KNUD E. HANSEN
SHIP DESIGN SINCE 1937

THE “JACK-UP ON JACK-UP” CONCEPT

THE TOOL OF THE FUTURE FOR WIND TURBINE MAINTENANCE

KEY FEATURES

- 15 x 146 m work platform with a retractable weather cover, which can be elevated to the level of the nacelle
- 1,000 t @ 60 m main crane fitted on the elevating structure
- High-speed rack-and-pinion jacking system designed for 10,000 load cycles
- 130 single cabins with daylight
- DP2 dynamic positioning system
- Dual fuel with hybrid battery pack and energy recovery
- Two CTVs and retractable boat landing
- Blade rack for 12 + 6 blades for 20 MW turbines

KNUD E. HANSEN´S “Jack-up on Jack-up” concept design is a self-propelled jack-up vessel designed for all types of maintenance of wind turbines up to 20 MW including replacement of the nacelle.

Featuring a work platform with a retractable weather cover, which can be elevated to a height of more than 170 m above the water surface and positioned precisely below a turbine blade, maintenance of blades including repair of category 4 & 5 damages can safely be carried out year-round, day & night, regardless of the weather.

The vessel is designed to operate in the harshest environments like the North Sea on water depths of up to 80 m.

KNUD E. HANSEN´S Jack-up on Jack-up concept design is intended as a base platform, which can be customized to the needs of each individual client.

PRINCIPAL PARTICULARS

Length over all on hull	154.00 m
Breadth	64.40 m
Hull depth to main deck	12.50 m
Design summer draught	6.00 m
Draught on spud cans	7.30 m
Service speed	12 knots
Complement	130 single daylight cabins
Helicopter deck	D = 23 m, 15.5 t

DEADWEIGHT AND CARGO DECK

Jacking deadweight (variable load)	6,000 t
Cargo deck net area	Approx. 4,000 m^2
Uniformly distributed load	10 / 15 t/m^2

CRANES

Main crane main hoist	1,000 t @ 60 m 550 t @ 105 m
Max hook height above main deck with lowered / elevated platform	179 / 235 m
Aux crane 1 for main deck	32.5 t @ 45 m
Aux crane 2 for TP service	2.5 t @ 35 m

POWER GENERATION

Main generator sets	2 x 3,340 + 3 x 5,010 kWe
Emergency generator	500 kWe

THRUSTER CONFIGURATION

Stern thrusters	4 x 4,000 kW
Retractable bow thrusters	2 x 3,000 kW
Bow tunnel thrusters	2 or 3 x 2,800 kW

LEGS AND JACKING SYSTEM

Type of legs	3-chorded truss-work
Jacking system	Electrical opposed rack-and-pinion with VFD
Number of pinions	6 - 8 layers of 24 pinions
Design lifetime	10,000 jacking cycles
Jacking speed hull lifting	0.8 m/min
Leg handling unloaded	1.2 m/min
Length of legs	114 - 120 m depending on jacking system
Protrusion below bottom	Approx. 87 m
Spud can area	Approx. 210 m^2

ENVIRONMENTAL CONDITIONS

Storm survival	
Wind velocity	36 m/s
Significant wave height	10 m
Surface current	1.5 m/s
Water depth	70 m
Air gap	20 m
Sea-bed penetration	3 m
Jacking	
Wind velocity, head / beam	18 / 12 m/s
Significant wave height	1.5 - 2.5 m depending on seabed conditions
Surface current	0.75 m/s

CLASSIFICATION

DNV GL✠1A, Self-elevating unit for wind turbine installation

IMO MODU CODE

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