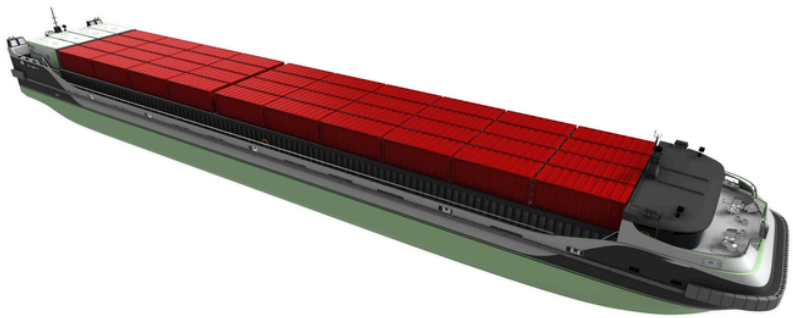
Serial Hybrid Barge

PM120HY-S

General Energies



The PM120HY-S is a Yangtze River and Sea Electric Container Ship with series hybrid propulsion, featuring two containerized power battery packs and two sets of generator units to extend its range.

This vessel has obtained principle approval from the China Classification Society (CCS). Its inland navigation speed is 7 knots, with a maximum sea speed of 10 knots. The total range includes 230 kilometers purely electric and extended by diesel generator units, reaching a total range of 3455 kilometers. Utilizing a battery swapping mode, two container batteries are placed at the rear of the ship on the open deck, allowing both onboard discharge and charging via generator units or shore-based DC fast charging stations.

The battery cells are lithium iron phosphate, managed by a Battery Management System (BMS) accessible via 4G communication. Charging time for the two container batteries is 4.5 hours. The vessel features an advanced fully rotatable contra-rotating propeller system as its main propulsion system, suitable for shallow-water navigation, offering flexible operation and a small turning radius. It is equipped with top-mounted permanent magnet motors controlled by dual water-cooled DC-AC inverters. The DC-LINK direct current grid cabinet operates with dual DC busbars in segments. The power systems on the port and starboard sides are each powered by two independent container batteries, featuring a liquid-cooled structure, built-in DC-DC converters, protective fuses, main switches, and an EMS controller. This vessel is a zero-carbon emissions and zero nitrogen oxide emissions ship. Compared to a 120 TEU fuel-powered container ship, it reduces carbon emissions by 109 tons per year, with a corresponding reduction rate of 43% for both nitrogen oxides and sulfur dioxide emissions.

DIMENSION

LOA (m)	80
Bridge H(m)	6.7
Beam (m)	12.6
Depth(m)	4.7
Draft (m)	3.0
Displacement (t)	2608

PERFORMANCE

Cruising Speed	7
Cruise Range	347
Maximum Speed	10
Crew (person)	8
Battery	2 ×1548kWh
Diesel Generator	2×300/400kW

PROPULSION SYSTEM

Parallel Hybrid Electric Propulsion System

Standard Version:

Diesel main engine + PTI/PTO Motor

2 x 160kW + 2 x 160kW

FEATURE

- Serial Hybrid
- Battery Swapping Mode
- Flexible Operation
- 43% Emission Reduction