PRODUCT BROCHURE

OFFSHORE WIND CRANES

Huisman

Equipped for impact

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We are Huisman. We design, manufacture and service heavy construction equipment for the world's leading companies in the renewable energy, oil and gas, civil, naval and entertainment markets. Our products range from Cranes, Pipelay Equipment, Drilling Equipment and Winches, to Vessel Designs and Specials.

The history of Huisman is one of setting new industry standards. Of making impact, since 1929. With step changing technical solutions that vary from stand-alone to highly engineered integrated systems. From concept to installation and lifetime support.

In these times of transition, our passionate workforce and worldwide production, service & sales facilities make us equipped for impact.

Active in 6 Markets

- Oil and gas
- Offshore wind
- Geothermal energy
- Civil works
- Salvage
- Leisure

People

2500+ employees worldwide

Track record

Operating from **7** locations

203 vessels are equipped with our products

LEG ENCIRCLING CRANES

WORLD'S LARGEST

TRENDS

Huisman developed an innovative Leg Encircling Crane range for the installation of increasingly larger offshore wind turbines and turbine foundations.

As offshore wind is still fighting a battle to reduce costs and become a competitive source of energy, wind turbines keep on increasing in size to reap the benefits of economies of scale and increase efficiency.

From a contractor's perspective, this trend requires larger cranes in both lifting capacity and available hook height. As weight efficiency is highly important for jack-up vessels, a lightweight crane is paramount to achieve the most efficient installation vessel design possible. For high-capacity cranes, it is beneficial to build the crane around one of the jack-up legs. A so-called Leg Encircling Crane has a relatively low own weight, it optimally transfers forces into the vessel structure and optimizes the available deck space. Also, Huisman's Leg Encircling Crane features a very small tailswing, further optimising free deck space.

LIGHTWEIGHT DESIGN

To achieve an own weight that is approximately equal or less than its lifting capacity, Huisman utilizes a design philosophy that has proven its value in the offshore oil and gas industry. By using high grade steel, a low construction weight is achieved allowing an increased remaining payload on the jack-up vessel compared to conventional leg encircling cranes.

In addition, Huisman is one of few companies worldwide to have the experience to successfully construct large diameter slew bearings. By applying Huisman's segmented slew bearing, the overturning moment is transferred into the vessel structure in a highly homogeneous way. This allows further reduction of the steel structure as peak forces are omitted.

OPTIMISED FREE DECK SPACE

Jack-up vessels use their deck to transport wind turbine components. Increasing the available deck space increases the number of components that can be transported at once, reducing installation costs by reducing the number of harbour calls that the vessel must make.

The Huisman Leg Encircling Crane optimises the free deck space by integrating the crane with the jack-up leg structure. Furthermore, the design focuses on reducing the tail swing of the crane as much as possible. For example, the 1,500mt Leg Encircling Crane has a required leg opening of 11m and a tail swing of only 14.5m at operator cabin level.
In order to allow storage of the boom over the forward leg, the Leg Encircling Crane can be outfitted with Huisman's parallel boom to further optimise the available deck space. Huisman recently was awarded the contract for delivery of a new crane for Van Oord's Aeolus.

ELECTRIC DRIVE SYSTEM

For large capacity heavy lift cranes, Huisman maintains a philosophy of applying a fully electric drive system.
The lessons learned in the offshore oil and gas industry also apply in the heavy lift wind turbine installation industry. Electric drive systems are very maintenance friendly as they are easier to maintain, and maintenance costs are significantly lower.
Also, electric drive systems are much more energy efficient than hydraulic systems. This reduces the required vessel grid size and limits power usage during operation. In addition, as a significant portion of the drive system is installed outside, the omission of a hydraulic system removes the risk on oil spills.
It is evident that cranes used for installing a source of renewable energy must limit their ecological footprint as much as possible.

PEDESTAL MOUNTED CRANES

FOR WIND TURBINE INSTALLATION

With a track record of over 100 deliveries, Huisman is a renowned supplier of high end Pedestal Mounted Cranes. Huisman's philosophy focuses on weight reduction, tail swing reduction and the reduction of operational expenses.

LIGHTWEIGHT DESIGN

Huisman's Pedestal Mounted Cranes are designed to be as lightweight as possible to maximise the payload of a jack-up vessel. Generally speaking, Huisman's Pedastal Mounted Cranes weigh less than their lifting capacity due to the use of high grade steel and an intelligent design.

