Moonpool
Rig Design & Construction

TROPICAL DRILLER TD 7000

The compact drillship

Last update: August 2015

TROPICAL DRILLER

Concept

The Tropical Driller concept was born as an evolution of its cousin-ship the ***Equatorial Driller***. This new deep water drilling vessel is taking advantage of all the experience accumulated by the same design and project team. Performances and operability have been greatly enhanced due to the adoption of a ***dynamic positioning system class DP3*** satisfying today's demand**.**

Our philosophy is still based on the same key principles, being : easy to operate, easy to maintain, as simple as possible but with modern technology, comfortable and safe life on board, innovation but costs under control.

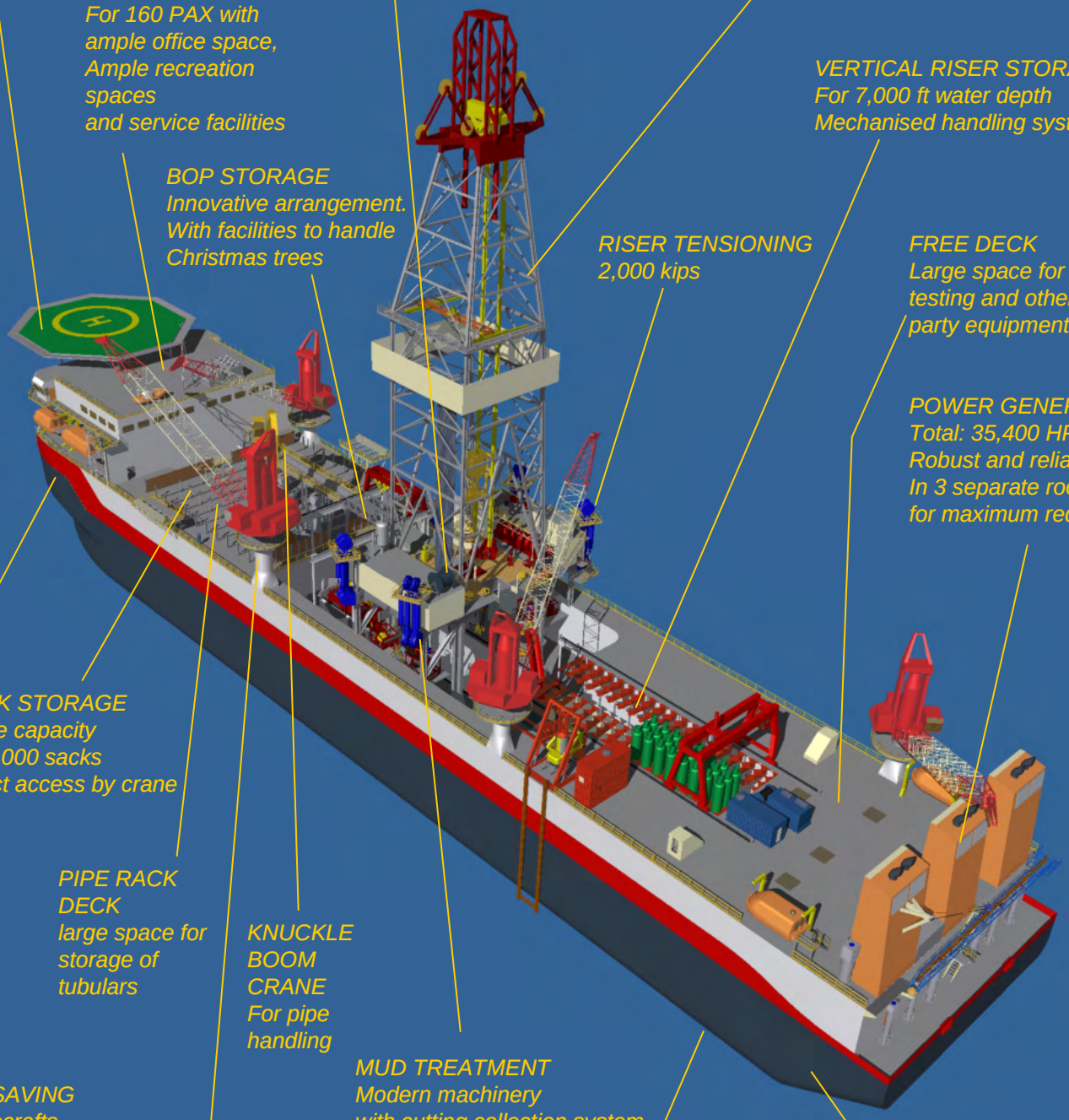
For this vessel, the major innovation comes from the **vertical riser storage** system. Although such a system has been already adopted and proven on some of the new build semi-submersibles, it's the first application on a monohull vessel. The other innovation is that the hull has been completely **re-engineered around the primary functions** of drilling, BOP handling and riser storage. The result is a compact vessel with high capacities.

