoustic and oceanographic studies.

The ship will be capable of functions like undertaking temporal / spatial high resolution survey of sound velocity profiles, collection of ocean tides / current information which shall be used for survey optimization, design of underwater moorings and offshore deployments, undertaking meteorological surveys to understand influence of atmospheric parameters in sound propagation studies and carrying out shallow water acoustic reverberation studies in Indian Ocean region.

The vessel will have special features like Gondola, Drop keel and Moon Pool to house the hydro acoustic sensors. In order to maintain the position and station keeping which is critical for lowering and operation of scientific equipment and undertake the survey operation, the vessel is equipped with Dynamic Positioning System (DP-II).

Principal Particulars

- Length Overall - 91.2 M
- Length between Perpendiculars - 83.2 M
- Breadth Moulded - 15.1M
- Depth to Main Deck - 9.6 M
- Displacement - 4490 T
- Propulsion - Diesel Electric
- Speed - 12 KNOTS
- Endurance - 30 days transit at 12 KNOTS
- Complement - 70 personnel (30 Officers & crew, 40 Scientists)
- Dynamic Positioning - DP II

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OCEAN RESEARCH VESSEL

GRSE has entered into a new arena with the design and construction of Ocean Research Vessel (ORV) which will be fitted with 'state-of-the-art' equipment to fullfil the vision and mission requirement of National Centre for Polar & Ocean Research. The vessel shall be multidisciplinary vessel utilised as national facility by the Ministry of Earth Sciences, for Deep Sea Minerals investigations including Hydrothermal programme, PMN programme and other programmes of MoES etc. aimed for studying all living and non-living resources and other oceanographic R&D and exploration studies in Indian Ocean region.

The vessel will have special features like Gondola and drop keel to house the hydro acoustic sensors. The vessel will be fitted with Polarimetric Doppler weather radar with capability of detecting particle type (rain, snow, hail etc.), intensity and motion. The seismic capability to locate subsea oil and gas bearing geological formation will add to its multi role capability. In order to maintain the position and station keeping which is critical for lowering and operation of scientific equipment and undertake the survey operation, the vessel is equipped with Dynamic Positioning System (DP-II).

Principal Particulars

- Length Overall - 89.50 M
- Length between Perpendiculars - 81 M
- Breadth Moulded - 18.80 M
- Depth to Main Deck - 9.80 M
- Displacement - 6200 T
- Propulsion - Diesel Electric
- Speed - 14 KNOTS at 90% MCR,
  12 KNOTS Economical
- Endurance- 45 days transit at
  12 KNOTS
- Complement - 60 personnel
  (25 Officers & Crew,
  35 Scientists)
- Dynamic positioning - DP II

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ASW SHALLOW WATER CRAFTS

Anti Submarine Warfare Shallow Water Crafts are capable of Anti Submarine Warfare in coastal waters & capable of Low Intensity Maritime Operations (LIMO) & Mine Laying Operations.

The envisaged capabilities also include :

- SAU and Coordinated ASW operations with aircraft
- Interdiction/ destruction of sub surface targets in coastal waters
- Carrying out Search and Rescue by day and night in coastal areas
- Capability to prosecute intruding craft as part of LIMO

Navigation

- Integrated Bridge System (IBS)
- 02 Nos. DGPS
- Automatic Identification System (AIS)
- 02 Nos. Band Radars
- Automatic Weather Observation System (AWOS)

Weapon & Sensors

- Twin triple tubelight weight Torpedo Tube
- Rocket Launcher
- Twin Anti-Torpedo Defense System (ATDS) with Fire Control System (FCS)
- 30 MM Close-In Weapon Systems (CIWS) with EO-FCS
- Twin 12.7 MM Gun with Stabilized Optronic Control System
- Very Short Range Air Defense Missile (VSHORAD) Launcher
- Low Frequency Variable Depth Sonar (LFVDS)
- Expandable Bathy Thermograph (XBT)
- Electronic Warfare System with Direction Finder

Principal Particulars

- Length Overall - 77.6 M
- Breadth - 10.5 M
- Draught - 2.7 M
- Displacement (Full Load) - 1200 T (Approx.)
- Max. Speed - 25 KNOTS
- Endurance - 1800 NM (Approx.) at 14 KNOTS
- Main Engine - 3 x 4300 KW
- Propulsion - Three Marine Diesel Engines connected with three Waterjets through reversible reduction gearbox
- Diesel Generator - 4 x 400 KW
- Accommodation - Officers : 07
  Senior Sailors : 50

Scan the QR Code for ASWSWC

GARDEN REACH
SHIPBUILDERS &
ENGINEERS LTD.

OFFSHORE PATROL VESSEL

MCGS Barracuda - India's First Export Warship to Mauritius

The ships are capable of carrying out multi-purpose roles. These include – Anti Piracy Operations, Search & Rescue Operation, Anti-Smuggling & Anti-Drug Surveillance, Anti-Poaching Operation of EEZ including Fisheries Protection, Logistic Support Operation including Transportation of Dry Cargo, Fuel Oil & Fresh Water and Refrigerated Fresh Food, Transportation of Small Detachment of Troops/ Personnel, Helicopter Operations, Pollution Response Operation and External Fire Fighting.

Principal Particulars

- Length Overall - 74.1 M (Approx.)
- Length B.P. - 69 M
- Breadth Moulded - 11.40 M
- Depth upto Dk. No.1 - 7.90 M
- Depth upto Dk. No.2 - 5.50 M
- Draught (Full Load) - 3.50 M (Approx.)
- Displacement - 1350 T (Approx.)
- Frame Spacing - 600 MM throughout
- Speed - 22 KNOTS

Propulsion Machinery

- Main Engine - 2 x 4300 KW

Power Generation

- Diesel Generator - 4 x 250 KW, 1 x 80 KW

Accommodation

- Officers -14
- Sailors - 48
- Passengers - 31

Endurance - 5000 NM

Scan the QR Code for Offshore Patrol Vessel

OCEAN GOING PASSENGER & CARGO FERRY VESSEL

Ocean Going Ferry designed and built to operate on Coastal and Riverine Areas of Guyana, is capable of operating with seating capacity of 276 passengers, 14 Sedan type Cars and 2 fully loaded 20T Truck with Bow Ramp.

