

# DEEPSEA YANTAI

## NORTH SEA SEMI-SUBMERSIBLE DRILLING RIG



'Deepsea Yantai' is able to operate at water depth up to 500m and drill wells down to 8,000m at a temperature of minus 20 degree Celsius and meet the ICE-T class notation. It is equipped with DP3 and 8 point mooring system . The rig is designed to operate in North Sea environment and Barents Sea. It fullfils the requirements of NMD, NORSOK and PSA regulations and is classed by DNV. Compared with other drilling rigs operating in North Sea , the hull of 'Deepsea Yantai' is smaller and lighter. The rig adopts high power thrusters which enables higher transit speed and stronger DP capability. The rig is equipped with NOV drilling package. The drilling process has a high level of automation and can carry out offline stand building operation which will improve the drilling effeciency by 15%. 'Deepsea Yantai' adopts GM4-D design by Global Maritime AS. The basic design is undertaken by CIMC Raffles and Global Maritime. The design is impoved based on the collaborative experience of the three previous North Sea semi-submersible drilling rigs with GM4000D design. Both the work performance and comfort level have been improved significantly.



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## NORTH SEA SEMI-SUBMERSIBLE DRILLING RIG

### GENERAL

Name	: Deepsea Yantai
Flag	: Bahamas
Builder	: Yantai CIMC Raffles Offshore Limited
Designer	: Global Maritime & CIMC Raffles
Class	: DNV
Notation	: +1A1 Column Stabilized Drilling Unit (N) , DRILL (N), HELDK -SH(N), CRANE(N), DYNPOS -AUTRO, POSMOOR -ATA, E0, CLEAN, ICE-T, WINTERIZED BASIC

### PRINCIPAL DIMENSIONS

Overall	
LOA	: 106.75m
Beam	: 73.70m
Height to main deck	: 42.0m
Deck Box	
Length	: 88.15 m
Width	: 73.10m
Draft	
Operation Draft	: 21.0m
Survival Draft	: 19.0 m
Transit Draft	: 10.1m
Displacement	
Displacement	: 32,600 – 46,600 T

### DESIGN ENVIRONMENT

Survival condition	: Hs=17.3m
Operation condition	: Hs=8.0m
Transit condition	: Hs=5m
Sea water temperature	: 0°C to 32° C
Outside air temperature	: -20°C to 35° C
Structure design temperature	: -25°C (Above water line)
Fatigue life	: 20 years

### OPERATION AREA

Norwegian North Sea  
World Wide

### OPERATING PARAMETERS

Water depth	: 60-500m (Current Water Depth Capacity)
Drilling depth	: 8,000m
VDL	: 4,000T

### STATION KEEPING (Kongsberg)

Dynamically Positioned	: DP 3 (IMO)
8 Point Mooring system	

### STRUCTURE CAPACITY

Bulk Barite/ Bentonite	: 326m <sup>3</sup>
Bulk Cement	: 326m <sup>3</sup>
Mud Pits (Upper hull)	: 600m <sup>3</sup>
Liquid Mud (Columns)	: 600m <sup>3</sup>
Drilling water	: 1,100m <sup>3</sup>
Fuel Oil	: Approx. 4,000m <sup>3</sup>
Fresh Water	: 600m <sup>3</sup>
Base Oil	: 550m <sup>3</sup>
Brine/Completion	: Two tanks in Pontoon, Approx. 600m <sup>3</sup>
Slop Tank	: 300m <sup>3</sup>

### MAIN CRANE (NOV)

Main Deck Crane	: 2x80T offshore crane
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### HELIDECK

1 x Helideck suitable for Sikorsky S-61N, Super Puma, Sikorsky S92

### MUD CIRCULATION & SOLID CONTROL SYSTEM (NOV)

HP Mud Pump	: NOV Triplex 14-P-220, MWP 7500 psi
Shale Shaker	: NOV Quintuple VSM300 Shale Shaker

### DRILLING SYSTEM PARAMETERS (NOV)

Total derrick capacity	: 680mT (1,500,000 lbs / 750 short ton)
Rotary Table	: 60-1/2"
Top Drive:	: 1X 680mT-120RPM @124kNm
Drawworks	: 750 short ton, 4600HP (4*1150HP)
Catwalk Machine	: 1 x main catwalk for riser / drill pipe 1 x aux. catwalk for drill pipes
Standbuilding Fingerboards	: 3 x range 2 or 2 x range 3 and range from 2 x 45 ft casings stands
Racking Capacity	: Max. 273 stands of 5 7/8" drill pipe, 12 stands of 9 1/2" drill collar, 56 stands of 12 3/8" or 9 5/8" or 7" casing
Crown Block & Compensator	: Lock static capacity: 1500 kips; Compensating capacity: 1000 kips; Compensating stroke: 25 ft
Main Roughneck	: Handling of drill pipe and collars ranging from 3 1/2" to 9 3/4" in diameter and casing up to 26" in diameter if equipped with NOV Casing Tools Frames and pickup tools, Max break out torques is 200,000Nm; make up to torque is 140,000 Nm.
Offline Standbuilding Roughneck	: Handling of drill pipe and collars ranging from 3 1/2" to 9 3/4" in diameter and casing up to 13 3/8" in diameter if equipped with NOV Casing Tools Frames and pickup tools, Max break out torques is 200,000Nm; make up torque is 140,000 Nm.
Riser/DP handling Knuckleboom Crane	: Rigging: 35mT @6.5-30m
Riser tensioner	: 8x54.5mT
NOVOS: Available	

### BOP & WELL CONTROL SYSTEM (NOV)

BOP Stack	: 18 3/4" 15000psi 5 rams, 2 annular.
Riser Joint	: 21" x 5/8" W.T. Main Tube, 50' long x 33pcs in total; Riser with 48" OD buoyancy -28 pcs, slick riser -5 pcs
Slip Joint	: 50' stroke, Remote Operated Gooseneck x 2 pcs

### HANDLING EQUIPMENTS FOR SUBSEA INSTALLATION (NOV)

LMRP Skid	: 300mT, Push-Pull
BOP Skid	: 300mT, Push-Pull
Cantilever Skid	: 100mT, 5300mm Extension
LMRP Overhead Crane	: Main 2x 60mT+Aux. 1x 12mT
X'Mas Tree Skid	: 1x 100mT with turntable + 1x space reservation for 100mT Skid
BOP Handling	: 420mT SWL BOP Moon Pool Trolley

### ACCOMMODATION

130 single cabins (According to NORSOK requirements)

### MAIN POWER SYSTEM (Rolls Royce)

Main Generator Set	: 6 x 5,535kW
Emergency Generator	: Two main generators are outfitted as emergency generators.

### THRUSTER (Rolls Royce)

Thruster	: 6 x 4,500kW fully azimuth thruster
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