Cost of building conventional ultra-deepwater rigs has reached unprecedented levels due to the always increasing size of the vessels associated with an overabundance of expensive equipment.

Oil Companies are now looking at reducing operating costs and we believe that cost-controlled and well balanced technical solutions will be widely appreciated in the years to come. With that in mind, we have designed the Tropical Driller as a truly new generation deep water drilling rig but presented in a compact and efficient package that makes it very **competitive**.

The Tropical Driller TD 7000 is designed to drill in 7,000ft of water. The rig is capable of drilling to 35,000ft depth. It is the ideal solution for deep water operations in moderate environment including the most active areas of the world: South East Asia, India, West Africa, the Med Sea and Brazil.

TROPICAL DRILLER – TD 7000



HELIPORT
For Sikorsky S92
With refueling unit

DRILL FLOOR
Fully mechanised with modern equipment.
Offline stand building.

DERRICK
Up to 2,000 Kips Capacity
With mechanised parallel racking system

LIVING QUARTERS
For 160 PAX with ample office space, Ample recreation spaces and service facilities

VERTICAL RISER STORAGE
For 7,000 ft water depth
Mechanised handling system

BOP STORAGE
Innovative arrangement.
With facilities to handle Christmas trees

RISER TENSIONING
2,000 kips

FREE DECK
Large space for well testing and other third party equipment

POWER GENERATION
Total: 35,400 HP
Robust and reliable
In 3 separate rooms for maximum redundancy

SACK STORAGE
Large capacity for 9,000 sacks
Direct access by crane

PIPE RACK DECK
large space for storage of tubulars

KNUCKLE BOOM CRANE
For pipe handling

LIFE SAVING
Six lifecrafts.
Total capacity 340 PAX

MUD TREATMENT
Modern machinery with cutting collection system

4 deck cranes allowing ample deck coverage

DYNAMIC POSITIONING SYSTEM - DP3
for optimum safety and redundancy

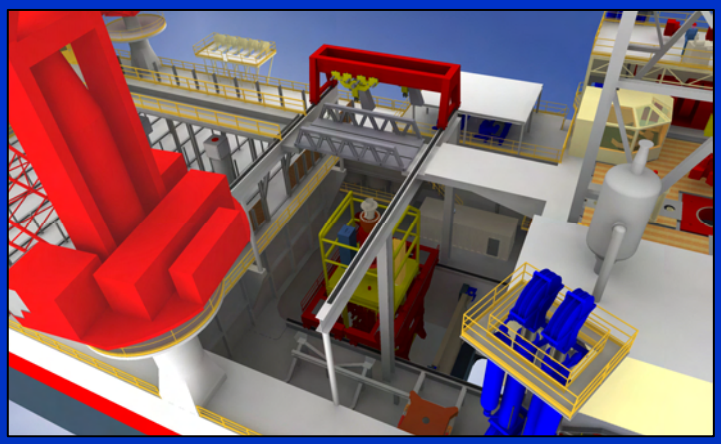
HULL
Sized for optimum behavior
In targeted environment and large deck load capacity

TROPICAL DRILLER

KEY FEATURES

- Compact and integrated vessel design: lower maintenance and operating cost
- Dynamic positioning of the highest standard – DP3. Self propelled.
- Large Variable Load capacity, large deck space, large tank capacities
- First drillship with a vertical riser storage in the hull:
  - Greatly improved safety, handling speed and flexibility while handling riser
  - A lot of deck space is made available
- Reduced emissions. Reduced fuel consumption. Zero-discharge capability.
- Original BOP handling system – BOP is stored in one piece without the need of a heavy gantry crane. Handling is made safer.
- Original mud pits design for maximum efficiency and flexibility.
- High standard accommodations.

