



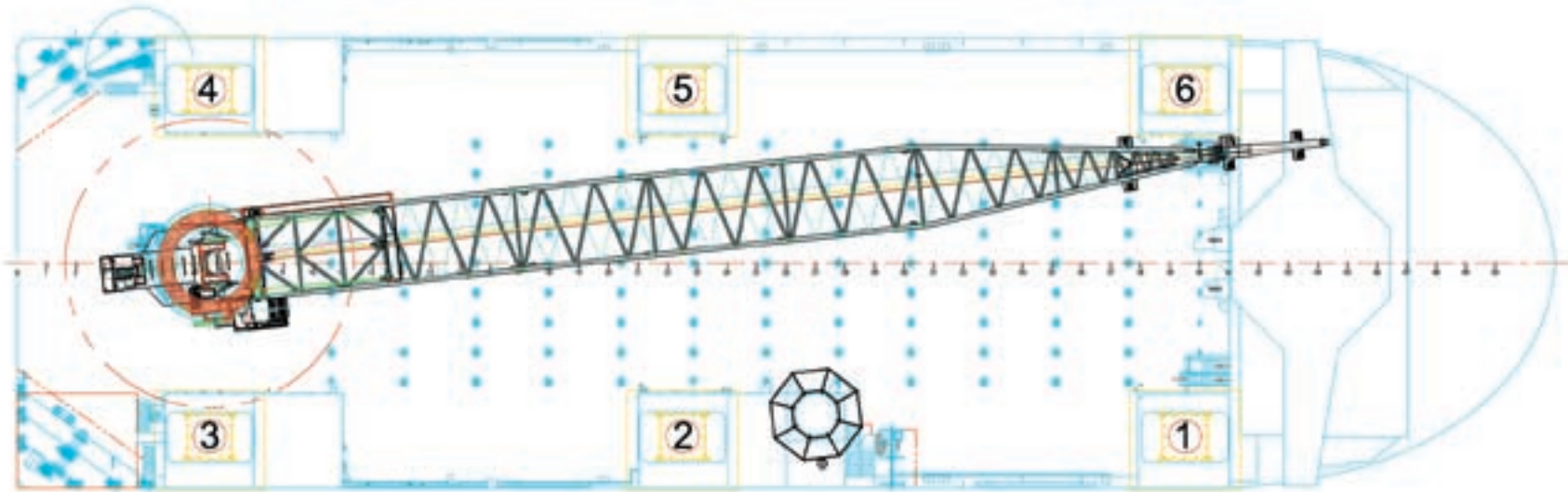
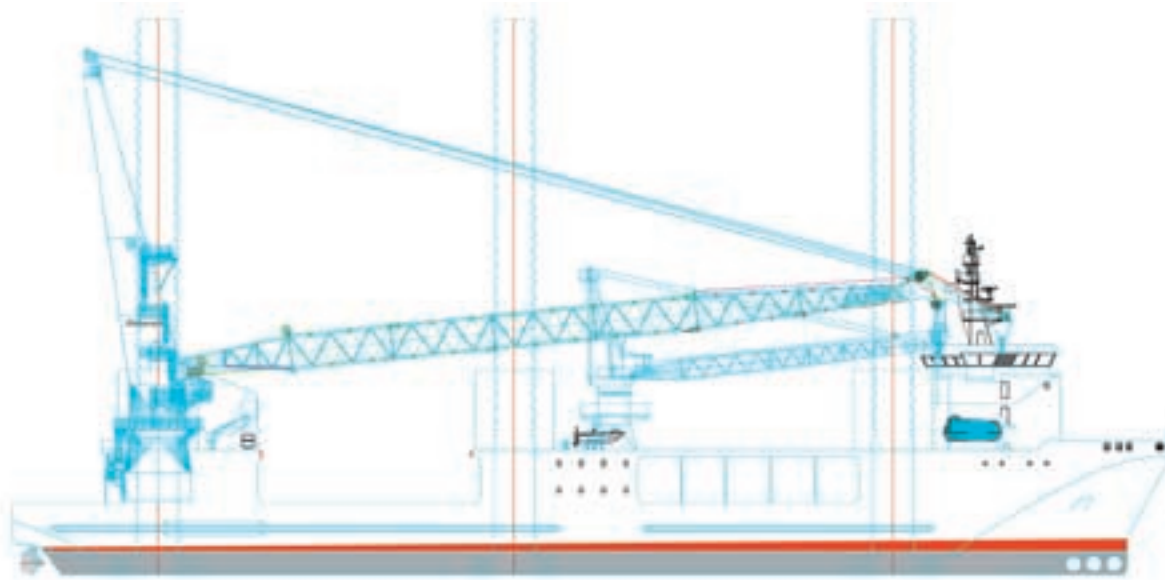
MPI Resolution

