

BASSOE TECHNOLOGY



BT-4000

LIGHT WORKOVER UNIT



BT-4000 LIGHT WORKOVER UNIT

DESIGNED TO IMPROVE EFFICIENCY DURING WELL INTERVENTION OPERATIONS

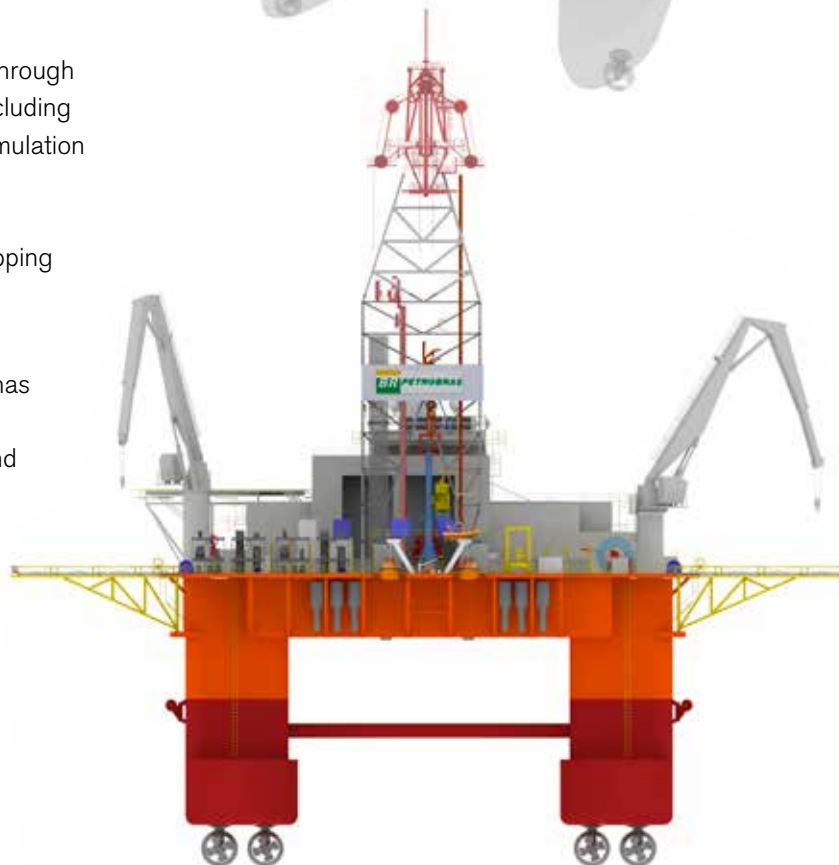
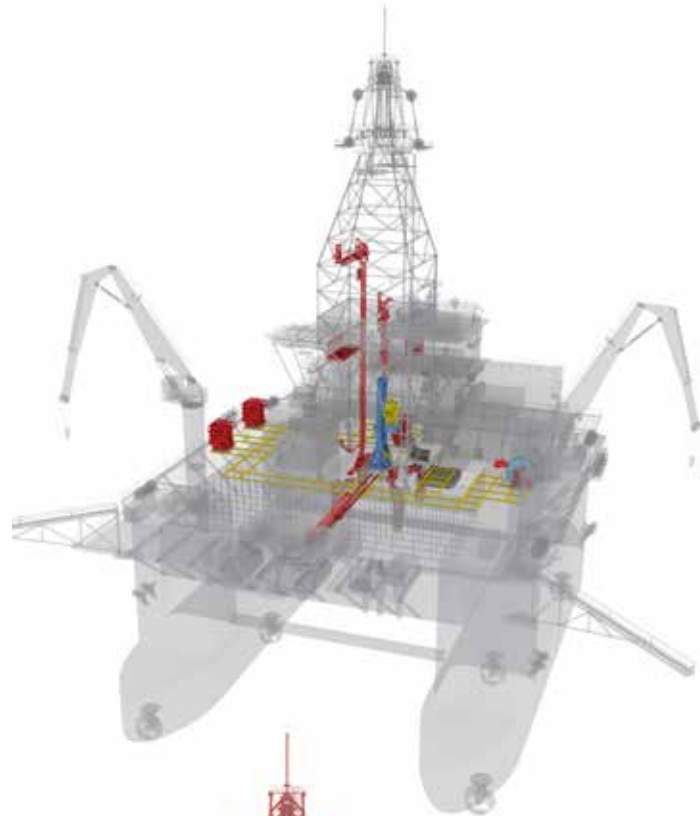
The **BT-4000 LWO** is the new generation DP-3 semi-submersible for efficient light workover/well intervention operations in water depths up to 2,400 m (7,879 ft) in environment areas offshore Brazil, in Gulf of Mexico, West of Africa and South East Asia.