LARGE DECK SPACE FREE OF OBSTRUCTIONS



ORIGINAL AND SAFE BOP HANDLING SYSTEM

HULL Fitted with extra large Anti –roll keels for improved motion characteristics

FIRST DRILLSHIP HULL WITH A VERTICAL RISER STORAGE SYSTEM

TROPICAL DRILLER – TD 7000

OUTLINE SPECIFICATIONS

MAIN CHARACTERISTICS

Design	TD 7000 Class
Designer	Moonpool Consultants Pte Ltd – Singapore
Builder	TBD
Type	Dynamically positioned compact drillship
Drilling Depth	Up to 10,668m (35,000 ft)
Water Depth	Up to 2,135m (7,000 ft)
Classification	ABS
Flag	TBD
Accommodation	160 Pax in single or double berth cabins

MAIN DIMENSIONS

Hull Length	168.5 m	553 ft
Hull Breadth	32.2 m	105.6 ft
Hull Depth		
@ freeboard deck	11.0 m	36.1 ft
@ upper deck	18.0 m	59.1 ft
Operating Draft	5.50 m	18.0 ft
Maximum Load Line Draft	7.00 m	23.0 ft
Moonpool		
Width	9.6 m	31.5 ft
Length	17.5 m	57.4 ft

DERRICK & DRILL FLOOR

Max Hook Load	907 Mt	2,000 kips
Max Set Back Load	570 Mt	1,256 kips
Max Set Back load “Field Move”	570 Mt	1,256 kips
Riser Tensioning Capacity	907 Mt	2,000 kips

VARIABLE LOADS (1)

Field Move	15,000 Mt
Transit “moderate environment”	10,000 Mt
Long Ocean Transit	5,000 Mt
VL at load line draft (Max)	15,000 Mt

(1) These values are preliminary and depend on the actual equipment installed on board.

CAPACITIES

Ballast Sea Water	14,800 m^3	
Fuel Oil	2,300 m^3	14,400 bbls
Potable Water	706 m^3	4,440 bbls
Drill Water	3,850 m^3	24,200 bbls
Active & Reserve Mud	1,654 m^3	10,400 bbls
Base Oil	970 m^3	6,100 bbls
Brine	396 m^3	2,490 bbls
Bulk Mud	420 m^3	14,830 ft^3
Bulk Cement	280 m^3	9,900 ft^3
Sack material		9,000 sacks
Helideck		Designed for Sikorsky 92

TROPICAL DRILLER – TD 7000

MAIN EQUIPMENT

Note: The specified drilling machinery is shown as an example and can be revised to suit our customer requirements.

POWER EQUIPMENT	
Diesel Engines	Six Wartsila 8L32 – 5,900 HP each (4400 KW) 720 rpm - Total power 35,400 HP (26.4 MW)
Generators	Six generators, 6.6 KV, 60 Hz
Emergency Generator	One Cummins KTA50-DM, 1340 HP With 1250 KVA generator 480 V
VFDs	As required for mud pumps, drawworks & TDS

