



# Wind Orca Monopile Gripper & HSD Deployment Frame

Full-service *from design to mobilization*  
in 9 months for Sandbank OWF







## Wind Orca

For the monopile foundation installation on the Sandbank Offshore Wind Farm project, Bilfinger rented Cadeler's jack-up vessel Wind Orca. TWD was selected as an engineering partner to deliver the full services, from design (e.g., a monopile gripper, a hydro sound damper [HSD] deployment frame, an upending hinge, and various sea fastening structures) to fabrication supervision on Wind Orca.

### Seafastenings and Upending Hinge

To fit all four foundations on deck, the monopile and transition piece seafastening were carefully designed to optimize the deck space and spread transit loads. We designed a multi-diameter stacked cradle that allowed 2 piles to be horizontally stacked, with the bottom pile still easily accessible. A friction interface was implemented, eliminating the need for additional fastening. Furthermore, we designed an upending hinge that supports 900-ton monopiles. Our design allowed the pile to be lifted from one end, positioning the pile quickly and safely from horizontal to vertical.



### Pile Gripper and HSD Deployment Frame

We created a simple and cost-effective monopile gripper design for Wind Orca. Among other operational requirements, an orientation system was integrated to allow the pile to be positioned and rotated accurately. The entire gripper was operated by a single person and inspected and measured with easy access. Moreover, we worked on the design of an HSD deployment frame for Wind Orca to mitigate noise during the installation. This design was tailored to meet the tight area around the gripper with an advanced folding mechanism and automated leveling system.

### Fabrication Service

Thanks to the lean design, our gripper, seafastening structures, HSD deployment frame, and upending hinge were easily manufactured and required minimal vessel modifications. Our fabrication engineers streamlined the procurement and construction processes alongside the design process. As a result, all items on Wind Orca were designed, fabricated, and ready for operation on the Sandbank OWF in only 9 months.

### Project highlights

- Monopile pile gripper with HSD Deployment System
- Entire gripper operated by a single person
- From project agreement to mobilization in 9 months

TWD  
+31 10 294 03 74  
www.twd.nl  
info@twd.nl

Rotterdam Science Tower  
Marconistraat 16  
3029 AK Rotterdam  
The Netherlands