230mt installation, maintenance and repair Pedestal Mounted Crane

AND MAINTENANCE

OPTIMISED FREE DECK SPACE

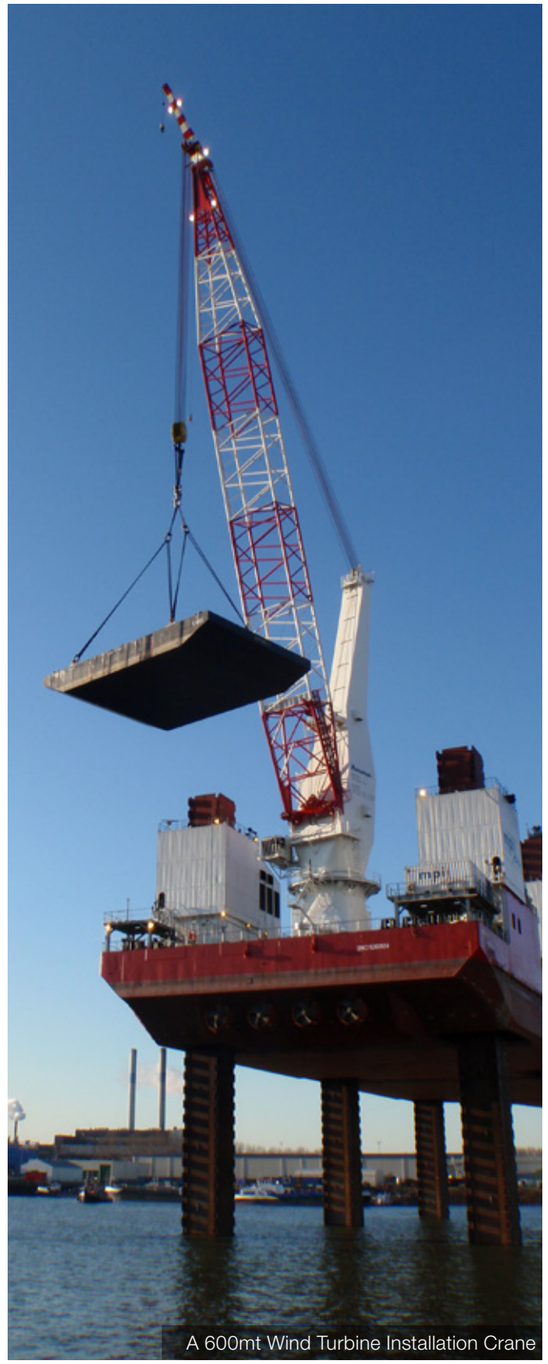
For cranes up to 1000mt, a jack-up vessel's leg aperture is relatively large compared to the slew bearing diameter required for that lifting capacity. Therefore, for lifting capacities up to 800mt it is efficient to install a Pedestal Mounted Crane instead of a Leg Encircling Crane.

For Pedestal Mounted Cranes, the remaining free deck space is equally important. Therefore, Huisman's Pedestal Mounted Cranes are designed such that winches are installed inside the closed crane house, therefore allowing for a very small tail swing. This allows the crane to be installed in close proximity of the jack-up leg to fully utilise the remaining deck space.

An additional advantage of installing the drive system inside the closed crane house is that the crane house protects the system including the winches and wire rope from the harsh marine environment.

A 600mt Wind Turbine Installation Crane

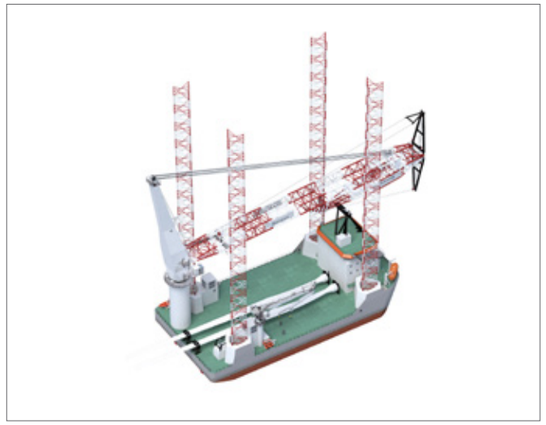
Penta Ocean 800mt Pedestal Mounted Crane



A 600mt Wind Turbine Installation Crane

SPECIAL PROJECTS

FOR THE WIND TURBINE INSTALLATION



Besides our standard product portfolio, Huisman envisages to develop and build mission equipment for our clients' special needs.

FOLDABLE OFFSHORE CRANE

Huisman's Foldable Offshore Crane is designed specifically for Operations and Maintenance (O&M) works on offshore wind turbines. It allows operators to do maintenance work at 150m above deck, which is sufficient to service 10MW wind turbines. The major advantage of this crane is that due to its foldable boom, the crane can easily be integrated in small – and cost efficient – jack-up vessels. Therefore reducing costs for offshore maintenance. In addition, the geometry of the boom allows for a very low construction weight.

The Foldable Offshore Crane is available in various sizes and can be adapted and finetuned to your specific requirements. For example, the crane can be built as Leg Encircling Crane as well as a Pedestal Mounted Crane.

KEY FEATURES FOLDABLE OFFSHORE CRANE

- Small footprint during transit
- Extremely high lifting height
- Low own-weight compared to lifting height
- Simple structure, no heavy telescopic booms
- Leg Encircling or Pedestal Mounted
- Fully electric with frequency controlled drives

WIND TURBINE SHUTTLE

To improve efficiency of offshore wind turbine installation and to allow for increasing economies of scale, Huisman developed the Wind Turbine Shuttle: a dynamically positioned, fast sailing wind turbine installation vessel. The vessel can carry and install two fully assembled wind turbines. By combining low vessel motions, compensating systems and an accurate dynamic positioning system, the wind turbine is kept stationary in relation to the fixed foundation during installation.

INDUSTRY

KEY FEATURES WIND TURBINE SHUTTLE:

- At least 80% workability in annual North Sea conditions
- High transit speed and DP3
- Can transport two fully commissioned wind turbines
- Capable of installing and decommissioning a variety of offshore structures
- LNG fuel ready

SUPER FLY-JIB

For Heavy lift shipping contractor who strategize to expand their business by making their heavy lift cargo vessels suitable for a larger variety of offshore work, Huisman designs and delivers a broad range of tailor-fit solutions

One example is a super fly-jib for the 900mt cranes on board the 'Jumbo Javelin'. This super fly-jib gives the Huisman-built cranes an extended lifting height to allow for transition piece installation in the offshore wind industry.

BOSKALIFT 3,000MT

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