Provision for carrying following types of Cargo:

- Total Cargo carrying capacity of 250 T
- Packaged Cargo
- General Cargo in 10 Ft. containers (6 nos. below deck inside FWD cargo hold + 4 nos. above hatch cover)
- Dedicated cold & cool room for refrigerated cargo (20 Tonnes)
- Hazardous Cargo on open deck

Principal Particulars

- Length - 70 M
- Breadth -13.50 M
- Depth - 4.65 M
- Draft - 3 M
- Displacement - 1700 T
- Max. Speed - 15 KNOTS
- Capacity - 294 (12 Crew + 6 Officers + 276 Passengers including 10 Officials)
- Endurance - 500 NM

Scan the QR Code for OGP & CFV

GARDEN REACH SHIPBUILDERS & ENGINEERS LTD.

LANDING CRAFT UTILITY

Landing Craft Utility (LCU) Vessels are deployed to transport troops and equipment from ship to shore and vice versa. Following are the salient features of the LCU platforms :

- Equipped with Bow Ramp for handling combat equipment and vehicles
- Arrangement for transporting and stowing equipment/vehicles on main deck
- Ballast tanks to achieve desired trim and for smooth beaching/ un-beaching operation
- Arrangement to pull in/ pull out stranded vehicles on beach using Tank Hauling Capstan installed on main deck
- Integrated Platform Management System (IPMS)

Scan the QR Code for Landing Craft Utility

Principal Particulars

- Length Overall - 62.8 M (Approx.)
- Breadth Moulded - 11 M
- Depth upto Dk. No.1 - 4 M
- Draught (Design) - 1.70 M
- Displacement - 830 T (Approx.)
- Speed - 15 KNOTS
- Endurance - 1500 NM @12 KNOTS
- Main Engine - 2 x 1850 KW
- Diesel Generators - 2 x 250 KW
  1 x 350 KW
- Payload - 01 No Main Battle Tank/04 nos. Armored Personnel Carrier (Light Tanks)/04 nos. 4 Ton Trucks
- Weapons - 02 Nos. CRN-91 Guns
  04 Nos. Medium Machine Guns (MMGs)
  02 Nos. Heavy Machine Guns (HMGs)

Accommodation

- Officers : 10
- Sailors : 46
- Troops : 160

OCEAN GOING TUG

GRSE has entered into a new arena with the design and construction of Ocean Going Tug (OGT) which will be fitted with 'state-of-the-art' equipment to fulfil the vision and mission requirement of Bangladesh Navy.

Ocean Going Tug is a prestigious project for Garden Reach Shipbuilders and Engineers Ltd. The Tug shall be designed and constructed as per the highest naval and class shipbuilding standard and should be able to withstand adverse service and weather conditions in tropical waters. The primary role of the Tug shall be to tow at sea, both alongside and astern to assist ships for berthing/cast off and turning through push/pull & to conduct rescue/salvage operations at sea. The secondary role shall be to provide firefighting support at sea to other ships & limited pollution control support at sea. The ship is equipped with state-of-the-art equipment like Anchor handling cum towing winch, tugger winch, CCP with kort nozzle, knuckle boom crane, FiFi system, RHIB, Dynamic Positioning System of DP-2 class.

Scan the QR Code for the latest updates on GRSE

Principal Particulars

- Length Overall - 61 M
- Length between Perpendiculars - 54.6 M
- Breadth (Moulded) - 15.80 M
- Depth (Moulded) - 6.80 M
- Max. (Full Load) Draught - 4.80 M
- Bollard Pull - Ahead - 75 T
  Astern - 50 T
- Displacement (Full Load) - 3000 T
- Max. Speed (at Full Load) - 13 KNOTS

Propulsion

- 02 nos. Diesel Electric
- Propeller - CPP with Kort Nozzle
- Thruster - 03 nos. (02 nos. bow & 1 no. stern)
- Endurance - 2000 NM (With 30% reserve) at economical speed
- Dynamic Positioning - DP II
- Complement - 60 nos.

GARDEN REACH
SHIPBUILDERS &
ENGINEERS LTD.

TRAILING SUCTION HOPPER DREDGER

Garden Reach Shipbuilders & Engineers (GRSE) has successfully inked a contract with the Bangladesh Inland Water Transport Authority (BIWTA) for the construction of a Trailing Suction Hopper Dredger (TSHD) with a hopper capacity of 1000M^3.

The TSHD will feature Azimuth Thruster propulsion, ensuring superior performance and Maneuverability. With its ability to operate in Sea State 2 and navigate through Sea State 4, the vessel shall guarantee resilience and adaptability in diverse marine conditions.

Principal Particulars

- Length Overall (Approx.) - 58.7 M
- Beam Moulded - 12.20 M
- Dredging draught - 3.90 M
- Speed (Approx.) - 10 KNOTS
- Deadweight - 1400 T

Scan the QR Code for the latest updates on GRSE

INSHORE PATROL VESSEL

Cost effective platform suited for Marine Surveillance and Rescue Operations as well as Combat Capability by adding suitable fire-power.

Scan the QR Code for the latest updates on GRSE

Principal Particulars

- Length Overall - 48 M
- Breadth - 7.5 M
- Depth - 4 M
- Draught - 2 M
- Speed - 34 KNOTS
- Fuel Tank Capacity - 42.4 T
- Freshwater Tank - 10 T
- Lube Oil Tank - 1 T
- Displacement - 304.5 T (Full Load)

Propulsion Machinery

- Main Engine - 3 x 2720 KW at 2100 RPM

Power Generation

- Diesel Generator - 2 x 120 KW
  1 x 80 KW

Accommodation

- Officers - 7
- Sr. Sailors - 8
- Jr. Sailors - 25

GARDEN REACH SHIPBUILDERS & ENGINEERS LTD.

SCG PS Zoroaster - Export Warship delivered to Seychelles Coast Guard

FAST PATROL VESSEL

Fast Patrol Vessels for Indian Coast Guard are designed to offer high speed and enhanced maritime security. The primary role of the vessel is to perform Fisheries Protection, monitor foreign-chartered trawlers, EEZ and Coastal Patrol, Anti-Smuggling and Search and Rescue Operations. However, it can also serve to provide communication link and Escort Coastal Convoys during hostilities and wartime. The ships are fitted with Rolls Royce water jets.

