

## **12.7 m Hydrofoil Electric Harbour Craft**



**U**ltra-light carbon fiber hull with full battery driving

**H**igher service speed of 20 knots with little wake in foiling

**L**onger range of 50 nautical miles at service speed

**S**moother ride experiences with automatic flight control

**L**ower Total Cost of Ownership with less energy consumption

## Specifications of 12.7 m Hydrofoil e-HC

### Performance

Maximum speed	25 knots
Operating/service speed	20 knots
Range*	50 nm

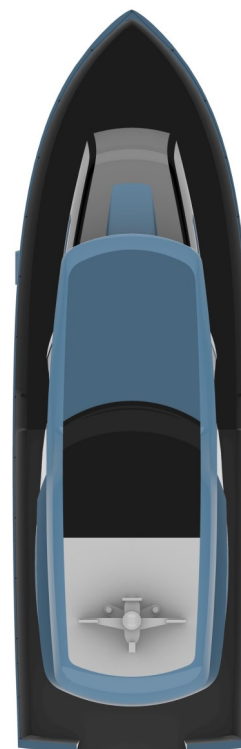
### Propulsion system

Type of propulsion system	Customized electric inboard system
Make of propulsion system	CAEV
Propulsion power	340 kW

### Energy system

Battery capacity	653 kWh
Battery weight	5300 kg
Type of battery chemistry	LFP
Type of battery cells	Pouch
Type of battery system design	Rack
Battery lifetime	6000 cycles @ 80% SOH
Charging power	2x125 kW / 1000 VDC

\*The operation profile for the hydrofoil e-HC could be specified as 20 knots high-speed foiling for 2.5 hours plus loitering for 3.5 hours, while the total range is 50 nautical miles .



### General

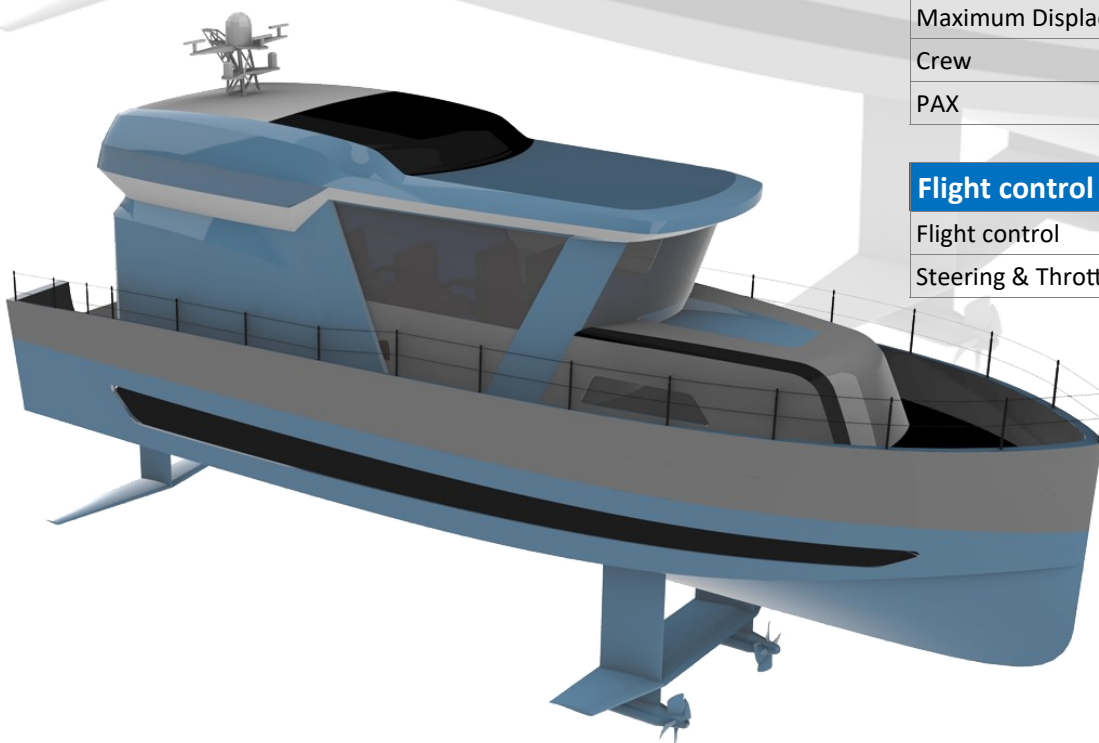
Basic function	Type 1 Craft
Hull type	Monohull with hydrofoils
Hull material	Carbon fiber
Superstructure material	Carbon fiber