DRILLING EQUIPMENT	
Derrick	170 ft clear height (optional 210 ft), base 41 ft x 46 ft 2000 kips static capacity on 14 lines Racking area for up to 35,000 ft drill pipes
Tubular & riser handling	• One power slip rated 750 st (Varco PS 30 or Eq.) • One mechanized pipe racking system • One auxilliary iron roughneck and two auxilliary mouse holes • One knuckle boom crane for pipe handling • One tubular conveyor (pipe rack to V-door) • One riser Gantry crane, hydraulic. • One vertical riser storage system • One drill floor mounted Palfinger type crane
Drawworks	4.500 HP to 6,000 HP, AC powered, regenerative braking, discs brake
Top drive	Single speed AC driven 1450 HP with raised backup system, Rated 1000 short ton.
Heave Compensator	Hydro pneumatic passive CMC, 1,000 kips capacity compensating (2,000 kips locked)
Rotary Table	Hydraulic, rated 1000 ton, 60.5” opening.
High torque make-up / brake-out	•One hydraulic Iron Roughneck, NOV ST 120, pedestal mounted or equivalent. •One set of hydraulic catheads.
Drill Floor Winches	•Three air winches •One man-rider air winch
Access Basket	One telescopic stabbing basket installed in the derrick.

MUD SYSTEM	
Mud Tanks	• Surface: 10 Mud pits, 2 slugging pits • Hull reserve: 5 Mud pits, 1 waste mud tank • Two mud pits fitted with HP shear system • Two trip tanks, one stripping tank
Slush Pumps	• Four Triplex pumps 2,200 HP each, AC powered, 9” bore x 14 “stroke. Rating 7,500 psi • All HP mud piping rated 7,500 psi • Riser booster line 5,000 psi.
Mud mixing	• Two mud shear mixer with hoppers • One sack slitting unit • Two high rate auto-mixers • 5 transfer / mixing pumps (3 active + 2 reserve)
Brine Mixing	• One brine shear mixer with hopper • Independent transfer/mixing pump & piping.
Mud process	• 5 triple deck shale shakers. Total: 2,500 gpm. • 3 mud process tanks • 2 degasser, Burgess type, 1000 gpm each • 1 cutting dryer • 2 mud centrifuges (3rd party) • Cutting collection system (screw conveyors)

CEMENT SYSTEM	
Cement Tank	Remote controlled bulk transfer system
Cementing Equipment	TBD – Covered room allocated for diesel powered system.
Piping	Stand pipe manifold and associated piping rated 15,000 psi

WELL CONTROL & RISER SYSTEMS	
Diverter system	NOV Shaffer diverter 60-1/2” or equivalent Two outboard lines
Subsea BOP system	• One 18-3/4” 15,000 psi stack with 6 cavities & 2 annulars •2000 kips rated marine riser 21” diameter with 48” buoyancy modules. 108 joints of 65 ft each.
BOP Control	BOP control system type MUX electro-hydraulic last generation.
Kill & Choke manifold	• One manifold 15,000 psi • One glycol injection unit
BOP Handling	• One moonpool BOP trolley hydraulic • One LMRP hoist system 160 Mt capacity. • One Multipurpose trolley 200 Mt capacity also suitable for casing hang off. • Optional Riser hang off frame • One Xmas tree cart hydraulic operated 120 Mt capacity • 2 man rider air winches in moonpool area • 2 telescopic maintenance baskets
BOP testing	BOP/LMRP stumps w/ retractable system & test pump.
Riser tensioners	Riser wire tensioners with total capacity of 2,000 kips (8x250 kips), Stroke 50 ft Two HP air compressors

AUXILLIARY EQUIPMENT	
Station Keeping	Dynamic Positioning system – DP3 Class 6 Azymuthing thrusters Wartsila WST45U, 3,000 KW each
King Post Cranes	Four SEATRAX offshore diesel hydraulic cranes: •One unit w/ 100 ft boom, 85 Mt @ 8m radius •Two units w/ 100 ft boom, 70 Mt @ 8m radius •One unit w/ 100 ft boom, 40 Mt @ 8m radius
Heliport	Compliant with UK CAP 437 regulation for S92 One refueling unit
Water Makers	Three water makers, reverse osmosis type. Capacity: 50 m^3/day each.
Service Air Compressors	• Four compressors each 860m^3/h @ 10.5 bar • Four air dryers
Safety Equipment	• One rescue boat • Six survival crafts, Total capacity 340 pax • H2S and combustible detection system • Water Mist unit for fire fighting
Controlled Discharge System	•Allow the collection, storage and treatment of drain fluids: oily water, muddy water, rain water, grey and black water.