Principal Particulars

- Length Overall - 48.9 M
- Breadth - 7.5 M
- Displacement - 308 T
- Max. Speed - 34 KNOTS
- Endurance - 1500 NM at 12-16 KNOTS

Propulsion Machinery

- Main Engine - 3 x 2720 KW MTU Engines

Power Generation

- Diesel Generator - 3 x 120 KW CUMMINS DG

Accommodation

- Officers - 15
- Sailors - 20

Scan the QR Code for Fast Patrol Vessel

WATER JET FAST ATTACK CRAFT

Water Jet Fast Attack Crafts promise to transform naval shoreline operations by packing a powerhouse punch of agility and speed. These WJFACs are ideally suited for interception of fast moving surface craft and will duly perform Anti-Smuggling, Fishery Protection and Search & Rescue Operations. The ships are fitted with Hamilton Water Jets.

Principal Particulars

- Length Overall - 48.9 M
- Breadth - 7.5 M
- Displacement - 321 T (Approx.)
- Max. Speed - 35 KNOTS
- Endurance - 2000 NM (Approx.) at 12-14 KNOTS

Propulsion Machinery

- Main Engine - 3 x 2720 KW

Power Generation

- Diesel Generator - 3 x 80 KW

Accommodation

- Officers - 6
- Sailors - 23

Scan the QR Code for Water Jet Fast Attack Craft

GARDEN REACH SHIPBUILDERS & ENGINEERS LTD.

NEW GENERATION ELECTRIC FERRY

Taking a bold step towards green initiative, GRSE developed zero emission electric ferry, the first of its kind with potential to replace the conventional diesel engine driven ferries. It was a revolutionary measure towards reducing the Carbon Footprint in the water transport sector.

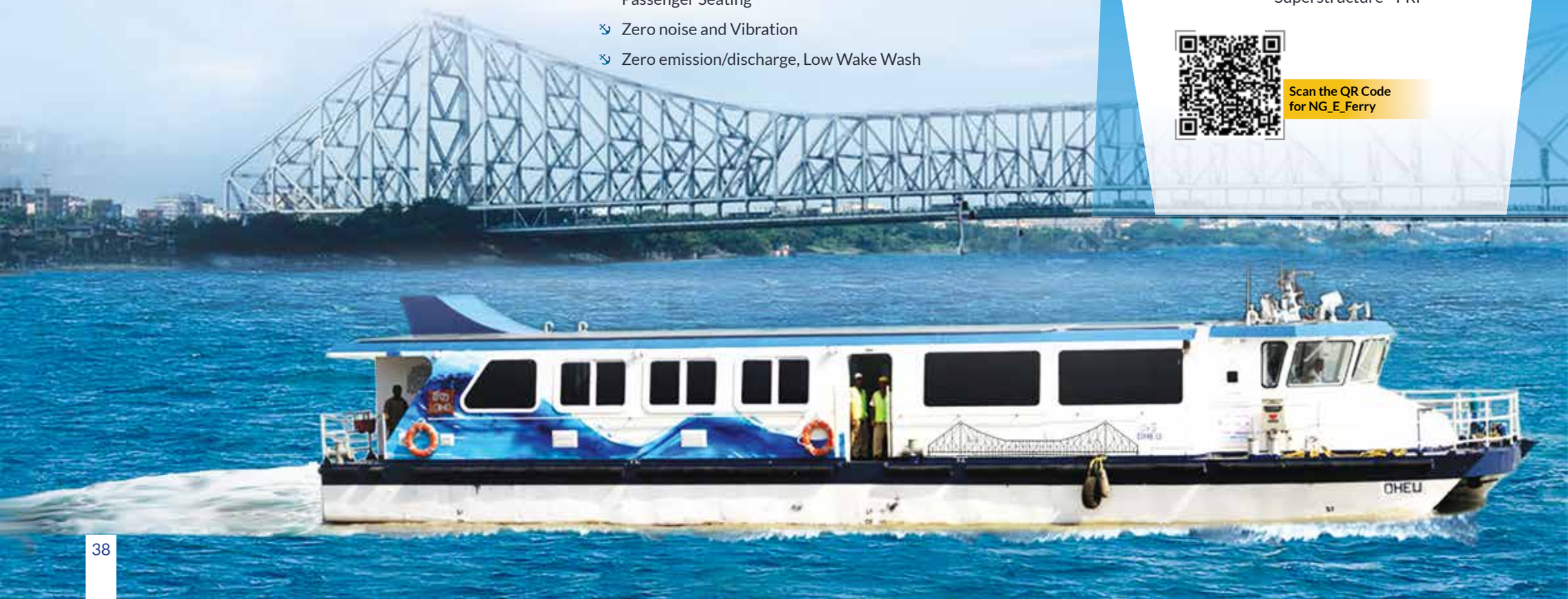
USP

- Fully Electric Design powered by Batteries
- Use of Solar Panels for optimization of additional power requirements
- Ergonomically designed AC and Non-AC Passenger Seating
- Zero noise and Vibration
- Zero emission/discharge, Low Wake Wash

Principal Particulars

- Hull Type - Catamaran
- Length - 24 M
- Breadth - 8.1 M
- Passengers - 150
- Speed - 8 KNOTS
- Draft - 1 M
- Material - Hull - Aluminium
  Superstructure - FRP

Scan the QR Code for NG_E_Ferry



FAST INTERCEPTOR BOATS

Fast Interceptor Boat is deployed in the states of Andhra Pradesh, Tamil Nadu, Odisha and West Bengal and in the Union Territories of Puducherry & Andaman & Nicobar.

It is deployed for Day/Night Surveillance. It is used for operating in shallow waters for Coastal Policing, Anti-Smuggling, Fishery Protection and Search & Rescue Operations.

Propulsion

- Main Engines: Two commercially available outboard petrol engines with counter rotation gear boxes driving stainless steel propellers.
- Gear Box: Each engine drives a close coupled reverse/reduction gear box. The gear boxes provide the ability to back flush the water jets to clear debris, weeds etc.

Principal Particulars

- Classification - IRS Approved
- Length Overall - 9.85 M
- Length on Waterline - 9.25 M
- Beam (Maximum) - 3.38 M
- Draught - 0.65 M
- Displacement - Full load condition - 5 T
- Fuel Capacity - 650 L
- Fresh Water Capacity - 100 L
- Crew - 4 crew and up to 10 passengers
- Range - 75 NM @ 25 KNOTS (including 25% reserve)
- Cruising Speed - 35 KNOTS at 100% MCR of OBMs
- Max. Speed - 35 KNOTS
- Propulsion - 2 X Outboard Motors (275 HP each)

Scan the QR Code for the latest updates on GRSE

GARDEN REACH
SHIPBUILDERS &
ENGINEERS LTD.

