

# Lifting Offshore Wind

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# State-of-the-art Jack-up Installation Vessels Brave Tern and Bold Tern

## Classification and Rules

Vessel type: Gusto MSC NG-9000C-HPE  
Class: DNV +1A1, CLEAN DESIGN NAUT-OSV(A)  
OPP-F DYNPOS-AUTR EO HELDK  
Delivery: 2012 / 2013  
Yard: Lamprell PLC, Dubai  
Flag: Republic of Malta

## Principal Dimensions

Hull length o.a. [m]: 132  
Hull breadth mid [m]: 39  
Hull depth [m]: 9  
Minimum draft (light) [m]: 4 (+0.8 to spud can tip)  
Draft (jacking) [m]: 5.2 (+0.8-1.5 to spud can tip)

## Cargo Capacity

Max payload [t]: 6600  
Deck area [m<sup>2</sup>]: 3200  
Uniform deck loading [t/m<sup>2</sup>]: 5 - 10  
WTG topsides capacity (typical): 8x3.6 MW / 4x6.0 MW  
Jacket foundation capacity (typical): 3 (40m water depth)

## Propulsion, Manoeuvring and Positioning

Aft propulsion: 3 x 3800 kW Voith Schneider propellers  
Fwd manoeuvring: 3 x 1750kW Wärtsilä Lips tunnel thrusters  
Transit speed [knots]: 12  
Positioning: DP2

## Operational Limitations

Water depth range<sup>1</sup> [m]: 7.5 - 45  
Transit fully loaded: up to wave 3.5m Hs  
Jacking: up to wave 1.8m Hs

## Main Crane

Type and location: Gusto GLC-800-ED around aft port leg  
Main hook: 800 t at 24m outreach, 102m height over deck  
Auxiliary hook: 50t (certified for man-riding)  
Wind limit [m/s]: 16

## Power generation

4 diesel electric Wärtsilä generators:  
1 x 12v32 5760kW, 1 x 6L32 2880kW, 2 x 9L32 4230kW  
Harbor (emergency) generator: CAT 3512B 1400kW  
Output range: 60 Hz, 230-690V

<sup>1</sup> Dependent on soil conditions and site specific assessment.  
Leg length can be extended by 8m and water depth range adjusted accordingly.

## Jacking System

Type: MSC continuous hydraulic double-acting system  
Effective jacking capacity [t]: 5300 per leg  
Pre-loading capacity per leg [t]: 9000  
Holding capacity per leg [t]: 9000  
Jack-up lifting / lowering speed [m/min]: 0.4 / 0.5  
Leg handling speed [m/min]: 0.6

## Legs and Spudcans

Number & type: 4 cylindrical  
Diameter [m]: 4.5  
Length [m]: 78.4  
Max leg length below ship baseline [m]: 58  
Spudcan area [m<sup>2</sup>]: 106

## Safety Systems

Fire and safety systems: Compliant with DNV Offshore Standards, IMO MODU Code and SOLAS/SPS Code, North Sea Standard  
Fire & Gas detection: Shipwide integrated system with ESD  
Fire extinguishing: Fire ring main, Ultra Fog water mist system, deluge and sprinkler  
Life saving: 2x100% complement fully enclosed lifeboats and inflatable rafts  
MOB: high speed rescue boat + CrewFinder system

## Access

Helicopter deck D22m, 12.8t (CAP437)  
Gangway to foundation or quay  
Man-riding cranes

## Accommodation and Facilities

Total complement: 80 persons in 56 cabins  
Cabins equipped with en suite bathroom, Sat TV/video  
Client offices and workshop, fitness room, laundry, TV room, etc.

## Leg retrieval system (jetting)

Capacity: 50m<sup>3</sup>/h @ 30bar per pump  
Capacity: 150m<sup>3</sup>/h @ 10bar per pump

## Fuel consumption

Transit speed of 10 knots [t/24h]: 45  
Elevated, standby [t/24h]: 6  
Elevated, crane work [t/24h]: 8-11

## Deck Cranes

2 cranes of type 20t SWL, 27m max radius  
Certified for man-riding