

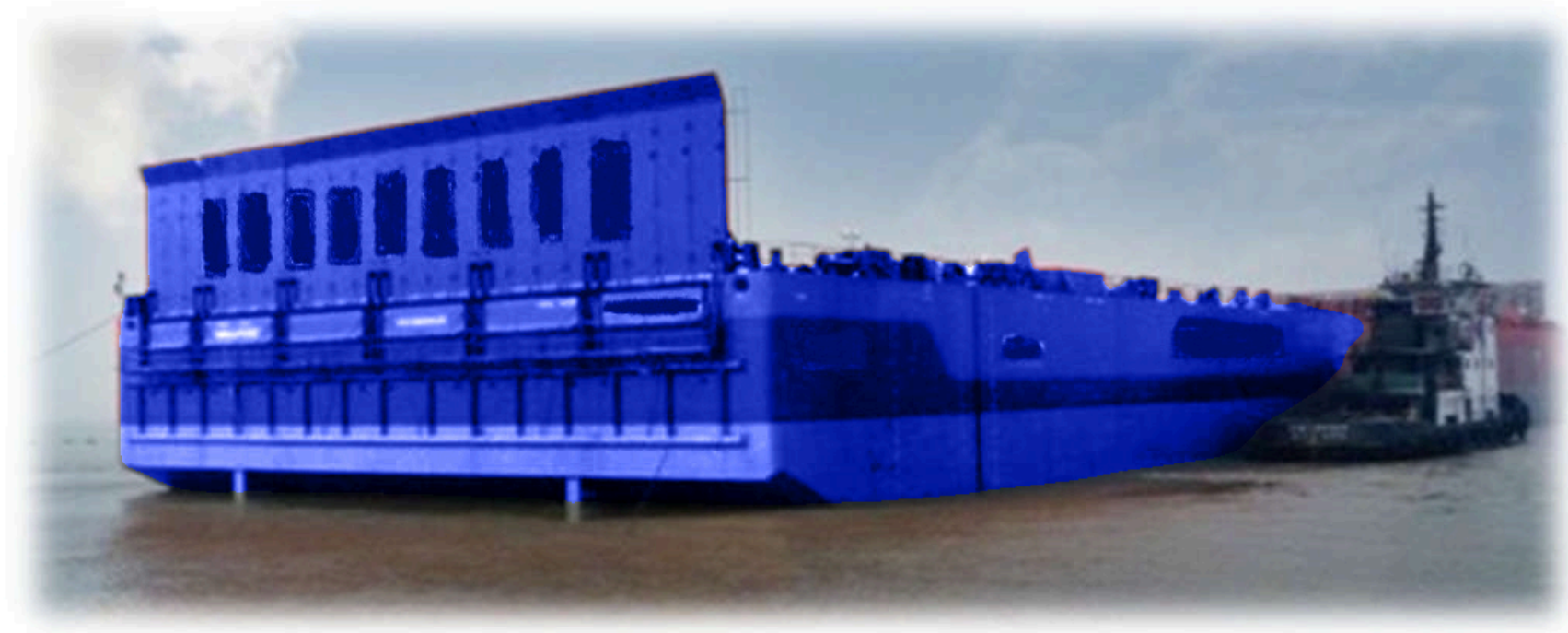
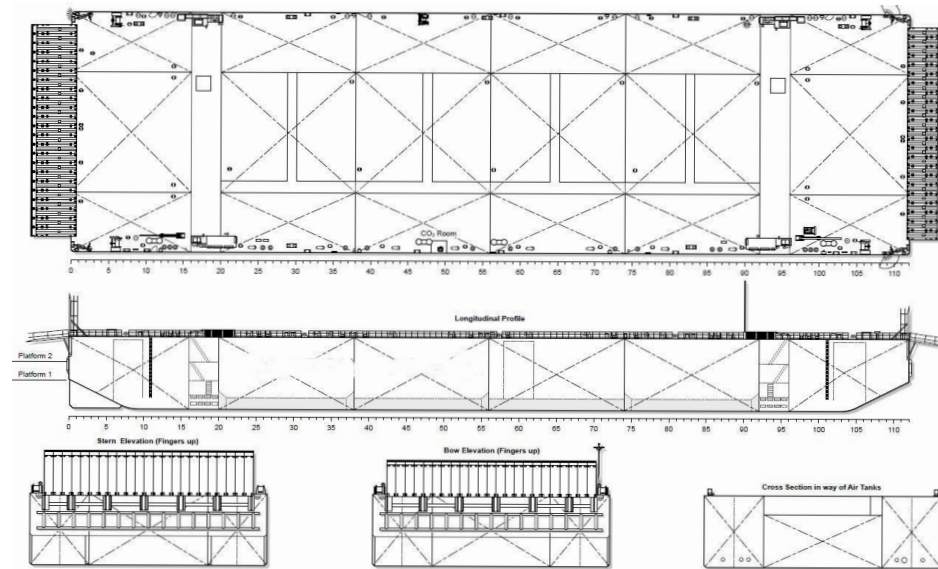
Heavy Lift Pontoon Barge