BOATS FOR MHA

Principal Particulars

- Classification - IRS Approved
- Length Overall - 13.0 M
- Length on Waterline - 11.30 M
- Beam (Maximum) - 3.70 M
- Draught - 0.70 M
- Displacement - Full load condition 12 T
- Fuel Capacity - 550 L
- Fresh Water Capacity - 100 L
- Crew - 4 crew and up to 12-16 passengers
- Endurance - 75 NM @ 25 KNOTS (25% reserve)
- Cruising Speed - 25 KNOTS at full load with crew and passengers
- Max. Speed - 35 KNOTS (493 BHP each) driving water jets through
- Propulsion - ECM controlled, 2X inboard diesel engines reversal gear box
- Stern Gear - Two Hamilton HJ 292 Water Jet

Propulsion

- Main Engines: Two turbo charged and after-cooled Cummins Marine Diesel Engines with electric start/stop and remote control.
- Gear Box: Each engine drives a close coupled reverse/ reduction gear box. The gear boxes provide the ability to back flush the water jets to clear debris, weeds etc.

Scan the QR Code for the latest updates on GRSE

HOVERCRAFT

Hovercraft is an amphibious craft, capable of travelling over land, water, mud and other surfaces. Following are the salient features of Hovercraft:

- Provision for Armament Fitment
- Multipurpose Maritime Operation capabilities like Patrolling, Search & Rescue operations etc.

It can be modified to suit other requirements. GRSE has delivered Air Cushioned Vehicles (ACVs) in the past to the Indian Coast Guard in collaboration with M/s Griffon Hovercrafts Ltd. (UK). GRSE offers two indigenous variants of Hovercraft.

Principal Particulars

	10 M Variant	20 M Variant
Length Overall	10.6 M	20.6 M
Beam Overall	4.2 M	8.83 M
Obstacle Clearance Height	0.5 M	1.25 M
Max. Speed	35 KNOTS	45 KNOTS
Payload of Craft	2200 KG	4000 KG
Propulsion	Single Propeller	Twin Propeller
Endurance	375 NM	420 NM
Complement	18	21

Scan the QR Code for Hovercraft

GARDEN REACH SHIPBUILDERS & ENGINEERS LTD.

NEW TECHNOLOGY

UNMANNED SURFACE VESSEL (USV) "JALDOOT"

Garden Reach Shipbuilders & Engineers (GRSE) has developed "Jaldoot" Unmanned Surface Vessel (USV) tailored for the Naval Science & Technological Laboratory (NSTL). This state-of-the-art vessel is designed to execute a range of autonomous operations, integrating cutting-edge technologies to meet the requirements for autonomous navigation, payload integration, and remote monitoring. The vessel is ideal for mission-critical tasks, including the collection of data through sensors and sonar systems, in diverse marine environments.

Scan the QR Code for the latest updates on GRSE

Principal Particulars

- Length - 1.6 M
- Breadth - 0.85 M
- Payload - 55 KG
- Endurance - 3 to 4 Hrs at a speed of 3 KNOTS
- Dimensions - 1.6M x 0.85M
- Construction - Composite + Anodised Aluminium
- Navigation - RTK GNSS (with NavIC) + IMU
- Connectivity - IP Radio / Cellular
- Perception - 360° Day-Night Cameras
- Autonomy - Waypoint Navigation, Station keeping, Failsafe behaviors with goal based planning

NEW TECHNOLOGY

UNMANNED SURFACE VESSEL (USV) "SWADHEEN"

Potential Roles

- Bathymetric Survey
- Mine hunting
- Reconnaissance
- Surveillance/Search/Visual Imagery & Data Capture

Key Features

- Battery powered - Lithium-ion
- Redundant thruster configuration
- Moonpool for submersible payload
- Onboard computer, IP radio
- Attitude and Heading Reference System (AHRS)
- Automatic Identification System (AIS)
- Built-in power management & diagnostic system
- Provision for 360° view camera, LIDAR sensor
- Modular internal payload mounting

Principal Particulars

- Length - 5 M
- Design Speed - 4–6 KNOTS
- Displacement - 150 KG
- Sea State - up to 2

Scan the QR Code for USV

GARDEN REACH
SHIPBUILDERS &
ENGINEERS LTD.

NEW TECHNOLOGY

AUTONOMOUS UNDERWATER VEHICLE (AUV) "NEERAKSHI"

GRSE in collaboration with an industry partner M/s AEPL has developed a Man Portable AUV. The AUV has been designed as a completely autonomous vehicle and is designed to take on a variety of payloads depending on the required role including mine detection, ASW training, underwater inspection, search & rescue missions and scientific explorations.

