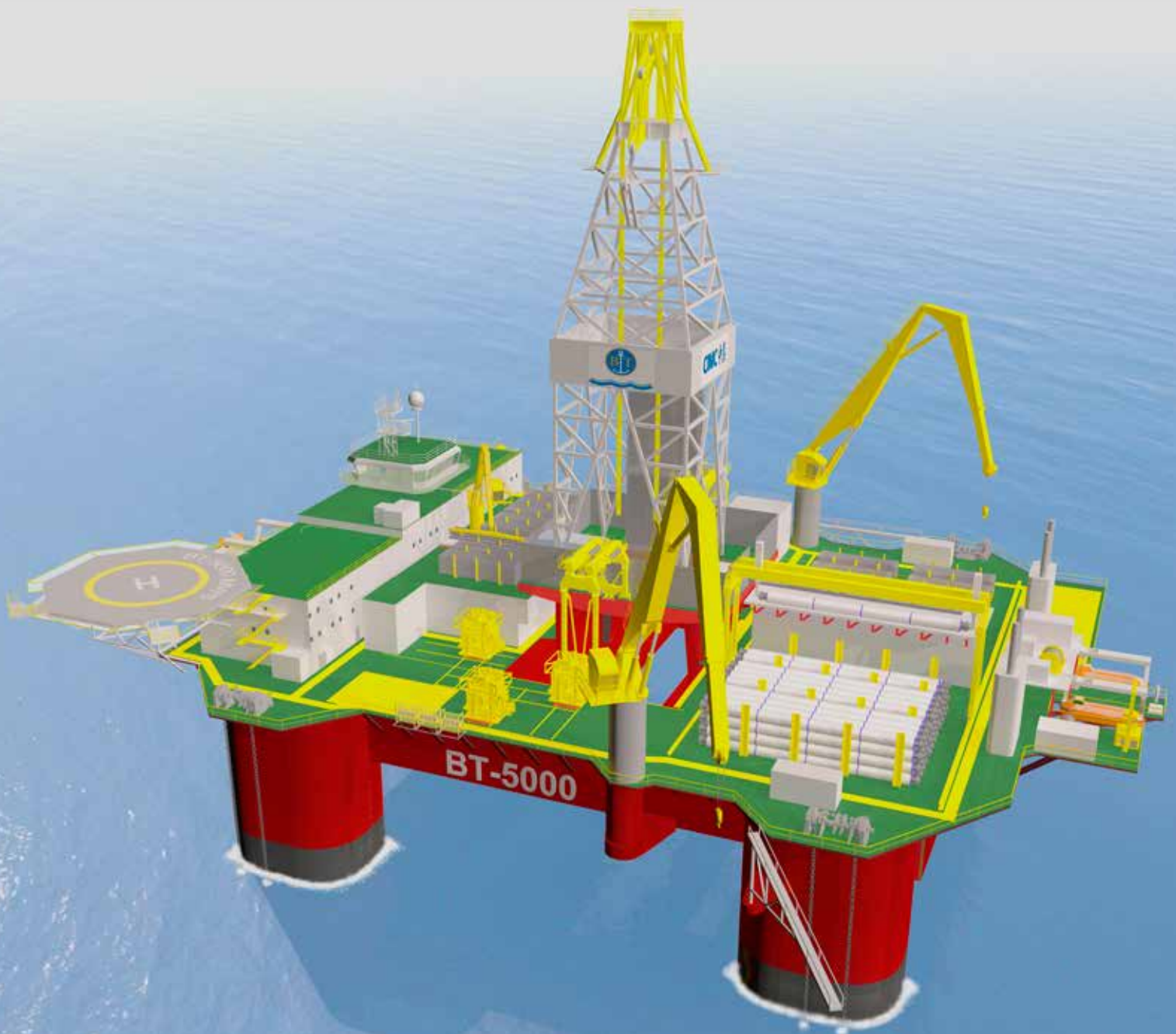


BASSOE TECHNOLOGY



# BT-5000

## MIDWATER DRILLING SEMI



# BT-5000 MIDWATER DRILLING SEMI

## AN EFFICIENT MODU DESIGNED FOR RENEWAL OF AN AGING FLEET

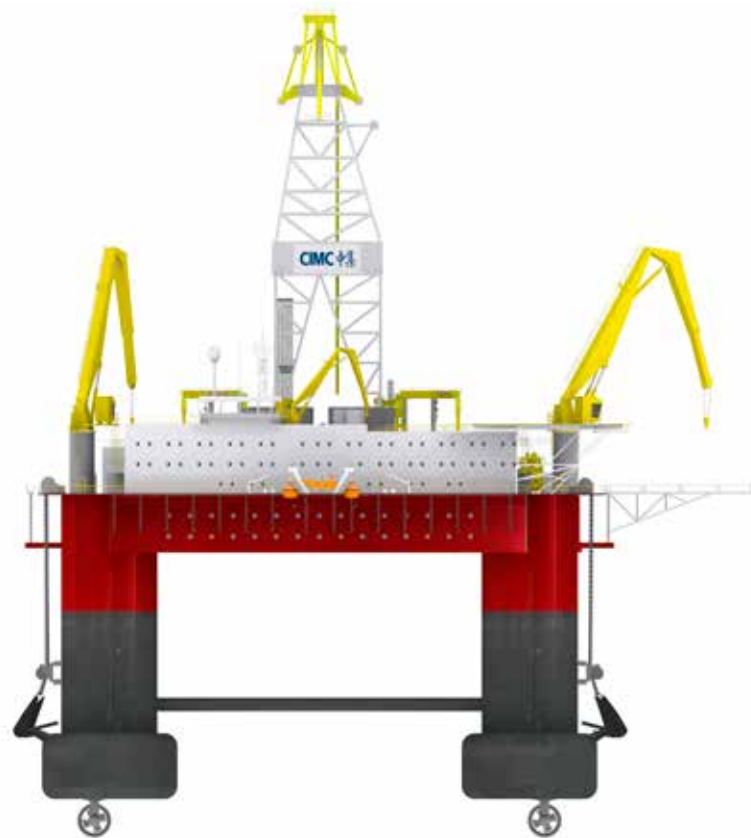
The **BT-5000 MWS** is a new generation work-horse semi-submersible for drilling operations in moderate to harsh environmental conditions, including the UK North Sea, in water depths up to 1,500 m (5,000 ft). The Unit is intended to replace the aging fleet of midwater drilling units with a more efficient drilling tool that will provide higher efficiency, cost effectiveness and safety levels than the existing fleet.