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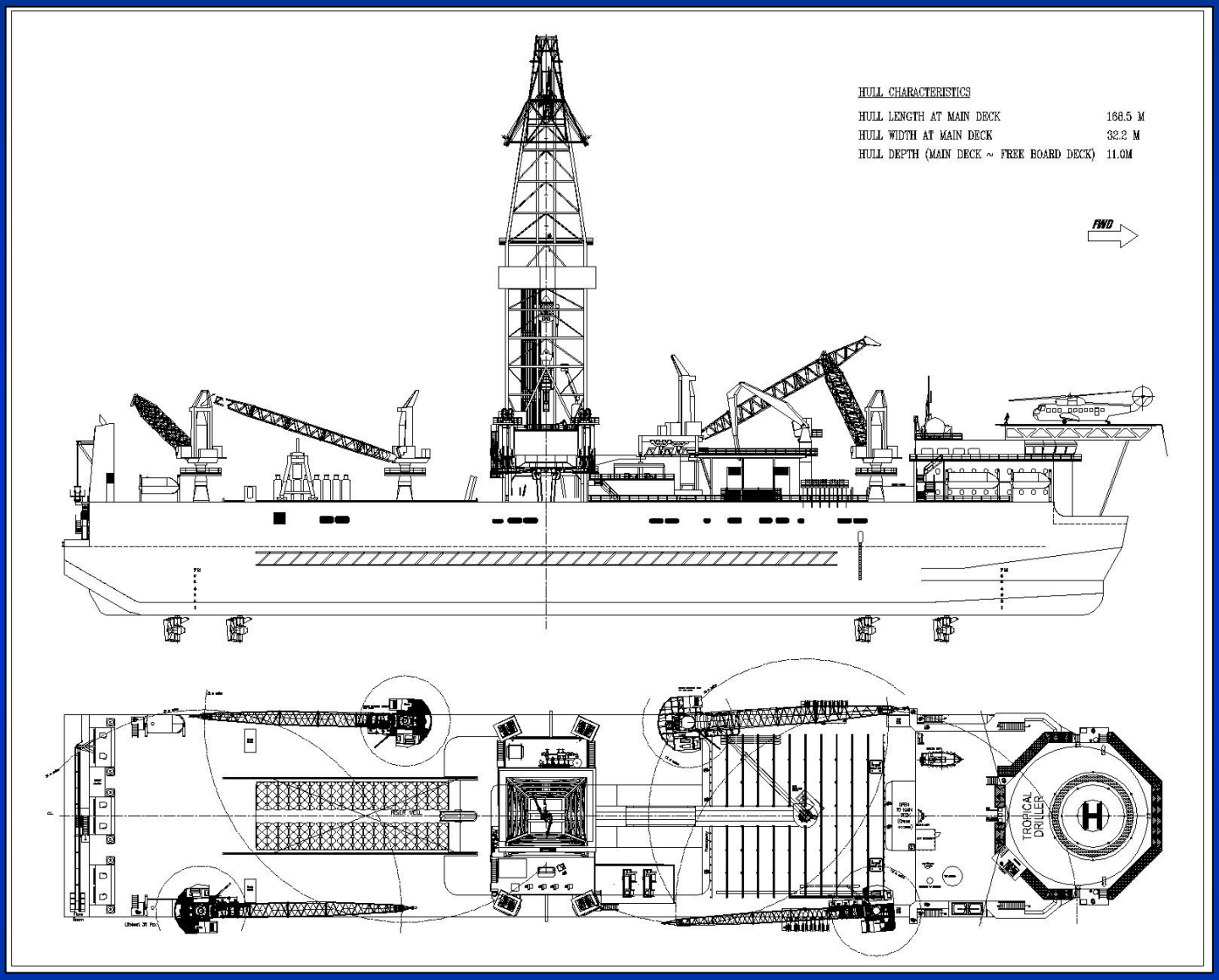
GENERAL ARRANGEMENT



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