Principal Particulars

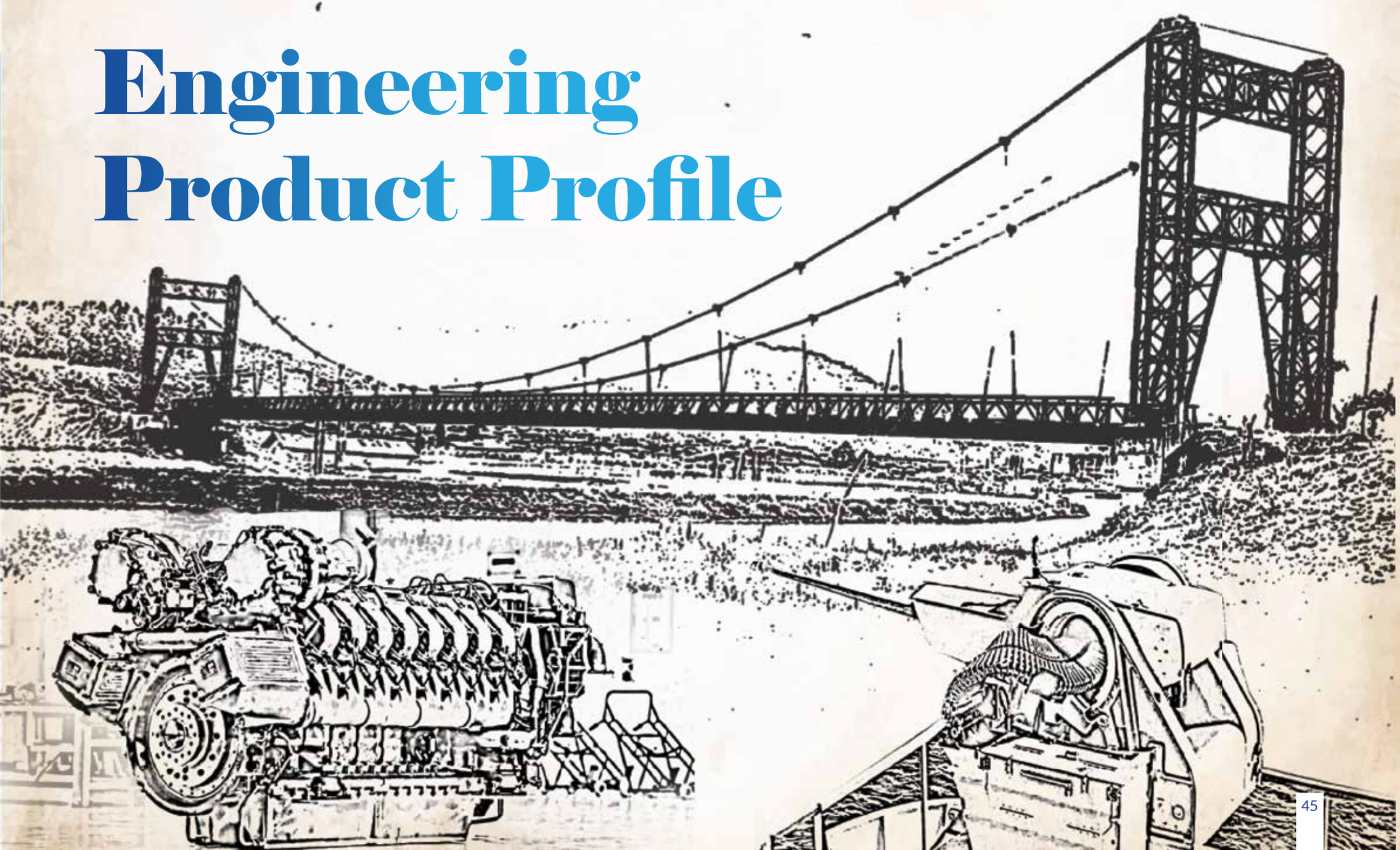
- A 2.15 M Autonomous Underwater Vehicle
- Endurance about 4 Hours
- Depth rating 300 M
- Modular Design
- Equipped with:
  - Side Scan Sonar
  - Forward Looking Sonar
  - Acoustic Modem

Potential Roles

- Mine Counter Measure applications
- Reusable ASW training target
- Underwater payload delivery
- Passive Acoustic Monitoring

Scan the QR Code for AUV

Engineering Product Profile



ENGINEERING

PORTABLE STEEL BRIDGES

GRSE is the pioneer in manufacturing Pre-Fabricated Steel Bridges in India. Over the last 40 years, GRSE is involved in manufacturing these bridges. With modular design facilitating easy assembly, these bridges can be erected very fast even in the most challenging terrain and conditions. On-site installation infrastructure required being minimal makes them ideal for remote areas. Used mainly by Defence Forces, Border Roads Organisation and civil agencies to restore communication in rural, hilly or flood prone regions.

These versatile bridges often play vital role in strategic surface transport networks. GRSE has supplied many bridges towards Disaster Management (i.e. Tsunami, Landslides etc.) in Andaman, Sri Lanka, Leh (J&K) etc. It is the only Shipyard to receive Green Channel Certification by DGQA for Supply of Bailey Portable Steel Bridges to Indian Army.

Scan the QR Code for
Portable Steel Bridges

PORTABLE STEEL BRIDGE (BAILEY TYPE)

Carriageway Width - 3.32 / 4.25 M

Garden Reach Shipbuilders & Engineers Limited (GRSE) is a Premier Govt. Company of India and is the largest manufacturer of Portable Steel Bridges (Bailey type) in India, besides being the leading manufacturer of Warships, Deck Machinery Equipment & Marine Diesel Engines for ships.

GRSE Portable Steel Bridge Unit was set up in 1975 on the advice of the Defence Ministry and enjoys more than four decades of excellent track record in design, manufacturing, supply and erection of Bailey type Portable Steel Bridges.

Customer Profile for GRSE Portable Steel Bridges (Bailey type) includes Indian Army, Border Roads Organisation (BRO), National Rural Roads Development Agency (NRRDA), various State PWDs, Hydel projects and other private organisations, besides exporting to foreign countries (Bangladesh, Bhutan, Nepal, Myanmar and Sri Lanka).

Distinction of achieving a Guinness World record for "bridge at highest altitude (5602m)", erected at Khordung-Lo (Karakoram) in Leh, India.

The Quality Management System of the unit is certified for ISO 9001: 2015 and is well established in GRSE for design & manufacturing of Bailey type bridges. GRSE has been nominated as supplier to Indian Army, BRO and many state PWDs which speaks about the high quality & performance of GRSE Bailey type bridges.

MODEL - GBB

Type of Bridge	Road Width (M)	Max. Span (FT.)	IRC-6* Load Class	Weight of Equivalent Wheeled
Single Lane Bailey type Bridge (Steel Deck)	3.32 / 4.25	200 / 200	30 R	38 MT
		190 / 180	40 R	55 MT
		140 / 140	70 R	100 MT

** Indian Road Congress : 6*

GARDEN REACH SHIPBUILDERS & ENGINEERS LTD.

BAILEY TYPE SUSPENSION BRIDGE

- Carriageway - 3.277 M
- Suspension Bridge especially suitable for hilly terrains where intermediate pier is not possible
- Maximum clear span : 400 FT (122 M)
- Low Erection Time, ease of Assembly and Reusability makes it ideal for hilly zones

Type of Bridge	Road Width (M)	Max. Span (FT.)	BMLC**Load Class
Suspension Bridge (Wooden/Steel Deck)	3.277	400 360 FT & Below	Class 18 Class 24

*** British Military Load Classification*

GRSE NEWLY DESIGNED MODULAR STEEL BRIDGES

- Carriageway - 4.25 M
- Fully tested, Pre-engineered & Pre-fabricated
- Modular Design for Easy & Quick Installation
- Provides ideal solution to bridging problems
- High Strength & Versatility
- Easy to Handle
- Re-usable, Portable and Upgradable
- Available Ex-stock for immediate delivery
- Maximum clear span : 230 Ft (70 M)

Type of Bridge	Road Width (M)	Max. Span (FT.)	IRC-6* Load Class	Weight of Equivalent Wheeled Vehicle
Single Lane Bridge (Steel Deck)	3.32 / 4.25	200 / 200	30 R	38 MT
		190 / 180	40 R	55 MT
		140 / 140	70 R	100 MT
—	—	—	—	—
Improved Single Lane Bridge (Steel Deck)	4.25	230	30 R	38 MT
		230	40 R	55 MT
		200	70 R	100 MT

** Indian Road Congress : 6*

GARDEN REACH SHIPBUILDERS & ENGINEERS LTD.