OVERVIEW

The pontoon has always been distinguished by its engineering capabilities. Recognised as a world leader in equipment and solution development, and since the establishment of the Research and Development (R&D) department, the innovative product design has dominated industry news and redefined the boundaries of heavylifting capability in a global market.





Designed with state-of-the-art technologies using input from industry experts.

DESIGN

The need was identified for a multi-purpose loading-in vessel with a range of capabilities most required by clients, such as high deck strength, a rapid and integrated ballast system, flexible mooring arrangements, and a hull rated for beaching. The vessel had to be adaptable and robust.

Designed and constructed in 2014 to serve as a versatile transition pontoon from vessel to quayside for port or load-in locations subject to extreme tidal variations. The pontoon is also suitable for global projects faced with limited or no port facilities or where rapid ballasting and large displacement, such as required for offshore floatovers, are key considerations.

OVERVIEW OF KEY FEATURES

- Measures 140m x 40m x 12m; 1.7m minimum draft
- Unique buoyancy control system, using water and air ballasting
- 100% system redundancy
- 24,000m³/hr capacity water ballast system
- 12,000m³/hr capacity air ballast system
- Extreme tidal variation handling up to 10m
- 20t/m² uniform deck load, with heavy bulkheads and strongpoints
- 5,600m² deck space
- 20,000t combined cargo capacity
- Designed for maximum self-propelled modular trailer (SPMT) loads and skidding in excess of 10,000t
- Integrated mooring and hydraulic roll-on/roll-off (Ro-Ro) ramp system
- On-board crew day facilities, power generation, hydraulics and fire safety systems
- Self-sufficient operations in remote areas
- Beaching capability (under load)
- Adaptable – optional moonpool, x-point mooring, spud pile mooring and mobile dynamic positioning (DP2)

DESIGN BENEFITS

VERSATILE

The current design allows for flexible deployment on either a temporary or long-term basis, inshore and offshore, and with any type of mooring. It is fully self-sufficient in terms of power and water supply, sanitary systems and day facilities.

THE Pontoon CAN BE USED FOR:

- Ro-Ro operations in extreme tidal waters where standard heavylift ships cannot compensate for tidal changes fast enough to remain level with the quay
- Load-out operations by SPMTs
- Skidding operations for loads in excess of 10,000t
- Floatover and reversed floatover operations for topside integration or separation, using its high capacity ballast system and mooring winches
- Offshore construction and subsea installation support
- Lift-on / Lift-off (Lo-Lo) operations using a deck-mounted (crawler) crane
- Shallow water work platform (beaching capability, optional spud pile mooring)
- Towed transport operations for oversized and heavy cargo
- Transition pontoon operations (vessel-to-quayside)
- Near-shore transshipment base / operations (vessel-to-vessel)
- Drop-in-place temporary port and quayside solution

