New Wind Turbine Installation Vessel
-Vessel Features and Specifications-

All details given in good faith but without guarantee
New Wind Turbine Installation Vessel–Introduction

DP Class 2, Self-elevating & Self-propulsion Vessel with streamline bow, square stern and double bottom ship type for worldwide operations

Key features include:

- Lifting capacity: 1200t leg-around crane.
- DP2 System with three stern azimuth thrusters and three bow tunnel thrusters.
- Transport and install the foundation, tower support, machinery cabin and blade of Wind Turbine for offshore wind farm.
- Variable Design Load (VDL) not less than 5000t.
- Rescue and Salvage operations
New Wind Turbine Installation Vessel—Specifications

Main Dimensions
- Hull length: 132.6m
- Breadth moulded: 42.0m
- Depth moulded: 9.0m
- Design draught: 6.0m
- Leg length: 90m
- Design water depth: 52.5m
- Endurance: 20days & 15000NM
- Accommodation: 220P

Capacity
- Gross ton: 17800
- Displacement: 26980t
- Max. variable load: 5000t
- Fuel oil: 1200m³
- Fresh water: 460m³
- Drinking water: 500m³
- Anti-heeling tanks: 4000m³
- Ballast tanks: 6000m³

Lifting Equipment
- Main hoist (Double hook): 1200t@28m
- Floating fully revolving: 600t@30m
- Floating fixed: 850t@35m
- Working radius: 19~90m
- Hoisting height:
  - Main deck: 110m above and 25m below
  - Auxiliary hoist: 150t@80m
  - Working radius: 23.7~100m
  - Hoisting height:
    - 120m above and 25m below Main deck

Propelling
- Azimuth propeller: 3 × 3800kW
- Tunnel thruster: 3 × 2000kW

DP System
- DP2
- At wave height 3.0m, current 1.03m/s and wind speed 13.8m/s

Jacking system
- Max. jacking capacity: 5600t
- Max. holding capacity: 9200t
- Platform lifting/lowering speed: 24m/h
- Leg lifting/lowering speed: 30m/h

Speed
- Designed Speed: 10knots

Generator
- Total generator power: 21000 kW
- Main generator sets: 6 × 3200kW
- Harbor generator set: 1 × 1200kW
- Emergency generator set: 1 × 600kW

Working Deck
- Free deck area: 2800m²
- Deck strength: 15t/m²

All details given in good faith but without guarantee
New Wind Turbine Installation Vessel–Class Notations

- Self-elevating Offshore Wind Turbine Service Unit
- Crane Unit
- Offshore Support Unit
- Accommodation Unit
- Lifting Appliance
- PSPC (B)
- Loading Computer (SI)
- FTP
- HELDK

- CSM AUTO-0
- BWMP
- BWMS
- DP-2
- Electrical Propulsion System

All details given in good faith but without guarantee
New Wind Turbine Installation Vessel—Overview

- 1200t Leg-around Crane
- 350t Auxiliary Crane
- Azimuth Thrusters
- Cylinder Legs with Hydraulic Jacking System
- 220p Accommodation
- Bow Thrusters
New Wind Turbine Installation Vessel – Power and Propulsion System

**Power Generators 21,000kW**

- Six (6) 3,200kW-Main
- One (1) 1,200kW-Harbor
- One (1) 600kW-Emergency

**Thrusters**

- Three (3) Tunnel Thrusters on bow - 2*2,000 kW
- Three (3) Azimuth Thrusters 3*3,800 kW

All thrusters be designed to operate on DP-2 model and be operated and monitored remotely from bridge control console, wing control console and DP control console.