Carriageway Width - 4.25 M

GRSE has developed new design Single Lane (4.25 M Carriageway width) Modular Steel Bridge which is superior to the conventional Bailey Bridge. GRSE is the sole indigenous manufacturer of Modular Steel Bridges (using 7 Feet Panel) in India and has been successful in supply and installation of ibid bridges in remote areas involving difficult terrains.

Salient Features

- Manufactured and designed & developed with heavy axle loading
- Designed for longer Span & higher Loads using 7 Ft High Panel as against 5 Ft used in earlier design
- Pre-engineered & Pre-fabricated 10 Ft x 7 Ft Main Girder I Panel
- Modular design for easy & quick installation and an ideal solution to bridging problems
- Combination of Strength & Versatility
- Modular design of GRSE bridges are Innovative and unique designs conforming to IRC (India) / AASHTO standards (International)
- Robust construction for permanent application of 45-50 years with high durability and reliability
- Re-usable and Portable which makes it ideal for semi-permanent & permanent applications and emergency situations
- Walkway attachment 1.0 M at both side on single lane bridge manufactured with 100% indigenous material
- Ideally suited for providing quick access to remote, inaccessible areas & faster socio-economic development
- Bridge launching is simple and quick assembled using a small crew working with Light Mobile crane and standard tools
- Design verified and validated (i.e. Live Load Testing of Sample Bridge) by CSIR-SERC, Chennai

Specification: MODEL - GBB 7000

Type of Bridge	Road Width (M)	Max. Span (FT.)	IRC-6* Load Class	Weight of Equivalent Wheeled Vehicle
Single Lane Modular Bridge (Steel Deck)	4.25	230	30 R	38 MT
		230	40 R	55 MT
		200	70 R	100 MT

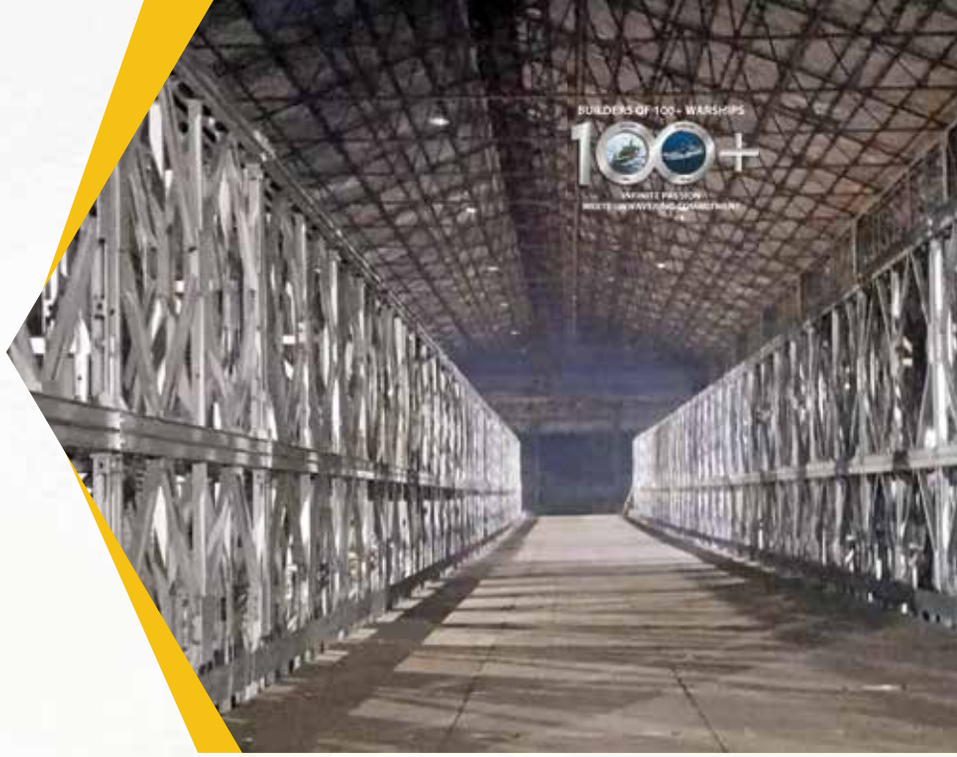
** Indian Road Congress : 6*

Carriageway Width - 5.30 M

GRSE has embarked / endeavoured in the field of designing and manufacturing Portable Modular Steel Bridges that have distinct advantages over conventional Bailey Bridges in terms of Load Carrying Capacity, Maximum Single Span and Cost benefit (by way of reducing weight). The design of such Modular Steel bridges has been successfully vetted and validated by CSIR-SERC, Chennai. The ibid bridges cater to both IRC as well as AASHTO Load Classes.

Salient Features

- Designed for longer Span & higher Loads using 7 Ft High Panel as against 5 Ft used in earlier design
- Manufactured, designed & developed with heavy axle loading with carriage way width of 5.3 M
- Pre-engineered & Pre-fabricated 10 Ft x 7 Ft Main Girder / Panel Bridge
- Consist of Modular Components that can be quickly connected to form a bridge of the desired length and high load capacity
- Modular design for easy & quick installation and an ideal solution to bridging problems
- Capable of handling various load capacities from 20 MT to 100 MT
- Using special Reinforced Chord for structural support and it's rigidity
- Combination of Strength & Versatility
- Robust construction for permanent application of 45-50 years with high durability and reliability
- Portable which makes it ideal for semi-permanent, permanent applications and emergency situations
- Ideally suited for providing quick access to remote, inaccessible areas and facilitating viable socio-economic development
- Ideal for fast track and time bound projects
- Takes care of 2-way hassle free traffic
- Walkway attachment 1.0 M / 1.5 M on both sides on single lane bridges
- Manufactured with 100% Indigenous Material
- Design verified and validated (i.e. live load testing of sample bridge) by CSIR-SERC, Chennai



Specification: MODEL-GBB 9000

Type of Bridge	Road Width (M)	Max. Span (FT.)	IRC-6* Load Class	Weight of Equivalent Wheeled Vehicle
Single Lane Modular Bridge (Steel Deck)	5.30	220	30 R	38 MT
		210	40 R	55 MT
		200	70 R	100 MT
—	—	—	—	—
Single Lane Modular Bridge (Steel Deck) (with walkway attachment)	5.30	210	30 R	38 MT
		200	40 R	55 MT
		190	70 R	100 MT

** Indian Road Congress : 6*

Scan the QR Code for Single Lane Modular Steel Bridges

GARDEN REACH SHIPBUILDERS & ENGINEERS LTD.