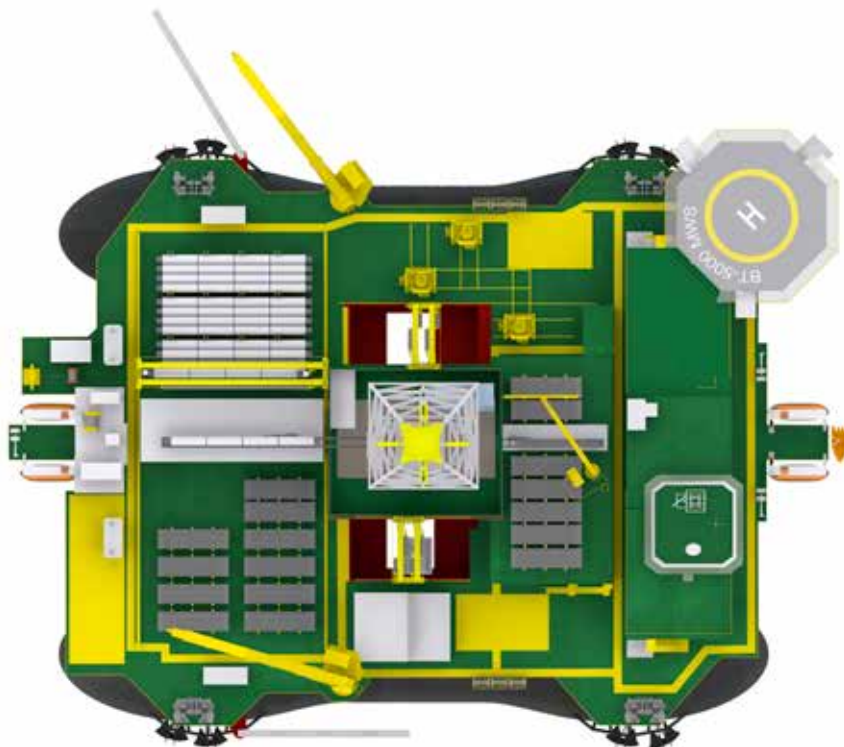
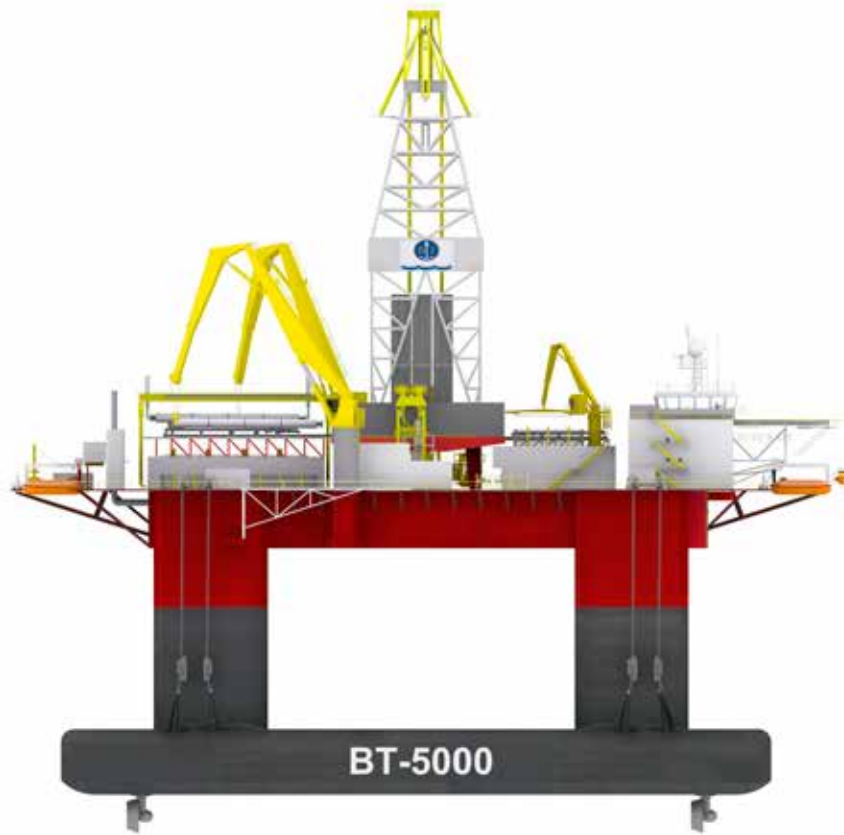
In designing the BT-5000 MWS Bassoe Technology has focused on a semi-submersible with maximum operational efficiency and high inherent safety. The high operational efficiency is achieved through a combination of excellent motion characteristics and an arrangement which allows for a fast change over between different modes of operations to maximize "off critical path" preparations of upcoming operations.

The BT-5000 MWS is designed for both exploration and production drilling with a special focus on completion operations thanks to the introduction of large cellar deck areas around the moon-pool for handling of various subsea related equipment, such as BOP stack, X-mas trees, various umbilical reels, etc. and an upper deck layout designed to include ample space for various third party equipment. The drill-floor area has been designed to allow a quick change over between different drilling activities with dedicated areas for pre-rigging of coiled tubing and other third party equipment.

The BT-5000 MWS is in its basic version arranged with the equipment required to provide a cost efficient drilling tool but the Unit can also be tailor designed to meet specific owner preferences and requirements with regard to optional equipment and outfitting. The basic version is arranged with a 8-line chain mooring system with four thrusters intended for self-contained thruster assisted mooring up to 500/610 m (1,640/2,000 ft, harsh/moderate environments) water depth and with wire or polyester mooring-line inserts the Unit will be able to carry out drilling operations in up to 1,500 m (5,000 ft).

