



# HLJV Innovation Tailored Monopile Gripper

A “*pendulum design*” monopile gripper  
with full design services





## HLJV Innovation

The Heavy Lift Jack-up Vessel [HLJV] Innovation is a dedicated offshore wind vessel from DEME that installs monopile foundations. To scale up the monopile installation capability of HLJV Innovation, DEME came to TWD with requests to design a tailored monopile gripper and the related installation equipment.

### “Pendulum Design” Monopile Gripper

We created a revolutionary “Pendulum Design” monopile gripper that holds the gripper ring suspended in tension rods. This resulted in a logical and optimal load path that allows the stiffness of the system to be maximized while keeping the



overall gripper weight down. The unique combination of gripper stiffness with the slenderness of the construction enabled DEME to maximize the useful payload on its jack-up. Our unique Pendulum Design increased the versatility and piling accuracy of HLJV Innovation.

### Full Design Services

Thanks to the multi-disciplinary expertise within TWD, we were able to help DEME with other tool designs beyond the customized monopile gripper. We also assisted DEME with designing the skidding seafastening and upending tool, the transition piece seafastening, the hammer, and the J-tube seafastening structure. HLJV Innovation was transformed to a monopile installation machine and was able to operate in multiple offshore wind farms (e.g., SeaMade) year-round.

### Project highlights

- Adjustable height between deck and keel level
- Fully inboard during transit
- Minimal deck space
- Highly efficient pile orientation mechanism
- High stiffness resulting in precise inclination adjustment

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