DOUBLE LANE MODULAR STEEL BRIDGES

Carriageway Width - 7.50 M

GRSE has developed new design Single Lane (7.50 M carriageway width) Modular Steel Bridge which is superior to the conventional Bailey bridge. GRSE is the sole indigenous manufacturer of Modular Steel Bridges (using 7 Feet Panel) in India and has been successful in supply and installation of these bridges in remote areas involving difficult terrains.

Specification: MODEL - GBB 8000

Type of Bridge	Road Width (M)	Max. Span (FT.)	IRC-6* Load Class	Weight of Equivalent Wheeled Vehicle
Double Lane Modular Bridge (Steel Deck)	7.50	140	70R / CL-A	100 MT / 55.4 MT (DOUBLE)

** Indian Roads Congress: 6*

Salient Features

- Takes care of two-way hassle free traffic designed with heavy axle loading as per IRC-6
- Pre-engineered & Pre-fabricated 10 Ft x 7 Ft Main Girder / Panel
- Modular design for easy & quick installation and an ideal solution to bridging problems
- Combination of Strength & Versatility
- Modular design of GRSE bridges are Innovative and unique designs conforming to IRC (India)/AASHTO standards (International)
- Robust construction for permanent application of 40-45 years with high durability and reliability
- Portable which makes it ideal for permanent applications and emergency situations
- Ideal for fast track and time bound projects
- Manufactured with 100% indigenous material
- Ideally suited for providing quick access to remote, inaccessible areas and facilitating viable socio-economic development
- Bridge launching is simple and quick assembled using a small crew working with light mobile crane and standard tools
- Design verified and validated (i.e. Live Load Testing of Sample Bridge) by CSIR-SERC, Chennai

Scan the QR Code for Double Lane Modular Steel Bridges

PORTABLE LIGHT WEIGHT MODULAR ASSAULT BRIDGE

Salient Features

- **Type of Application / Construction:**
  Multi-Variants to suit different function / requirement
- **Strength:**
  The Bridge is made out of high-strength to weight ratio-Carbon Fiber Reinforced Polymer Composites
- **Light Weight:**
  Weight of any individual component less than 24 Kg can be carried on the Back by the soldiers
- **Portable:**
  Each component is man-portable and full bridge can manually portable
- **Variable Span:**
  Bridge Span is Min. 15 Ft & Max. 30 Ft in 5 Ft increment
- **Modular Construction:**
  Panels are Modular, suits deployment in variable spans in 5 Ft increment (i.e. 1.5 M) to form a bridge
- **Easy Assembly:**
  Designed on modular concept for easy assembling / dismantling. All connections are made on-site using bolts that can be easily and quickly installed at site manually using small crew of people
- **Easy Launching:**
  The Bridge system is capable of being installed by the method of cantilever launching across the gap to be bridges in less than one hour, without the need for any temporary intermediate supports

Specification:

Type of Bridge	Span (FT.)	Total Weight (KG.)	Road Width (Ft.)	IRC-6* Class	Application
Single Treadway Pedestrian Assault Bridge	Min. Span - 15 Ft. Max. Span - 30 Ft. In 5 Ft. increment	92 170	2.3	400 kg/sqm	Used for Pedestrian crossings
—	—	—	—	—	—
Double Treadway Pedestrian Assault Bridge	Min. Span - 15 Ft. Max. Span - 30 Ft. In 5 Ft. increment	178 328	4.6	400 kg/sqm	Used for crossing of hassle-free Pedestrian traffic and ATV# Vehicle (Max. width 1.2 m; Max. 1100 kg)
—	—	—	—	—	—
Two Treadway Motorable Assault Bridge	Min. Span - 15 Ft. Max. Span - 30 Ft. In 5 Ft. increment	196 340	6.9	400 kg/sqm	Used for crossing of ATV# Vehicle (Max. width 1.9 m; Max. 1100 kg)

** Indian Road Congress : 6*

GARDEN REACH SHIPBUILDERS & ENGINEERS LTD.

SHIP REPAIR & REFIT VERTICAL

GRSE, with its in-house design capability and vast pool of expertise and modern assets, has built and repaired ships for countries including Sri Lanka, Mauritius and Seychelles. GRSE now has a dedicated ship repair vertical since 2018 to focus on the demand for repairs in the Indian maritime sector. The Ship Repair department has considerable expertise in the repair/ refit of Naval warships, Coast Guard ships and commercial vessels. The team steering this very important vertical for GRSE has over 25 years of experience both ashore and afloat and has a strong subvendor base as well as OEM network to always meet customer expectations.

For Ship Repair, a dedicated facility with 03 Dry Docks, spread over 4.82 acres, is available at Khidderpore Dock, which was taken over by GRSE from SMPK in Oct 2021.

GRSE can offer to both Defence and Commercial ships the following services:

- Scheduled dry docking & refit management in any of the facilities
- In-service-support to ensure maintenance and availability of vessel or fleet in the IOR region
- Any work involving mechanical, electrical, steel fabrication works, piping, hydraulic systems, etc. for maintenance/repair
- Technical study and failure analysis

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LIST OF SHIP REFIT & DRY DOCKING

- ICGS Amog
- ITT Tiger
- ITT Lion
- ITTPL 1
- ICGS Sujoy
- ICGS Ayush
- MV Sarojini
- ITT Puma
- PL Hooghly
- River Pearl - 4
- River Pearl - 1
- DV Rabindra
- ICGS Priyadarshini
- ICGS Vijaya
- PV Ma Ganga
- ICGS Sankalp
- ICGS Aadesh
- ITT Jaguar
- ICGS Sagar
- CV Mahabahu
- ML Sidho
- ICGS Vijit
- ICGS Shoor
- Emergency Caisson
- ICGS C-411, C-413, C-454
- ICGS Sarang
- Mitre Gate
- SCGS Zoroaster
- ICGS Rajveer
- INS Sagardhwani
- MV Sentinel
- ICGS Rajshree
- ICGS Rajkiran
- TRSL Tug (25 T)- Bhishm
- TRSL Tug (25 T)- Bahubali

GARDEN REACH SHIPBUILDERS & ENGINEERS LTD.