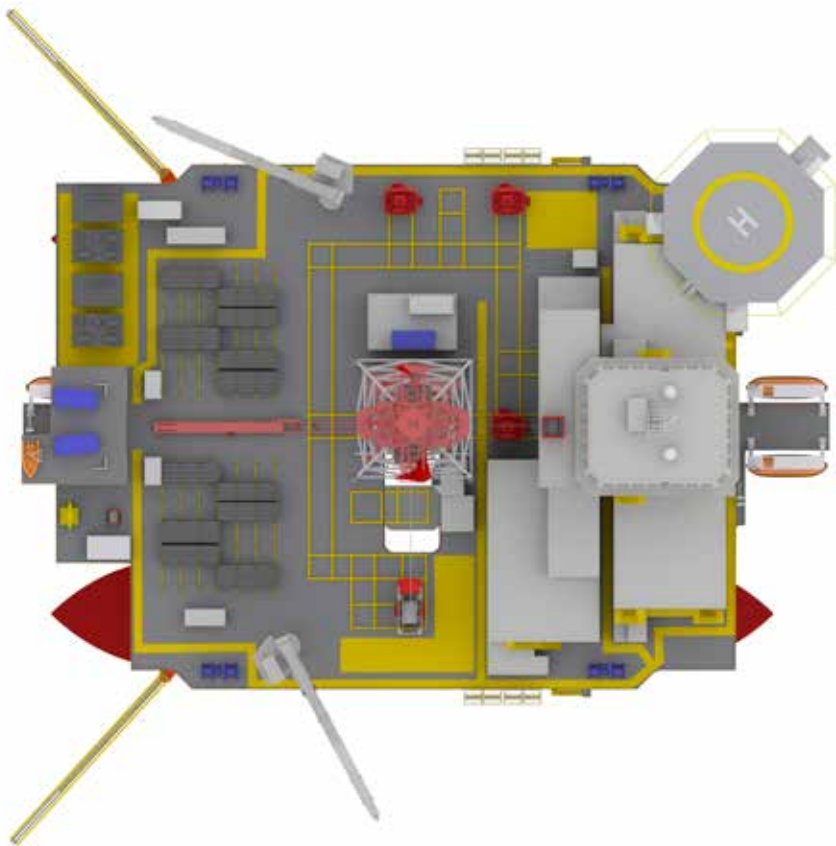
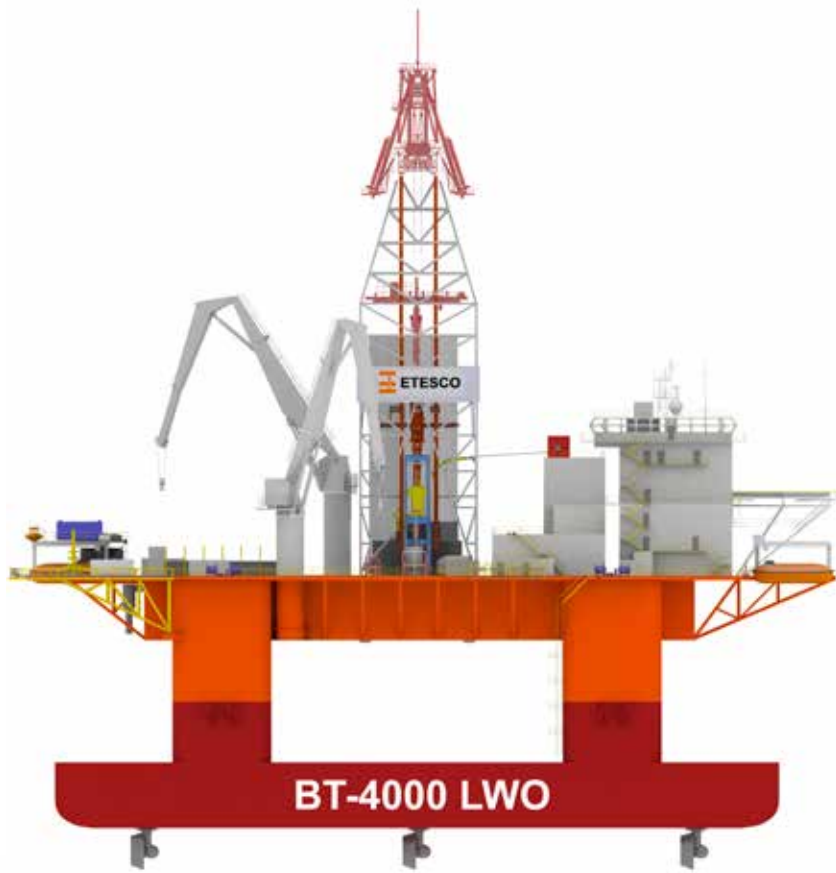
The BT-4000 LWO is designed for efficient and fast change-over between various well intervention operations with maximized off "critical path" preparation of upcoming operations. The range of operations the BT-4000 LWO is designed for includes:

- Workover operations, including coiled tubing and wire line/slick line through an open water intervention riser system (high pressure riser up to 10,000 psi) with a surface BOP
- Through tubing drilling and completion with coiled tubing or optional rotary drilling
- Top-hole rotary drilling
- Installation and retrieval of X-mas trees and different subsea equipment
- Installation and retrieval of electric submersible pumps in wells and subsea pumping modules
- Well-testing and well-clean-up
- Pumping and circulation of various types of fluids through the workover/completion riser and into the well, including the handling of high pressure fluids from a well stimulation vessel
- Killing of a well
- Installation, handling and operation of a subsea capping stack
- ROV operations.

To facilitate effective operations, the BT-4000 LWO has been designed with access to the derrick from three sides, allowing different operations to be prepared and carried out independently of each other.

For handling and transport of subsea equipment the Unit is arranged with a skidding system accessing the well center from three sides, which together with the flush drill-floor hatch (moon-pool door) design improves material handling efficiency and increases safety. Skidding system is also used to transport the advanced coiled tubing frame in and out of the well center, facilitating pre-stabbing of the coil and testing in advance, further increasing the operational efficiency.





GENERAL	
Class	✘A1 Column-Stabilized Drilling Unit, ✘AMS, ✘ACCU, ✘DPS-3, ENVIRO OS, CRC, UWILD
Rules and regulations	IMO MODU Code, MARPOL, Load Line, flag State and Brazilian continental shelf requirements
Operational areas	Brazil, Gulf of Mexico, West of Africa, SE Asia
POB	130 people in 1+2 bed cabins
Heli deck	Sikorski S-92, S-61N, AW-101, CAP 437

DESIGN CRITERIA	
Water depth	200 to 2,400 m
Drilling depth	8,500 m
Environmental criteria	10-year GOM hurricane, 100-year Brazil storm

MAIN DIMENSIONS	
Length over all	abt. 117.5 m
Beam over all	abt. 79.7 m
Height to box bottom	26.0 m
Height to upper deck	34.5 m
Pontoons (2)	
Length	100.1 m
Beam	15.6 m
Height	9.1 m
Columns (4)	
Horizontal section	13.65 x 14.3 m
Draughts	
Operation	17.5 m
Survival	14.5 m
Transit	8.8 m
Displacement	
Operation	32,600 tonnes

PAYLOAD CAPACITIES	
Deck payload, operation/survival	3,700 tonnes
Total payload, operation/survival	8,000 tonnes
Total payload, transit	3,100 tonnes

