Hybrid Tug

PM3660HY

General Energies

A hybrid propulsion escort tugboat is a type of tugboat that utilizes a combination of batteries and auxiliary variable-speed generator sets as electric motors to provide propulsion.

The electric motors are powered by batteries, which are charged using the tugboat's variable generators and/or shore power. This hybrid propulsion system offers several advantages, including emissions reduction, improved fuel efficiency, increased bollard pull, and maneuverability. Operating in pure electric mode, the tugboat emits zero emissions, which is crucial for achieving the goal of creating green ports.

With both hybrid fuel and battery power, the cruising range can reach up to 1000 nautical miles.

The ship's entire DC network, based on DC-Link, operates at a voltage of DC1000V, with a battery capacity of 1935 kWh@ESS. Charging via shore power takes just 1 hour, with a reduction in carbon/nitrogen oxides/sulfur emissions by 23%.

Moreover, the electric motors provide instant torque, enabling the tugboat to respond quickly in emergencies and provide better maneuverability during escort missions. The hybrid propulsion system also allows the tugboat to operate at lower speeds, reducing engine fuel consumption, wear, and noise.

DIMENSION

LOA (m)	36
LWL (m)	34.8
B max (m)	13.6
Draft (m)	4.9
Displacement (t)	1450

PERFORMANCE

Fix Point BP (t)	63
Cruising Speed (knots)	13
Cruising Range(Nm)	1000
Crew (person)	8
Battery	1935 kWh@ ESS
charge	1h@690VAC charger

PROPULSION SYSTEM

Serial Hybrid Propulsion

Variable-speed Diesel Generator Sets

2 x 1400kW/690V @1800RPM

Rotary Screw Propeller + Propulsion Motor

2 x 1860kW

DC and AC Distribution Panel

DC1000V & AC400V

FEATURE

- Modern Design
- Hybrid Propulsion
- Rapid Response
- Reducing Emission