The Unit is also pre-arranged for a 12-line mooring system for operations in hurricane/cyclone prone areas where thruster assist cannot be used.





GENERAL	
Class	ABS ✕A1 Column-Stabilized Drilling Unit, ✕AMS, ✕ACCU, CRC, ENVIRO-OS, HELIDK, UWILD, (P), ✕TAM, or corresponding DNV class
Rules and regulations	IMO MODU Code, MARPOL, Load Line, Flag State, UK HSE
Operational areas	UK North Sea, Brazil, Gulf of Mexico, South China Sea, West of Africa, etc.
POB	160 people in 1+2 bed cabins
Heli deck	Sikorsky S-61N/S-92, Augusta Westland AW-101, CAP 437

DESIGN CRITERIA	
Water depth	80 to 1,500 m
Drilling depth	9,000 m
Environmental criteria	100-year North Sea storm

MAIN DIMENSIONS	
Length over all	abt. 125.0 m
Beam over all	abt. 89.0 m
Height to box bottom	36.0 m
Height to upper deck	44.5 m
Pontoons (2)	
Length	106.6 m
Beam	20.2 m/14.3 m
Height	10.0 m
Columns (4)	
Horizontal section	16.9 x 14.3 m
Draughts	
Operation	23.0 - 25.0 m
Survival	19.0 m
Transit	9.7 m
Displacement	
Operation	abt. 49,400 tonnes
Airgap	
Operation	11.0 - 13.0 m
Survival	17.0 m

PAYLOAD CAPACITIES	
Deck payload, operation/survival	5,000 tonnes
Total payload, operation/survival	12,000 tonnes
Total payload, transit	4,000 tonnes

STORAGE CAPACITIES		
Liquids		
Mud/brine pits in upper hull*	1,080 m <sup>3</sup>	6,800 bbls
Mud tanks in pontoons*	1,380 m <sup>3</sup>	8,700 bbls
Total liquid mud storage*	2,460 m <sup>3</sup>	15,500 bbls
Brine tanks in pontoons	950 m <sup>3</sup>	6,000 bbls
Base oil tanks	1,030 m <sup>3</sup>	6,500 bbls
Drill water tanks	1,760 m <sup>3</sup>	11,100 bbls
Fuel oil tanks	2,620 m <sup>3</sup>	16,500 bbls
Fresh water tanks	690 m <sup>3</sup>	4,350 bbls
Bulk		
Bulk cement	280 m <sup>3</sup>	10,000 cu ft
Bulk barite/bentonite	420 m <sup>3</sup>	15,000 cu ft

\* The mud and brine systems are designed for three segregated mud systems and segregated completion fluid/brine.

MAJOR EQUIPMENT		
Installed power	4 x 5,000 kWe	20,000 kWe
Thrusters	4 x 3,500 kW	14,000 kW
Derrick	Height 180 ft	Static (net) 1,500 kips
Active/passive crown mounted compensator	1,500 kips static/1,000 kips dynamic	
Top drive	1,150 hp and 750 sh tons	
Rotary table	60½"	
Drawworks	approx. 6,000 hp	
Riser tensioners	8 x 200 kips	
Mud pumps	3 x 2,200 hp @ 7,500 psi, optional 4th mud pump	
BOP stack	5+ rams @ 15,000 psi with MUX control system	
Cranes on deck	2 x 85 tonnes lattice boom type + 1 x 40 tonnes riser/pipe (aft) gantry crane + 1 x 10 tonnes pipe rack (fwd) knuckle boom crane	