STORAGE CAPACITIES		
Liquids		
Mud/brine pits in upper hull	500 m ³	3,140 bbls
Mud/brine tanks in pontoons	680 m ³	4,200 bbls
Total liquid mud/brine storage	1,140 m ³	7,090 bbls
Base oil tanks	300 m ³	1,800 bbls
Drill water tanks	1,770 m ³	11,100 bbls
Fuel oil tanks	3,000 m ³	18,850 bbls
Fresh water tanks	300 m ³	1,800 bbls
Bulk		
Bulk cement	214 m ³	7,500 cu ft
Bulk barite/bentonite	214 m ³	7,500 cu ft

MAJOR EQUIPMENT		
Installed power	6 x 5,200 kWe	31,200 kWe
Thrusters	6 x 3,500 kW	21,000 kW
Derrick	Height 186 ft	Static 1,500 kips
Active/passive crown mounted compensator		1000 kips
False rotary		49 1/2"
Drawworks		4,430 hp
Riser tensioners	8 x 160 kips each, 50 ft stroke	
Mud pumps		2 x 1,600 hp
Knuckle-boom cranes		2 x 100 tonnes

OPERATIONS	
Light workover and well intervention operations	
Workover operations	Drilling and workover operations Through tubing drilling and completion Through tubing live well intervention
Wire lining/slick line operations	Through tubing live well intervention operations
Rotary drilling of top holes without fluid return to top side	
Installation and retrieval of X-mas trees, adaptors and tree caps, lower riser package	
Installation and retrieval of electric submersible pumps in wells and subsea pumping modules	
Well testing	
Killing of a well	
ROV operations	

ETESCO INTERVENTOR

BT-4000 LWO FOR PETROBRAS BUILT AT DSIC



Brazilian oil service contractor Etesco

together with partners signed a contract to build a BT-4000 Light Workover semi-submersible at DSIC Offshore, China, for delivery in 2017. Etesco, founded in 1956, is involved in various segments of the Brazilian oil service industry including operation of drilling units and FPSOs.



Etesco has entered into a charter and service

contract with Petrobras for light workover operations offshore Brazil in Campos and Santos Basin. With specialized light workover units it is forecasted that Petrobras will reduce their well intervention cost and further increase well productivity.



DSIC Offshore is one of China's leading turnkey EPC contractors for offshore construction. It is the offshore arm of Dalian Shipbuilding Industry Corporation, one of the world's largest shipyard groups, which has the longest offshore constructing history and track record in China. It has delivered ships and offshore units to international clients since the mid eighties.



DSIC Offshore has over the years successfully delivered more than 30 offshore units including jack-ups, semi-submersibles and FPSOs to international and domestic clients. In 2009 DSIC Offshore moved to a dedicated new offshore construction yard, which includes a 180 x 120 m dry dock. DSIC contracted Bassoe Technology to provide the class approved design for the BT-4000 Light Workover Unit, Etesco Interventor. DSIC has previously built several Bassoe Technology designed units.

A LEADING DESIGNER OF ADVANCED MOBILE OFFSHORE UNITS

Bassoe Technology is a recognized designer of advanced mobile offshore units, such as semi-submersibles and drillships, offering concept and basic design, FEED and engineering services.

Bassoe Technology has developed an extensive design portfolio of technically optimized and purpose designed units and vessels for tender drilling, well intervention, drilling, accommodation, floating production and offshore wind, wave and current energy. As experts in design of mobile offshore units, we can offer designs tailored to the client's need.

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 various worldwide areas. In recent years, we have successfully cooperated with yards in Asia for construction of several offshore units.

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 our offshore experience for new applications.



BT-MTB BassDrill Alpha
Completed 2010



BT-3500 BassDrill Beta
Completed 2013



BT-4000 Etesco Interventor
Completed 2017



Helix ESG Q5000
Completed 2015



BT-UDS
Designed for Sigma Drilling Ltd



BT-HTB Atlantica Gamma
Completed 2014



Emma
Completed 2012



BT-3500 Atlantica Delta
Completed 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.