The world's first purpose-built vessel for installing offshore wind turbines, foundations and transition pieces.

The MPI Resolution is a unique combination of tested technologies applied in innovative ways to provide a single vessel installation solution for the offshore wind sector.

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Resolution is classed with Det Norske Veritas and has been given the following notation - 1A1 Self-elevating Support Unit CRANE EO DYNPOS-AUT. This reflects its self-elevating capability, its state of the art dynamic positioning system and 600 tonne and 50 tonne cranes.

The MPI Resolution has been specifically designed to overcome the challenges that defeat current installation practices and techniques – including limited operational weather windows, low capacity and dependence on high numbers of infield logistical support vessels. Capable of operating in water depths ranging from five metres to more than 35 metres, the vessel's state of the art dynamic positioning system holds it on location while the jacking system raises it to operational level to provide a safe, stable working platform that remains operational well beyond the limits of traditional weather windows.

With a large cargo capacity capable of carrying multiple WTG components and high performance main and ancillary cranes providing the lifting capacity, the MPI Resolution outperforms any other vessel currently installing off-shore wind turbine components.

The MPI Resolution is supported by first class project management and exacting quality control and safety standards to provide the optimum installation solution, on-time and to budget.

General Information

Classification	Det Norske Veritas: ✳ 1A1 Self-Elevating Offshore Support Unit Wind Turbine Installation Unit CRANE EO DYNPOS-AUT
Number of Jackup Legs	6
Flag State	Netherlands
Operating Area	Unrestricted
Endurance	60 Days (Maximum Speed) Minimum Crew (water reserves) 30 Days Maximum Crew
Lightship	9,352Te (inc. 76m legs = 9,772Te)
Draft	3.4m (minimum operational depth)
Overall Length	130.00m
Breadth (moulded)	38.00m
Depth (moulded)	8.00m

Cargo & Accommodation Capacity

Maximum Deadweight	10,968Te (4,875Te @ 4.3md)
Maximum Cargo Area	3,200m ²
Maximum Deck Loading	10.00Te/m ² (Areas of 20Te/m ² and 10Te/m ²)
Forklift	50.00Te (Shaft load)
Main Crane	Main Hoist 600Te @ 25m radius (Jacked up Fixed to Fixed) Aux Hoist 30Te @ 92.5m (Jacked up)
Auxiliary Crane	50Te @ 35.0m radius
Accommodation	70 Berths
Utilities	Client Offices, Conference Room, Recreation/Reading Rooms, Coffee Shop, Galley, Mess, Gymnasium, Sauna, Laundry/Drying Room, M/F Changing Rooms

Operating Conditions

Service	Unrestricted (as per DNV rules)
Jacking Operations	3.0m Hmax / 15.3m/s wind
Jacked Survival	10.0m Hmax /36.1m/s wind
Maximum Operating Depth*	25-35m (depending on leg configuration) *At 5.0m leg penetration and 7.8m Air Gap
Maximum Operating Draft	4.3m
Crane Operations	16.0m/s wind speed (for 50Te crane) 20.0m/s wind speed (for 600Te crane)

Performance

Transit Speed	11 Knots
Maximum Jacking Speed	0.5m/min
Maximum Jacking Load	2,850Te/Leg
Maximum Jack Holding	5,700Te/Leg



Operating Capabilities

Accommodation

Resolution provides accommodation and excellent rest/relaxation facilities for up to 40 construction installation personnel, in addition to its 30-strong regular crew, during the installation process.

