

HAKURYU-10

HAKURYU-10 is a 375 ft operating water depth self-elevating cantilever jack-up drilling rig, built by PPL Shipyard Pte. Ltd. using the Baker Marine Design. HAKURYU-10 was delivered in June 2008 at P.P.L. shipyard.

HAKURYU-10 is a high standard unit sized for large Variable Deck Load (VDL), useful deck space, 120 Person On Board (POB), full

preload jacking capability, deep water drilling operation (375 ft water depth), deep drilling (30,000 ft drilling depth), High Pressure High Temperature (HPHT) drilling and zero discharge operation.

The cantilever design allows the rotary table to be skidded out to a maximum of 70 ft from the transom and 15 ft from the centre line.

DESIGN:

Baker Marine Pacific Class 375: 3 legs self-elevating, cantilever type mobile offshore drilling unit.

CLASSIFICATIONS HELD:

Classified by American Bureau of Shipping (ABS 2001), inclusive of all ABS amendments in force as of 2005, Maltese Cross A1, Self-Elevating Drilling Unit, 1989 Resolution A649 (16).

FLAG:

Panama.

MAIN DIMENSIONS and PARTICULARS:

Hull Overall Length (molded)	236.5' (72.1m)
Hull Breadth (molded)	224.4' (68.4m)
Hull Depth (molded)	27.9' (8.5m)
Leg Length	506' (154.3m)
Usable Leg Length (below hull)	435' (132.6m)
Footing Area /each Spud Can	2,493 sq.ft. (231.6 m ²)
Max Combined Drilling Load on Cantilever	1,179 tons @41' center 703 tons @70' center
Drilling Envelope	15'-70' x 30'
Displacement (Load Line)	43,837 kips (19,884 tons)
Helideck type / D-value / t-value	Sikorsky S-61N / 22.2 m dia / 9.3 tons
Accommodation	120 personnel

DESIGN CRITERIA:

Max. Operating water depth 375' with 50' air gap & 10' penetration
Max. Rated drilling depth 9,144m with up to 5-7/8" drill pipe

MAXIMUM GROSS VARIABLE LOAD:

Jacking.....	5,000 kips (2,268 tons)
Storm.....	6,500 kips (2,948 tons)
Drilling.....	7,500 kips (3,401 tons)
Hook Load.....	1,500 kips (680 tons)
Rotary Load.....	1,500 kips (680 tons)
Setback Load.....	900 kips (408 tons)
Conductor Tension Load.....	500 kips (227 tons)

STORAGE CAPACITIES:

Fuel oil	4,572 bbls (727m ³)
Drill water	20,933 bbls (3328m ³)
Potable water	3,557 bbls (566m ³)
Liquid mud	4,165.5 bbls (662.3m ³)
Bulk mud	5,932 ft ³ (168 m ³)
Bulk cement	5,826 ft ³ (165 m ³)
Sack storage	5,000 sacks

POWER EQUIPMENT:

Main Engines: Five (5) Caterpillar 3516BHD DITA engines,
1,603 kW @1,200 rpm

Main Generators: Five (5) Kato 6P63300 generators,
1,875 kVA @1,200 rpm, AC 690 V, 60 Hz

Emergency Engine: Caterpillar 3508B DITA engine,
968 kW @1,800 rpm

Emergency Generator: Leroy Somer LSA-M50 generator,
720kW (900 KVA) @1,800 rpm, 480 V, 60 Hz.

VESSEL MANAGEMENT SYSTEM:

Centralized access and control system covering Alarm monitoring system,
Tank level monitoring and remote valve control for pre loading operation.

DRILLING EQUIPMENT:

Draw Works: NOV D3000UE AC, Three 1,350 HP, 690 V AC motors.
1-5/8" diameter wire.

Derrick: NOV, SSBN 750, 1,500kips maximum rated static hook load.
Racking capacity: 322 stands of 5-7/8" drill pipe + 8 stands of
9-1/2" Drill collar.

Vertical Pipe Handling System: NOV Bridge Racker™

Crown Block: NOV CBC-750, 1,500kips capacity, with 10 sheaves.
(2 x 60"OD Turn-over Sheaves at Dead Line Side)
(6 x 60"OD Cluster Sheaves at Center Block)
(2 x 60"OD Turn-over Sheaves at Fast Line Side)

Traveling Block: NOV HTB-750, 1,500 kips, with 7 x 60" sheaves.

Top Drive: NOV HPS-750E-AC-SG, 7,500 psi WP, 1,500 kips, 1,350 hp,
690 V AC motor. Installed with a retractable dolly.

Rotary Table: NOV D-495-APITK, hydraulic motor driven.

Iron Roughneck: NOV Hydratong MPT-200, Size range: 3-1/2" to 9-3/4"

Control System: NOV Cyberbase™.

WELL CONTROL EQUIPMENT:

Diverter: Vetco Gray, KFDJ-500 Removal Type, 49-1/2".

BOPs: 13-5/8" BOP Stack
NOV 13-5/8" 5,000 psi WP Annular.
Two (2) NOV LXT 13-5/8" 10,000 psi WP Double Ram.
One (1) NOV LXT 13-5/8" 10,000 psi WP Single Ram.
One (1) NOV 6012 13-5/8" 10,000 psi WP Single Ram.
※Able to convert to 18-3/4" 10,000 / 15,000 psi BOP Stack

BOP Control: Shaffer-Koomey Model "2QD-000-3S" BOP Control Unit.

Choke Manifold: RB Pipetch 15,000 psi WP choke & kill manifold, sour gas
service.
Two (2) Cameron H2 manual choke valves.
Two (2) Swaco Super Chokes.

MUD CIRCULATION EQUIPMENT:

Mud Pumps: Three (3) NOV 14-P-220, 7,500 psi WP, Two (2) 1,350 hp AC
motors driven.

Mud Treatment System:

Gumbo Separator: NOV-Brandt, 6' Dual Chain Gumbo Box.
Scalping Shakers: Two (2) Derrick FLC-504 single deck shakers.
Primary Shakers: Four (4) Brandt VSM300 shale shakers.
Degasser: Brandt DG-12 degasser.
Mud Gas Separator: RB Pipetch mud gas separator suitable for H₂S
service, 150 WP, 10 mmscfd.

JACKING EQUIPMENT:

Jacking Units: 36 NOV-BLM D88 jacking units with 72 active pinions.
Normal Jacking 43,632 kips (19,800 tons)
Preload Jacking 58,752 kips (26,640 tons)
Drilling Condition 81,288 kips (36,864 tons)
Storm Condition 108,288 kips (49,104 tons)

OTHER EQUIPMENT:

Deck Cranes: Three (3) BMC Diesel-Hydraulic deck cranes.
BMC900: 50 kips (22.7 tons) @20', 15 kips (6.8 tons) @103'
BMC1600: 90 kips (40.8 tons) @25', 19 kips (8.6 tons) @107'
BMC2250: 110 kips (50.0 tons) @25', 30 kips (13.6 tons) @127'
Water Makers: Two (2) Alfa Labal DPU-36-C125 water makers,
13,200 gal/day (50 KL/day) each.

Anti-pollution Equip:

Hamworthy ST8VS, capable for 120 personnel.
Blohm+Voss TURBULO MPB-5 oily water separator, 22 gpm (83.3 l/min).

Anchor Winches: Four (4) 6 tons Flipper Delta type anchors.

Anchor Winches: Four (4) x Mentrade anchor winches.
Maximum pull 70.1 kips (31.8 tons).
Maximum holding 220 kips (100 tons) at 1st layer.



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