HIGH CAPACITY BALLAST SYSTEM

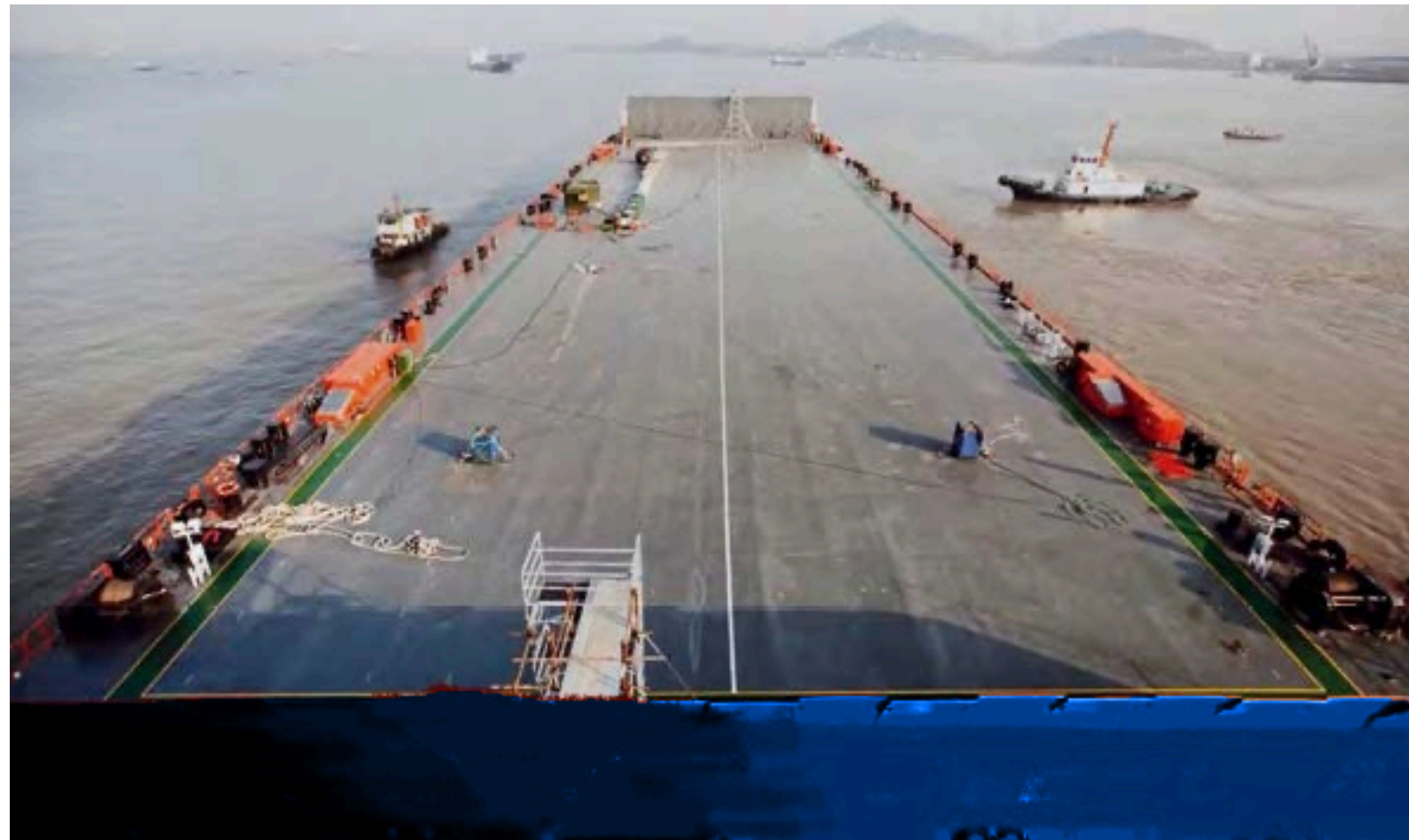
The Pontoon uses innovative and fully redundant water ballast and air tank systems to provide buoyancy control during operations (load-in, load-out, floatover, transshipment and beaching). It can handle rapid draft level changes, for example, due to tidal variations or during floatovers. This allows loads to be transported safely across the deck. Buoyancy can be controlled using specific areas of the pontoon, water can be transferred internally and air tank ballasting can be used on a supplementary basis.

HIGH DECK STRENGTH AND SPACE

The 5,600m² of deck space and 20t/m² uniform deck load-rating provides plenty of working area and significantly reduces the need for load spreading and sea fastening measures, whilst also facilitating maximum SPMT loads and skidding operations in excess of 10,000t.

INTEGRATED MOORING SYSTEM

The Pontoon is equipped with a range of mooring equipment to enable flexible and reliable mooring of the barge at quaysides or in jacket approaches, as well as when attending vessels during critical operations. Mooring winches, mooring cylinders, bollards, smit brackets, fairleads and panama chocks are integrated in the deck. The system can be extended or upgraded when needed using Mammoet's in-house, modular mooring systems or spud pile mooring.