Jacking System

Conversion of the Resolution from a vessel to a stable working platform is achieved quickly and efficiently by the application of two classleading technologies.

It is manoeuvred into position by its Kongsberg Simrad SDP-11 dynamic positioning system, then 48 largesized hydraulic cylinders allow the 130-metre vessel to be jacked clear of the water at a rate of 0.5 metre/minute.

Accommodation

Maximum berths	70
Double Cabins	21
Single Cabins	28
Maximum Endurance	30 days (with full complement)
Other Facilities	Five Offices Hospital Conference Room Coffee Shop Male and Female Locker Rooms/WCs Galley & Stores Laundry Mess Room Gymnasium

Dynamic Positioning. Kongsberg Simrad SDP-11

Dual Operator Station	
Dual Controller	
Independent Joystick	(3 Remotes)
Reference Systems:	3 Gyro Compasses 2 MRUs 3 Wind Sensors 2 DGPS 1 Fanbeam

Jacking System. IHC Gusto Hydraulic

6 x 71.8m legs	
Powered by Gusto's patented double cylinder jacking system	
Lifting Speed	30m/h
Jacking Capacity	2,850Te/leg
Pre-drive Capacity	4,440Te/leg
Holding Capacity	5,700Te/leg

Jacking

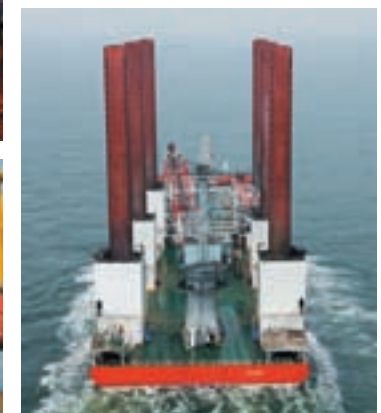
Working Operational Limitations

Maximum Water Depth*†	35.00m	All limits concurrent
Maximum Wave Height	3.00m (@ 2.8 degree HDG)	
Associated Period	18.00s	
Wind Speed	15.30m/s	
Current Speed - Tidal	1.00m/s	
Current Speed - Wind	0.26m/s	

Survival (Jacked) - Operational Limitations

Maximum Water Depth	35.00m	All limits concurrent
Maximum Wave Height	10.00m	
Associated Period	18.00s	
Current Speed - Tidal	1.00m/s	
Current Speed - Wind	0.61m/s	
Wind Speed	36.1m/s	

* At 5.0m leg penetration and maximum survival air gap † Normally 25m, 35m with optional extensions fitted



Crane & Curves

Main Crane Huisman 600Mt Pedestal Mounted

Both cranes selected for the MPI Resolution are of an offshore design capable of operating in wind speeds up to 20 metres/second – well above the design parameters laid out in offshore turbine erection procedures.

The MPI Resolution's self-jacking capability raises the 130 metre x 38 metre vessel out of the water to provide a stable working platform.

The main 600 Tonne crane provides the capacity (reach and radius) that is necessary to place a complete wind turbine generator to hub height over 100 metres above sea level.

By utilising a combination of the main crane hoist, main fly hoist and the two cranemounted winches, it is possible to increase the stability of the lifted load in higher wind speeds up to the maximum crane capacity.

Main Hoist 600Mt @ 25m (Jacked up Fixed to Fixed)
45Te @ 83.0m

Auxiliary Hoist 30Mt @ 92.5m (Jacked up)
Certified for man riding up to 3t

Auxiliary Crane Kenz EHC 50/3500 0.5

Main Hoist 50Te @ 35.0m