DECK MACHINERY ITEMS

Deck Crane (Range: SWL 1.2T-03T)

The Deck Crane has been innovatively designed for extended requirement of a Telescopic boom (6.2M to 13M) with the following features:

- Inbuilt power pack
- Wireless handy remote controller
- Additional safety ensured with static and dynamic brake
- Outreach - 2M to 13M for SWL of 03T
- Spring actuated cable reeling drum
- Hand pump for slewing and lowering

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Capstans (Range: 16mm U1-60mm U3, SWL 1.5T-15T)

The special features are as follows:

- Replacement of conventional gearbox with planetary gearbox by reduction of weight by 30%
- Saving in installation time by 30 days
- Gearbox developed by long life grease pack requiring no lubrication

Boat Davit (Range: SWL 1.2T-14T)

The special features are as follows:

- Inbuilt power pack
- Emergency Operation – Petrol Driven Pump
- Replacing bank of accumulators
- Outreach – 3.5M to 6.5M for SWL of 03T

In keeping with stringent quality measures, the equipments are validated using in-house test facility as well as HAT and SAT to the complete satisfaction of the owners as well as third party inspecting agencies, like ABS, IRS, LRS, RINA. The Unit is ISO 9001-2015 certified.

The product range briefly includes:

- Telescopic hangar with door
- Anchor handling Windlass/Capstan: Upto 87 mm U3 Chain Size
- Boat Davit: Radial with outreach of 6.5 m and SWL of 3 Tonnes and Track way Type, Maximum outreach of 5 M and SWL of 14 Tonnes
- Electro-Hydraulic Deck Cranes: SWL of 3 Tonnes with an Outreach of 13 M
- Mooring Capstans: Upto a Maximum of 20 Tonnes
- Special Purpose Equipments- Dock Capstans, Aft Anchor cum GP winch
- Oceanographic winch, Hydrographic Davit etc.

Railless Helo Traversing System

GRSE is undertaking phased indigenisation of Rail-less Helo Traversing System under technical collaboration with M/s MacTaggart Scott. Presently GRSE has achieved 72% indigenous content and is a proven supplier to Indian Navy & Indian Coast Guard.

GARDEN REACH SHIPBUILDERS & ENGINEERS LTD.

DIESEL ENGINE PLANT

Our Diesel Engine Plant (DEP) is situated on 62 acres at Ranchi, Jharkhand. This is where we assemble and test MTU 16V4000M90 marine diesel engines. In addition to this, DEP also has facilities for major overhaul (up to W6 Routines) of MTU S183, S396, S4000 and S538 series engines in collaboration with MTU, Germany. In May 2016, additional infrastructure was created at DEP to manufacture portable steel bridges. DEP is fully equipped with a test bed facility and has highly trained service personnel. The Plant was modernised recently and a new license agreement has been signed with MTU, Germany for indigenous assembly of MTU 16V4000M73L marine diesel engines with progressive indigenisation of engine components.

The 01 MW Diesel Alternator (DA) for naval applications is also manufactured at DEP. It comprises of diesel engine prime mover coupled with suitable alternator and installed in an acoustic enclosure to meet the low air borne noise requirements within machinery compartment. The complete assembly with associated accessories is seated on steel base frame with resilient mounts which provide the necessary resistance to shock and vibration. The acoustic enclosure features a closed ventilation system. It also houses all hardware required for safe operation and remote monitoring of the DG set parameters from machinery control rooms, without physical presence of any watchkeeping personnel.

Delivery of all 24 nos 01 MW DA to MDSL was a major milestone for DEP, Ranchi.

Scan the QR Code for 1MW DA

Facility for Assembly / Overhauling of Engine

GRSE's DEP Ranchi Unit has a dedicated Assembly Bay for the assembly/ overhauling of engines. The Assembly Bay is adequately equipped with all special equipment for complete assembly of MTU engines from SKD/ PKD state. It is also utilised for assembling the engines whilst undertaking the W6 routines.

Engine Undergoing Full Power Trials at Test Bed No 1

Full Trials of Engine at Newly Inducted Test Bed No 2

Test Bed Facility

GRSE's DEP Ranchi Unit has two operational test beds for undertaking full power trials of diesel engines. The Test Bed No. 1 has a rated capacity of 4500KW. It is now being utilised for full power trials of MTU 16V4000M90 engines.

The Test Bed No. 2 was inaugurated on 21 Oct 24. It has a rated capacity of 6700 KW. The new test bed has augmented the capability of DEP Ranchi Unit to undertake full power trials of two engines concurrently.

Stripping of Engines in Progress For W6 Routines/ Major Overhaul

Assembly Bay

Assembly of Engine Post W6 Routines/ Major Overhaul

Engine Turning Device for MTU 16V4000M90 Series Engine

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30MM NAVAL SURFACE GUN

In GRSE's pursuit for self-reliance in defence manufacturing to minimize imports, GRSE has embarked on an ambitious project for indigenization of a technologically advanced weapon system like the 30mm Naval Surface Gun. For this, GRSE has created yet another new business vertical for manufacture and supply of Naval Surface Guns with Electro Optical Fire Control System (EOFCS) for the Indian Navy and Indian Coast Guard. For indigenous development, GRSE has an Industry Partner for this project who has established the infrastructure for delivery and support for these Guns in India. GRSE has considerable expertise & capability for on-board installation of various Guns and engineering support for such products. The 30mm NSG will primarily be fitted onboard small ships as its primary weapon and on large ships as a secondary weapon for engaging fast moving surface targets/threats. It is envisaged that with the technological advanced features of this gun, all future warship projects will be equipped with the NSG 30.

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ACCOLADES

Only DPSU to receive Hon'ble Defence Minister's Award 2022, for Design of Most Silent Ship, for ASW Shallow Water Operations

Launching of AI enabled NDT (Radiographic Testing) by Hon'ble Defence Minister in 2022

'Artificial Intelligence (AI) Award' 2024 at the Public Sector Enterprise (PSE) Summit organized by Express Computer, The Indian Express Group

Governance Now IT Awards 2024 for "Best Use of Emerging Technologies"

CII AI Award 2024 for the "AI Enabled NDT" Project

CII Industry Academia Awards for "Top Industry Excelling in Industry Academia Partnership 2024"

"Sustainable Governance Champion Award" at the Outlook Planet Sustainability Summit & Awards 2024


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