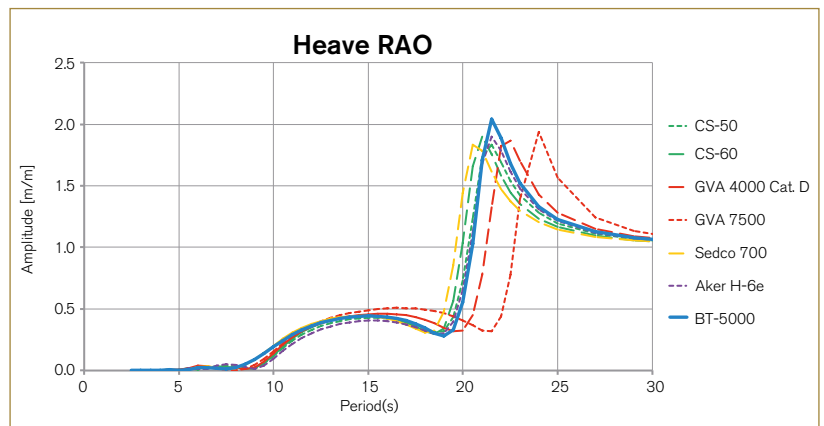
# OPTIMIZED HULL GEOMETRY PROVIDING SUPERIOR MOTION CHARACTERISTICS

**THE BT-5000 MWS** is designed with an optimized hull configuration which provides excellent motion characteristics without compromising station keeping performance, transit loads and towing forces. The excellent motion characteristics provide the BT-5000 MWS with a higher workability for critical operations compared with most competing designs, including recent 6th generation semis with much larger displacement.

The BT-5000 MWS is characterized by a more rounded hull shape, the natural form for structures in waves and current flow, compared with competing designs, which often have rectangular hulls.

The Unit is provided with a robust structural configuration with increased safety due to redundant structural members and a buoyant upper hull deck-box providing reserve buoyancy in case of large heel accidents. The proven structural configuration used is recognized to be cost efficient during construction and provides a minimum of bracings and critical fatigue sensitive structural hot-spots, reducing the risk for fatigue cracks and the need for inspection.

The BT-5000 MWS hull members have a “back to basics” semi-submersible design approach with more rounded geometries which is similar to some of the most successful designs developed in the early eighties, however the BT-5000 MWS has better motion performance than existing and competing designs.



Heave RAO for head sea for the BT-5000 MWS and a number of competing designs.



Workability comparison (percent yearly availability due to motions within specified limits) for the BT-5000 MWS and a number of competing designs for operations at a typical North Sea field and limiting motions criteria from a major oil company.

## A LEADING DESIGNER OF ADVANCED MOBILE OFFSHORE UNITS

Bassoe Technology focuses on marine and offshore engineering services including development and design of floating and mobile offshore units, such as semis, drill ships, tender drilling units and accommodation units.

Bassoe Technology has developed a large portfolio of innovative floating and mobile offshore units characterized by an emphasis on operational performance, efficiency and capacities while at the same time challenging size.

With a background from the shipbuilding and offshore engineering industry in Gothenburg, Sweden, our engineers have long experience in design and construction of offshore drilling units for harsh environment and floating production semis for both North Sea and GOM operations.

Bassoe Technology has designed for construction four semi-submersible units, two tender assist drilling barges and one ultra deep water drill ship.

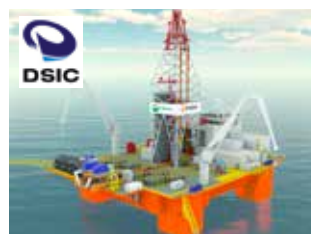
Designs also include wind energy applications for offshore locations. The wind measurement mast located on the Bassoe Technology designed jack-up platform is an example of utilizing existing experience for new applications.



**BT-MTB BassDrill Alpha**  
Delivered 2010



**BT-3500 BassDrill Beta**  
Delivered 2013



**BT-4000 Etesco IX**  
To be delivered February 2016



**Helix ESG Q5000**  
Delivered 2015



**BT-UDS**  
Designed for Sigma Drilling Ltd



**BT-HTB Atlantica Gamma**  
Delivered 2015



**Emma**  
Delivered 2012



**BT-3500 Atlantica Delta**  
To be delivered mid 2015

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Bassoe Technology is an independent designer of advanced mobile offshore units. Since 2013 owned by CIMC Offshore, with the largest semi-submersible drilling rig manufacturing center in China – Yantai CIMC Raffles Shipyard.