EIRIK RAUDE – THE EFFECTIVE ANSWER FOR ULTRA-DEEP WATERS AND HARSH ENVIRONMENTS
**EIRIK RAUDE**

**OCEAN RIG AS**

**GENERAL**
Year Completed: 2002  
Builder: Dalian New Shipyard, China – baredeck  
Outfitted: Friede Goldman Offshore, USA – Halifax Shipyard Canada  
Design: Trosvik Bingo 9000, 6 columns, DP Class 3  
Classification: DnV + 1A1 Column Stabilised Drilling Unit (N), DYNPOS AUTRO, HELDK SH, CRANE, F-AM, DRILL

Eirik Raude carries a Norwegian AoC (SUT) and a UK Safety case.

**MAIN DIMENSIONS**
Length: 119.38m (391.68ft) Overall  
Width: 85.50m (278.88ft) Overall  
Moon-pool: 7m x 14.5m (22.9ft x 47.50ft)  
Air Gap: 13.50m (44.29ft) Operating Draft

**DRAFT AND DISPLACEMENT**
Operating Draft: 23.75m (77.9ft)  
Transit Draft: 12m (39.4ft)  
Survival Draft: 21m (68.9ft)  
Operating Displacement: 53,393mt (52,552 tons)  
Transit Displacement: 38,243mt (37,640 tons)

**DYNAMIC POSITIONING AND VESSEL CONTROL SYSTEM**
Integrated Automation System
Dynamic Positioning System: SDP 32 (SDP 12 in Backup Control Room)  
Power Management System: SVC (Simrad Vessel Control)

Position Reference Systems:
2 x DPS 232 - L1/L2 Dual-frequency GPS/GLONASS GPS Receiver  
1 x DPS 132 - L1/L2 Dual-frequency GPS Receiver  
1 x DPS 116 – Single Frequency GPS Receiver  
Dual Spotbeam, dual Inmarsat-B and UHF / HF received corrections signals.

2 High Precision Acoustic Positioning, Simrad HIPAP, systems  
1 HAIN (inertial navigation system) with Honeywell HG9900 IMU  
1 RMS (Riser Management System)

Sensors: 3 Gyro Compasses Serry SR 2100 Fiber Optic.  
3 Motion Reference Units, Seatex MRU-5  
2 Lambrect 1455 Wind Sensors  
1 Dief 879 Wind Sensor

The Kongsberg SDP 32 DP system is a triple redundancy dynamic positioning system with a full range of functionality. The system is satisfying IMO 645 Class 3 and DNV AUTRO notation.

**MACHINERY**
Main Engines: 6 x Wärtsila 18V32 diesel engines, rated 7,500kW each, 10,200hp, total 61,200hp  
Generators: 6 x ABB ASG 900 XUB generators, rated 7,300kW each, total 43,800 kW  
Power Distribution: ABB  
Propulsion: 6 x Rolls Royce UUC 7001 fixed pitch variable speed thrusters, rated 5,500kW each,  
Total thrust: 600mt
OPERATING PARAMETERS
Water Depth: 3048m (10,000ft)
Transit speed: 6 - 7 knots

DRILLING EQUIPMENT
Derrick: Hydralift 170 x 40 x 40ft; 907mt (2,000,000 lbs)
Motion Compensators: Hydralift 1000-25 Passive / Active Crown Mounted Compensator
  • Rating: Static 907mt (2,000,000 lbs), Compensating 453mt (1,000,000 lbs)
  • Stroke: 25ft stroke
Drawworks: Continental Emsco Electrohoist IV, 4000hp
Rotary Table: Varco BJ RSTT - 60 1/2”
Top Drive: Hydralift HPS 1000 2E AC Electric Drive
  • Rating: 907mt (2,000,000 lbs)
  • Torque: 90,840Nm (67,000ft lbs), continuous
Travelling Block: Hydralift HBT 1000-S
Pipe Handling:
  • Hydralift, HydraRacker (pipe racker)
  • Hydralift, Back-up Racking System
  • Hydralift, Drillfloor Manipulator Arm
  • Hydralift, Iron Roughneck
  • Hydralift Raised Back-up System (Eliminates drill-off pup joint)
Fwd pipe rack:
  • Hydralift, Pipe Catwalk Machine
  • Hydralift, Knuckle-boom Pipe-handling Crane
Aft riser rack:
  • Hydralift, Riser Catwalk Machine
  • Hydralift, Riser Gantry Crane
Riser Tensioner: 8 x Hydralift double, 91mt each (200,000 lbs); Total Capacity 1,089mt (3,200,000 lbs)
Cementing:
  • BJ Cement Unit, Third Party free placement unit
Mud Pumps:
  • 3 x Continental Emsco FC-2200, 2,200hp, 517 BAR (7,500psi)

