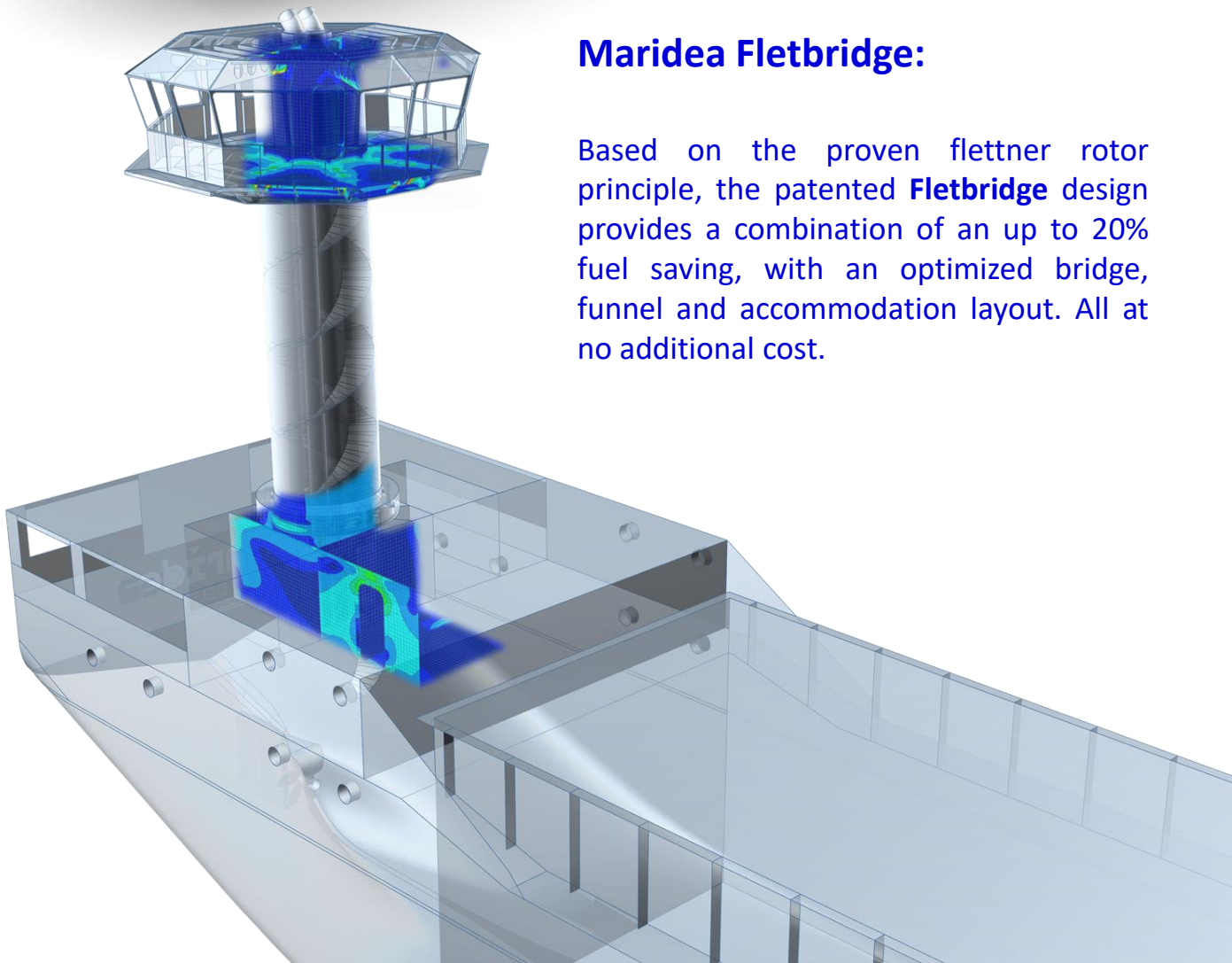




Maridea Fletbridge:

Based on the proven flettner rotor principle, the patented **Fletbridge** design provides a combination of an up to 20% fuel saving, with an optimized bridge, funnel and accommodation layout. All at no additional cost.



Save fuel and reduce your emissions

Wind is used to propel ships over thousands of years. Together with high oil-prices and desire for low freight rates, there is presently a focus on reduction of the ecological footprint of shipping. SO_x and NO_x emissions are already restricted and IMO aims for 50% CO_2 emission reduction by 2050. Given the long design life of ships, these developments imply risks for present new-build vessels.

Unlike environmental neutral combustion fuels such as H_2 and NH_3 , wind is way beyond the experimental phase. Flettner rotors are proven. The first rotorships were built in 1925 and multiple are currently operational. On top of that, wind is free of distribution networks and bunker facilities.

Application of hybrid wind propulsion makes your vessel and strategy more independent.

Efficient propulsion

Flettner rotors are very efficient. The rotary power is small compared to the thrust gain. Dependent of layout, wind and route, the Fletbridge provides at peaks 20% and on average 5% of the vessel thrust.

As all sails, the Fletbridge generates thrust and side forces. The location astern allows the rudder to compensate the side force. This avoids leeway of the vessel and the accompanying extra vessel resistance.

Maridea performed extensive CFD calculations to proof that the bridge does not disturb the flow around the rotor. It even showed that the bridge improves rotor efficiency similarly to commonly applied "Thom"-disks.

Combination with a diesel-direct solution is well possible, but the varying character of the rotor thrust makes diesel-electric configurations attractive as well.

Safe and robust

Flettner rotors are free of crew handling and complex supporting system; there is no hoisting or adjusting of the rotor as for common sails. This simplifies the controls, the rotor structure and integration. The Fletbridge is therefore very robust. Day-to-day operations can always continue independent of the rotor.

In case of an unsafe situation, the rotor is stopped by cutting-off the power supply to the rotary drive (manually or automated). This kills the lift force and reduces the drag, immediately returning the vessel to a safe situation.

Efficient layout and structure

The rotor is installed around the tubular bridge supporting structure. The large radial support of the rotor leads to a robust and easily accessible bearing. The tubular support is easily integrated in the hull, as is proven by in depth FEM analyses.

The tubular support is large enough to accommodate 2 staircases, exhaust lines, scrubbers, trunks and elevator on larger commercial ships or 2 spiral stairs trunks and exhaust lines for short sea shipping.

The design provides an economically attractive, efficient and easily constructible layout.

Do not hesitate to contact us

Maridea developed the Fletbridge and is happy to discuss any items like:

- Fuel saving
- Accommodation, bridge and rotor arrangements
- Structural analyses
- Motion analyses
- Safety aspects

For more information please contact Maridea:

email: info@maridea.nl

telephone: +31157370306

website: www.maridea.nl