All details given in good faith but without guarantee
New Wind Turbine Installation Vessel—Lifting System (1)

- **Main Crane**

  1200t main floating crane
  (Double hook)

  Main hook 1: Hoisting: 1200t@25m
  Fully revolving: 600t@30m
  Fix condition: 850t@35m

  Main hook 2: 600t

  Hoisting height: 110m above deck
  25m below

  Working Radius: 19~90m
New Wind Turbine Installation Vessel– Lifting System

Main Crane

Auxiliary hook: 150t@80m

Working Radius: 23.7~100m

Whip hook: Two 15t eye hooks

Hoisting height: 110m above deck
25m below
### New Wind Turbine Installation Vessel– Jacking System

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jacking Capacity per leg (Net)</td>
<td>5600 t</td>
</tr>
<tr>
<td>Maximum Holding/Preload Capacity per leg</td>
<td>9200 t</td>
</tr>
<tr>
<td>Diameter of Leg</td>
<td>4.8 m (tubular w/o pad)</td>
</tr>
<tr>
<td>Pitch of Leg Holes</td>
<td>2.0 m</td>
</tr>
<tr>
<td>Dimensions of Jacking Frame</td>
<td>~9.75 m × 9.75 m</td>
</tr>
<tr>
<td>Jacking Speed of Hull</td>
<td>24 m/h</td>
</tr>
<tr>
<td>Leg Lifting/Lowering Speed</td>
<td>30 m/h</td>
</tr>
<tr>
<td>Alarm Angle of Heel/Trim</td>
<td>0.5°</td>
</tr>
<tr>
<td>Stop Angle of Heel/Trim</td>
<td>1.0°</td>
</tr>
<tr>
<td>Quantity</td>
<td>4 sets</td>
</tr>
<tr>
<td>Design Water Depth</td>
<td>50.0 m</td>
</tr>
<tr>
<td>Power</td>
<td>690V/50Hz/3P</td>
</tr>
</tbody>
</table>

Hydraulic pin-hole continuous type jacking system consists of jacking mechanisms, hydraulic power unit and electrical control system.
New Wind Turbine Installation Vessel– Design Criteria (1)

(1) Transit Condition-Field Move
- VDL（include DECK VDL 3200t） 5000t
- Significant wave height 4.0m
- Wave period 9.5s
- Surface current velocity 1.03m/s
- Wind velocity <36m/s

(2) Unrestricted Transit
- VDL（include DECK VDL 1000t） 5000t
- Significant wave height 6.0m
- Wave period 10.5s
- Surface current velocity 1.03m/s
- Wind velocity <51.5 m/s

(3) Jacking & Preloading
- Water depth 52.5m
- VDL5000t（include DECK VDL 3200t）
- Max. wave height <4.0m
- Wave period 5～7s
- Surface current velocity 1.03m/s
- Wind velocity <13.8m/s

(4) Elevated Condition(Crane Non-operating)
- Water depth 52.5m
- VDL5000t（include DECK VDL 3200t）
- Max. Wave height 10.0m
- Wave period 8～10.5s
- Air gap 8.0s
- Surface current velocity 1.5m/s
- Wind velocity 36m/s
- Leg penetration 3.5m
New Wind Turbine Installation Vessel– Design Criteria (2)

(5) Elevated Condition (crane Operating)
- Water depth 52.5m
- VDL 5000t (include DECK VDL 3200t)
- Max. Wave Height 5.58m
- Wave Period 6~8s
- Air Gap 6.0s
- Surface Current Velocity 1m/S
- Wind Velocity 17.1m/S
- Leg Penetration 3.5m

(6) Floating Crane Condition
- DECK VDL 1000t
- Max. Wave height 4.0m
- Wave period 5~7s
- Surface current velocity 1.03m/s
- Wind velocity 13.8m/s

(7) Survival Condition
- Water depth 50m
- VDL (include DECK VDL 1000t) 2000t
- Max. Wave height 15m
- Wave period 9.5~13s
- Air gap 11m
- Surface current velocity 2.0m/s
- Wind velocity 51.5m/s
- Leg penetration 3.5m

(8) DP condition
Significant Wave Height ≤3.0m
Surface Current Velocity 1.03m/S
Wind Velocity ≤13.8 M/S
Thank you for your attention!

Q & A