



**ENEOS Drilling Limited**

# HAKURYU-11



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HAKURYU-11 is a 425 ft operating water depth self-elevating cantilever jack-up drilling rig, built by Keppel FELS Limited, Singapore, based on KFELS Super B Class and customized to JDC's requirement and delivered in May 2013.

The Rig is a high standard unit featured with enhanced leg strength, large Variable Deck Load (VDL), Excellent Drilling Capability, 150

Person On Board (POB), deep water drilling operation (425 ft water depth), deep drilling (35,000 ft drilling depth), high capacity hook load (2,000 kips), 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:** KFELS Super B Class 3 legs self-elevating, cantilever type mobile offshore drilling unit.

**CLASSIFICATIONS HELD:** Classified by American Bureau of Shipping, ⚡A1, Self-Elevating Drilling Unit. IMO 2009 MODU Code, 2010 Edition (A.1023)

**FLAG:** Panama.

## MAIN DIMENSIONS and PARTICULARS:

Hull Overall Length (molded) .....	246' (75.0 m)
Hull Breadth (molded) .....	218' (66.4 m)
Hull Depth (molded) .....	25' (7.6 m)
Leg Length .....	531' (161.8 m)
Spud Can Diameter.....	47.2' (14.4 m)
Max Combined Drilling Load.....	2,700 kips (1,224 tons)
Max Combined Drilling Load on Cantilever.....	2,346 kips (1,064 tons) @70' center 969 kips (439 tons) @70'x15' port
Max. Cantilever Outreach / Max. Drillfloor Offset.....	70' (21.3 m) / ± 15' (4.6 m)
Helideck type / D-value / t-value .....	S-61N & S-92 / 22.2 m dia / 12.8 tons
Accommodation .....	150 personnel

## DESIGN CRITERIA:

Max. Operating water depth .....	425' (129.5m) with 34' (10.4m) air gap & 10' (3.1m) penetration
Max. Rated drilling depth .....	35,000' (10,668 m)
Max. Air gap.....	100' (30.5 m)

## MAXIMUM GROSS VARIABLE LOAD:

Storm.....	5,000 kips (2,215 tons)
Drilling.....	7,500 kips (3,350 tons)
Hook Load.....	2,000 kips (907 tons)
Rotary Load.....	2,000 kips (907 tons)
Setback Load.....	1,210 kips (549 tons)
Conductor Tension Load.....	500 kips (227 tons)

## STORAGE CAPACITIES:

Fuel oil .....	3,012 bbls (479 m <sup>3</sup> )
Drill water.....	6,573 bbls (1,045 m <sup>3</sup> )
Potable water .....	1,978 bbls (314 m <sup>3</sup> )
Liquid mud .....	4,835.5 bbls (769 m <sup>3</sup> )
Bulk mud .....	8,600 ft <sup>3</sup> (244 m <sup>3</sup> )
Bulk cement .....	6,450 ft <sup>3</sup> (182 m <sup>3</sup> )
Sack storage .....	5,000 sacks

## JACKING EQUIPMENT:

<b>Jacking Units:</b> KFELS OTD 1000FV Jacking Unit 36 Motors & Pinions on 3 Legs	
Normal Jacking .....	36,000 kips (16,329 tons)
Preload Jacking .....	46,800 kips (21,228 tons)
Max Holding Capacity.....	67,284 kips (30,520 tons)
Capacity of 18 Fixations on 3 Legs	
Max Holding Capacity...	121,320 kips (55,030 tons)

## POWER EQUIPMENT:

<b>Main Engines:</b>	Five (5) Caterpillar C175 engines, 1930 bKW @ 1,200 rpm, IMO Tier II
<b>Main Generators:</b>	Five (5) KATO AA28653000 generators, 2,291.25 kVA @ 1,200rpm, AC 690 V, 3-phases, 60 Hz
<b>Emergency Engine:</b>	Caterpillar CAT 3508B, 968 KW @ 1,800 rpm
<b>Emergency Generator:</b>	STAMFORD, 910kW @ 1800rpm, 480 V, 60 Hz.

## DRILLING EQUIPMENT:

<b>Draw Works:</b>	NOV ADS-10Q Four 1150 HP, 690 V AC motors. 2" dia. wire.
<b>Derrick:</b>	Max. rated static hook load: 2,000 kips (907 tons). Racking capacity: 366 stands of 5-7/8" drill pipe + 10 stands of 9-1/2" Drill collar + 3 stands of bottom hole assembly (BHA).
<b>Offline Standbuilding System:</b>	5-7/8" drill pipe
<b>Vertical Pipe Handling System:</b>	NOV Bridge Racker BR-10
<b>Crown Block:</b>	2,000 kips (907 tons) capacity, with 10 (Cluster:6 , Dead line idle:2, Fast line idle:2) x 72" sheaves.
<b>Traveling Block:</b>	2,000 kips (907 tons), with 7 x 72" sheaves.
<b>Top Drive:</b>	NOV TDS-1000A, 2,000 kips (907 tons), 1,150 hp, 690 V AC motor. Installed with a retractable dolly.
<b>Rotary Table:</b>	NOV 49-1/2" RST, hydraulic motor driven.
<b>Iron Roughneck:</b>	Two (2) NOV ST-120, serving rotary center and mouse holes
<b>Control System:</b>	NOV Amphion.
<b>Catwalk Shuttle:</b>	NOV / CWS-P10-50LS, 10MT SWL / Range 2-7/8" to 36"
<b>Pipe Handling Crane:</b>	NOV Knuckle Boom Crane OC1891PL01, 12MT @ 8m to 12m with Hook Adapter, 3.5MT @ 3m to 25m with Pipe Gripper Yoke 2-7/8" to 20"

## WELL CONTROL EQUIPMENT:

<b>Diverter:</b>	KFDJ 500 psi
<b>BOPs:</b>	18-3/4" BOP Stack NOV-Shaffer 18-3/4" 10,000 psi WP Annular. Four (4) Cameron TL 18-3/4" 15,000 psi WP Ram. Two (2) 3" x 15,000 psi WP Choke Line One (1) 3" x 15,000 psi WP Kill Line.
<b>BOP Control:</b>	Cameron
<b>Choke and Kill Manifold:</b>	15,000 psi WP, sour gas service. Two (2) Manual Choke Valves. Two (2) Hydraulic operated Choke Valves.

## MUD CIRCULATION EQUIPMENT:

<b>Mud Pumps:</b>	Three (3) NOV 14-P-220, 7,500 psi WP.
<b>Mud Treatment System:</b>	
<b>Gumbo Separator:</b>	NOV-Brandt, One (1) Dual Chain Gumbo Box.
<b>Primary Shakers:</b>	Five (5) Brandt VSM300 shale shakers.
<b>Desilter:</b>	NOV-Brandt desilter cone assembly (4" x 16 cones).
<b>Degasser:</b>	One (1) Brandt DG-10 degasser.
<b>Mud Gas Separator:</b>	177 psi WP, 12 mmscfd.

## SHIP SERVICE EQUIPMENT:

<b>Deck Cranes:</b>	Three (3) Diesel-Hydraulic Kingpost deck cranes. Two(2) 116.8kips (52.0tons)@25'(7.6m), 28.7kips (13.0tons) @126' (38.4m) One(1) 141.0kips (64.0tons) @25'(7.6m), 43.7kips (19.8tons) @126' (38.4m)
<b>Water Makers:</b>	Two (2) x 60 Kl/day, vapor compression type.
<b>Anchors:</b>	Four (4) sets
<b>Anchor Winches:</b>	Four (4) sets



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