

Blue Star: How It Works



Hinged Raft WEC

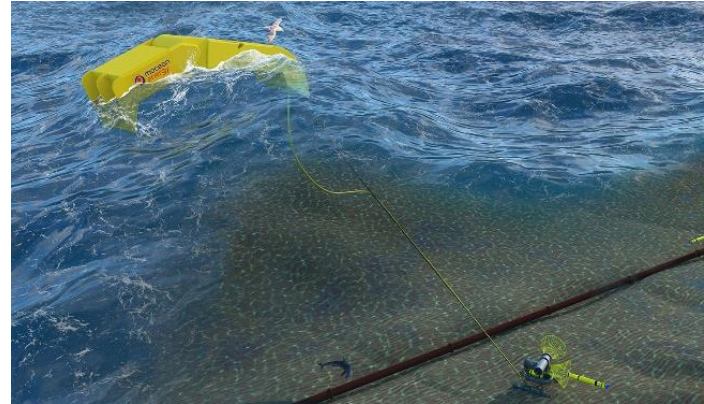
Blue Star is a hinged raft characterized by features called wave channels; sloped sections positioned at the end of each hull that enable 5 times more energy absorption than a traditional hinged raft. Wave forces cause rotation of the two hulls which drive a power-take-off system consisting of a magnetic gearbox and generator.



Specification

Power	50kWh average energy generation per day
Mass	17,800 kg
Dimensions	18.4 x 2.1 x 2.1 m (fits in shipping container)
Battery Storage	100 kWh onboard Expandable to 500 kWh with subsea batteries

Commercial Applications



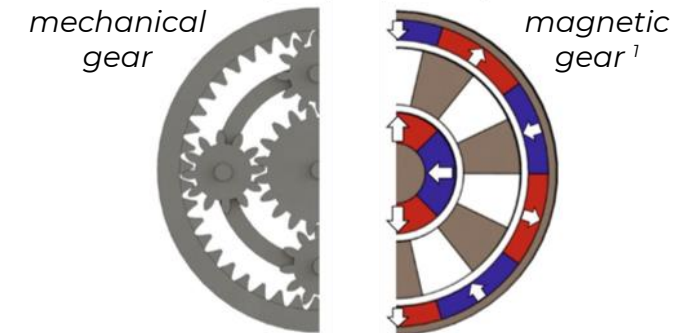
Residential UUVs offer the potential to revolutionize subsea inspection, repair and maintenance: reducing vessel time and increasing weather windows, saving money and improving health & safety. Field resident robots require power and communications which may not be readily available on site.

Solution

Blue Star can generate 50kWh average energy per day in the North Sea. Combined with subsea energy storage, this will ensure even large UUVs can be recharged every day.

Survivability

Survival and reliability in the harsh ocean environment are critical. The sloped forward nose of the WEC dives through steep waves shedding excess loads. Magnomatics'® magnetic gearbox can slip in response to large impulse loads, negating the risk of breaking teeth like a traditional gearbox.



Ease of Operation

Blue Star is compact enough to fit into a standard shipping container so that it is easy to build, transport, and store anywhere. A single combined mooring/ power/ comms cable to the subsea equipment further reduces cost and facilitates installation.

¹ Scheidler, J. (2018)