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# Mayflower Resolution - Wind Turbine Installation Vessel

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## Key Data

Overall length	130.5m
Breadth (moulded)	38.00m
Depth (moulded)	8.00m
Capacity	10 x 3.5MW offshore wind turbines
Maximum payload	8,950 Te
Maximum cargo area	3,200m <sup>2</sup>
Maximum deck loading	10.00 Te/m <sup>2</sup>

## Full specifications

The Mayflower Resolution has been designed to install wind turbines in hostile coastal environments. It was constructed in China's Shanhaiguan shipyard at Qinhuangdao.

As soon as the six-leg vessel arrives at the installation site, it is manoeuvred into place using dynamic positioning and jacked clear of the water, turning the ship into a stable working platform.



The Mayflower Resolution has an overall length of 130.5m, a moulded breadth of 38m and a moulded depth of 8m. It has a lightship displacement of 12,300t at a 2.89m draught and an 8,950t displacement at a 5m draught. It registers 14,547gt. The ship has an 8,950t maximum payload and a 3,200m<sup>2</sup> maximum cargo area which can withstand loading of 10t/m<sup>2</sup>.

The vessel's ballast capacity is 8,832m<sup>3</sup> in 13 tanks. The system has a pair of two-speed ballast pumps of 1,000m<sup>3</sup>/h capacity.

## DECK MACHINERY

The Mayflower Resolution employs a cylinder type jacking system with each leg handled by four primary and four secondary cylinders. These are retained in position by catch beams which are housed in catch beam rings attached to the jacking cylinders. The system elevating capacity is 2,500t per leg and holding capacity is 5,000t per leg.

The vessel is equipped with one Kenz EHC 300 / 5500 O.S. pedestal-mounted rope-luffing electric hydraulic offshore crane of 300t capacity at 25.5m radius and 50t at 78m radius. The other crane's capacity is 50t up to maximum radius of 35m.

## VESSEL POWER

Vessel power is supplied from two sets of two Mitsubishi S16R-MPTK-2 main generators, with a capacity of 1,920kW at 1,800rpm, and two Mitsubishi S6R-MPTA harbour generators



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The Mayflower Resolution was constructed in China's Shanhaiguan shipyard at Qinhuangdao.



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The Mayflower Resolution has been designed to install wind turbines in hostile coastal environments.



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The six-leg vessel can be jacked clear of the water, turning it into a stable working platform.



1,800rpm, and two Mitsubishi 30B-MPTA harbour generators (276kW at 1,800rpm) located in each of two engine rooms, port and starboard. One Mitsubishi 6D24TC emergency generator, which supplies 210kW at 1,800rpm, is located in a separate room in way of No.2 leg. Power distribution is via two switchboard rooms, port and starboard. Main power is 690V AC which is transformed to 440V AC and 220V AC for auxiliary machinery and small power consumers.

## PROPULSION AND STEERING

The vessel is equipped with four azimuthing thrusters for propulsion and steering. It has four Aquamaster US 205 / 3850Azimuth thrusters units with a capacity of 1,500kW. These use ABB AMA4xxLxL units at 1,800rpm as the main motors. There are also three 700kW Kamewa TT1650 CP bow thrusters based on ABB AMA400L6L motors.

## NAVIGATION, COMMUNICATIONS AND CONTROL

The Mayflower Resolution is equipped with a class compliant dynamic positioning control system. This is a Kongsberg Simrad SDP 11 unit using Fanbeam laser, DGPS. Environmental monitoring is by three gyrocompass units, dual pitch and roll sensors and dual wind sensor units. Additionally there is an independent joystick control system to control the vessel operation in the event of DP system malfunction.

The ship is also equipped with an Ulstein Marine Automation System (UMAS) for monitoring and control of the vessel's operational functions. The UMAS is linked to the bilge, ballast, fuel oil and cooling water, diesel generators, high voltage switchboards and thruster monitoring systems.

The Mayflower Resolution is equipped with class compliant communication and navigation systems for worldwide operation. Equipment installed includes dual radar systems, Jotron GMDSS HF/MF and VHF systems, Inmarsat-B and Inmarsat-C communication systems, an independent Sperry Marine autopilot system, Sperry Marine echo sounder and Litton water speed doppler log unit. Vessel position is constantly confirmed by two independent global positioning systems. Weather forecast data is obtained by weather fax and Furuno Navtex reports.

## CREW AND NOTATION

The Mayflower Resolution has a regular crew of 34. With the addition of the erection team, the vessel will hold between 60 and 70 people during turbine installations. It is registered with DNV under the notation class +1A1, Self-Elevating Unit, Crane, Dynpos AUT, E0.



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Image

The Mayflower Resolution during installation of turbines at the North Hoyle offshore wind farm.



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Image

There are two cranes on the Mayflower Resolution.



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Capacity	10 x 3.5MW offshore wind turbines
Maximum payload	8,950 Te
Maximum cargo area	3,200m <sup>2</sup>
Maximum deck loading	10.00 Te/m <sup>2</sup>
Forklift	50 Te
Lightship displacement	12,300 Te @ 2.89m draft
Deadweight (calculated)	8,950 Te @ 5.00m draft
Estimated Gross Registered Tonnage (GRT/GT)	14,547 Te
Estimated Net Registered Tonnage (NRT/NT)	4,364 Te
Air draft @ 2.89m draft	68.94m
Air draft @ 2.89m draft	39.82m (minimum leg length)
Air draft @ 5.00m draft	66.83m (71.83m leg length)
Air draft @ 5.00m draft	37.71m (minimum leg length)
Azimuth thruster units	4 x Aquamaster US 205 / 3850, 1,500kW
Main motor for azimuth thrusters	4 x ABB AMA4xxLxL, 1,500kW @ 1,800rpm
Dynamic positioning unit	Kongsberg Simrad SDP 11 with integrated independent joystick
DP reference systems	Fanbeam laser, DGPS
DP environmental monitoring	2 x gyro systems, 2 x pitch and roll sensors, 2 x wind sensors
Main diesel generator set	4 x Mitsubishi S16R-MPTK-2, 1,920kW @ 1,800rpm
Harbour diesel generator set	2 x Mitsubishi S6B-MPTA, 276kW @ 1,800rpm
Emergency diesel generator set	1 x Mitsubishi 6D24TC, 210kW @ 1,800rpm
Bow thruster unit	3 x Kamewa TT1650 CP, 700kW
Main motor for bow thrusters	3 x ABB AMA400L6L, 700kW @ 1,770rpm
Soft starter for bow thrusters	3 x Solcon RVS-DN820, 900kW
Bow thruster hydraulic unit	3 x Kamewa TT165060, 110 litre, 2.5kW
Sewage treatment plant	1 x Hamworthy 98011216
Sewage discharge pump	1 x Desmi HK50-2-120

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The Mayflower Resolution during installation of turbines at the North Hoyle offshore wind farm.

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There are two cranes on the Mayflower Resolution.

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