ADAPTABLE

She has the ability to work alongside existing operations or can be placed as a 'turnkey platform' for a variety of offshore and subsea construction applications. Its unique design features allow for modifications to fit any scope of work,

whether it be a moonpool, a deck-mounted (crawler) crane, modular DP2 system, anchor or spud pile mooring, integrated lifting systems, or a combination of these. The Pontoon can be adapted to meet a wide range of project needs.

OPERATIONAL BENEFITS

ABILITY TO WORK IN ADVERSE CONDITIONS

The Pontoon excels when operating in harsh, remote and adverse conditions. Whether it is utilised for transport and offloading fabricated modules, for 'drop-in-place' mobile port operations or for topside transport and offshore floatover operations, it has the ability to operate in a range of conditions and environments. The temperature-regulated control room

and daytime crew facilities also ensure comfortable working conditions on board.

IMPROVED LOGISTICS

Most Heavy Lift Vessels (HLVs) are tide dependent, limiting unloading to 5-6 hours per day and sometimes only on certain days of the month. This one has the ability to operate 24 hours per day, 7 days per week, drastically improving overall project schedule. As a result, the it

eliminates the risk of costly demurrage costs.

LEVEL PLAYING FIELD

Acting as the critical link between ship to shore activities with superior handling capabilities, the pontoon makes any HLV suitable for the job. No matter the vessel dimensions, mooring provisions or ballast capability, the HLV can dock comfortably on one side of the pontoon. Using her mooring, hydraulic ramps and ballast system, the cargo can be safely transferred. In addition, few HLVs are capable of compensating for extreme tides and their cost to the project, without the pontoon will be at premium rates.

EXTENDED REACH AND SELF-RELIANT

She has been designed to facilitate cargo handling or any other operation from the deck at any location. The on-board power, potable water and crew day facilities allow for self-reliant operations. Mammoet can also provide a full package for these locations, including design, engineering and supply of temporary structures such as modular bridges, mooring, and heavy transport and lifting solutions.

SAFETY BENEFITS

TIDE-INDEPENDENCE

Provides a tide-independent unloading solution. In the event there are delays to the Ro-Ro operations and the SPMTs are partly on the ship or quay, the Pontoon can pump through the tide cycle, creating the window during which all operational issues can safely be resolved.

RAPID BALLASTING

The internal ballast system has been designed with 100% redundancy to assure the Pontoon critical role in the supply chain. The deck of the Pontoon is clear of pumps, hoses and piping for flexible SPMT configurations and support stool locations. The integrated ballast system is highly reliable, whilst protected from the elements. Our experienced crew can closely monitor the Pontoon performance during critical operations and take care of day to day maintenance.

INTEGRATED HYDRAULIC RO-RO RAMPS

The ramp system has been designed for maximum axle loads of the strongest SPMTs on the market. The hydraulic capability of the Pontoon ramps eliminates third party crane and forklift work, and creates a safer workplace during installation and removal of the link between the barge and quayside. The ramps can be operated as a whole or in separate sections, and can be removed when needed.

SAFETY FEATURES, THE FUTURE AND ENGINEERING

SAFETY FEATURES

The Pontoon has been designed and constructed under Lloyd's Register Class certification to the highest safety and quality standards. To gain third party approvals, every stage was checked, witnessed and approved by globally recognised independent surveyors. Using these strict criteria ensures the very highest standards of design. The on-board equipment has been designed with safety in mind. This includes fire detection, a fire hydrant system, a CO2 fire extinguishing system, quick-closing valves, ventilation dampers and emergency stops.

BACKUP OPERATING SYSTEMS

Engineers have equipped the Pontoon with primary, secondary and emergency backup systems in critical areas.

THE FUTURE

The R&D facility continues to focus on improving current equipment and creating new solutions for the industry. Having a dedicated development facility gives our highly skilled engineers a platform from which to push the boundaries of design. With this expertise and a close working relationship with our clients, we have gained a comprehensive understanding of the market to develop equipment to meet both current and future demand.





The load-out of 149 pre-fabricated modules from a range of heavy lifting vessels was completed

The modules were loaded-out by the Pontoon Operations team on a 24 x 7 basis with 100% availability and 00% safety for the duration of the Pontoon charter to the project.

The modules varied in weight and size. The heaviest cargo the project team transferred was 3,788t, for which 150 axle lines of SPMT in a 10 file 30 configuration were involved. For the longest module, measuring 73m, 92 axle lines of SPMT in a 4 file 46 configuration were used. The combined total weight of the transferred modules was 41,612t.