CAPACITIES
Variable Deck Load:
  • Operating: 6,624 mt
  • Survival: 6,624 mt
  • Transit: 6,224 mt
Liquid Mud: 1,657m3 (10,420 bbls)
Bulk Mud/Cement:
  • 4 x 87.6m3 (3,094 cuft) – Total 350m3 (12,360 cuft)
Bulk Cement:
  • 4 x 87.6m3 (3,094 cuft) – Total 350m3 (12,360 cuft)
Drill Water: 1,960m3 (12,330 bbls)
Potable Water: 628m3 (3,950 bbls)
Fuel Oil: 4,631m3 (29,130 bbls)
Base oil: 406m3 (2,554 bbls)
Brine: 680m3 (4,277 bbls)
SUBSEA SYSTEMS
BOP: Cameron 18 ¾” 1,034 Bar (15,000psi), H2S service.
• Anulars: 2 each 690 Bar (10,000 psi)
• BOP Rams: 4 each 1,034 Bar (15,000 psi)
• Choke and Kill: Cameron double master target valve 3 1/16” 15,000psi choke line
Wellhead Connector: Vetco Super HD H4
BOP Control System: Cameron MUX Control System with Multiplex modular control pods
BOP Acoustic System: Kongsberg BOP acoustic control
Cameron Hydraulic power unit with 345 Bar (5,000psi) accumulator pressure
Marine Riser:
• Vetco MR-10-GS dog riser, 21” OD x 7/8” wall, rating 3,000,000 lbs;
  2 x 4 ½” ID Choke / Kill Lines; 1 x 4” ID Booster Line; 2 x 2 ½” Hydraulic Conduits Lines
Diverter: Vetco KFDS-CSO-500,
BOP Handling:
• Hydralift BOP and X-mas tree transporter, 290mt capacity
• BOP Underhull Guiding System
• Gantry crane for BOP service 2 x 50 mt
• Rig outfitted for subsea completion and X-mas tree handling
Drillpipe: 5 ½” S-135 with HT55 tool joints
Drillcollars: 9 ½”, 8 ¼”, 6 ¾”

MOORING
Winches: 8 x Ulstein Brattvåg single drum windlasses
Wire/Chain: 2 x 2.76” 84mm chain, 2 x 1000 meter lengths.
Anchors: 2 Bruce, 20 ton. Can be upgraded to an 8 point mooring system with
  high holding power and thruster assist.
CRANAGE: 2 x Hydralift WOMCVC 3447, 75 mt
HELIDECK: EH 101 Helicopter, D = 22.8 meter
ACCOMMODATION: 140 berths + hospital
LIFE SAVING: 4 x 70-men lifeboats
  1 x Man Over Board boat (MOB boat)
  Escape Shute System (Selantic) with 8 x life rafts total capacity 240 men

ADDITIONAL DATA
Leiv Eiriksson design temperature:
• Air (deck, trusses, columns); minus 20 deg Celsius
• Sea (pontoons); zero deg Celsius
• Water max; plus 35 deg Celsius

Eirik Raude is winterized for operation in temperatures down to minus 20 deg Celsius.
Eirik Raude is designed for zero discharge
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ADDITIONAL INFORMATION
The drilling units Leiv Eiriksson and Eirik Raude are 5th generation harsh environment, dynamically positioned semi-submersibles, capable of operating in water depths up to 2286 meter and 3000 meter. The dynamic positioning capability is to Class 3. In addition Eirik Raude is capable of being moored in water depths of 70 meters to 500 meters. Both units are designed with zero discharge capability and have low emission power generation systems.

Leiv Eiriksson area of operation:
• West Africa Angola and Congo (Deep water)
• Atlantic Sea Ireland (Deep water harsh environment)
• West Of Shetland UK (Deep water harsh environment)
• Norwegian Sea Norway (Deep water harsh environment)
• Black Sea Turkey (Deep water)

Eirik Raude area of operation:
• Nova Scotia Canada (Deep water harsh environment)
• Newfoundland Canada (Deep water harsh environment)
• Cuba (Deep water)
• West Of Shetland UK (Deep water harsh environment)
• North Sea Norway (Shallow water harsh environment)
• Barents Sea (Shallow water harsh environment)
• Norwegian Sea (Deep water harsh environment)
• Gulf of Mexico USA (Deep water)
• West Africa Ghana (Deep water)