### Dimensions

Length moulded	12.70 m
Beam moulded	4.05 m
Draught (max)	2.20 m
Gross tonnage	25.20
Lightweight Displacement	14.00 t
Maximum Displacement	15.50 t
Crew	2 seats
PAX	12 seats

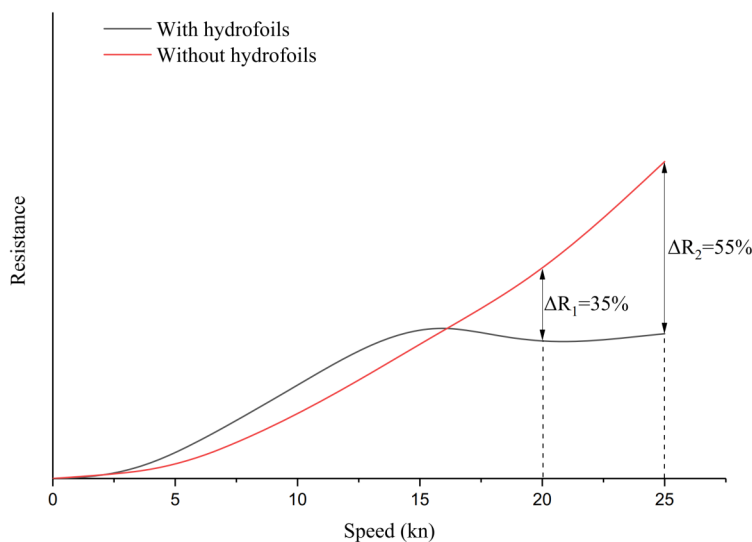
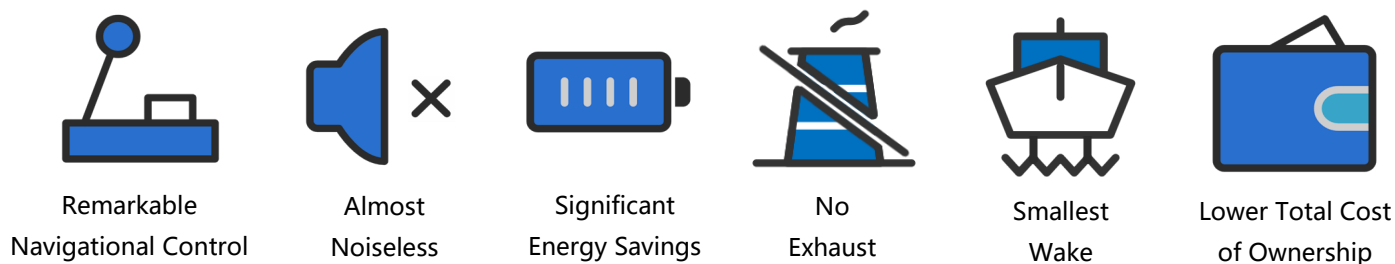
### Flight control system

Flight control	Autonomous
Steering & Throttle	Autonomous / Manual



## Advantages of Hydrofoil e-HC

For an electric boat, the resistance performance is critical to the energy consumption and operation capability in terms of range and duration. Hydrofoils thus become a hot topic in conjunction with electric propulsion. They act like wings underwater, producing a lift force analogous to that on an aircraft wing. This lift force pushes the boat hull out of the water, greatly reduces resistance, and allows the boat to achieve higher speed with much less energy. The recent advances in carbon fiber composite materials, especially in their strength to stiffness ratio, also increase the popularity of the hydrofoils. Obviously, the hydrofoil electric boats could achieve much better performance than that of conventional boats, and will occupy the high-end position in green boats market.



The hydrofoil e-HC could reduce the resistance by 35% at service speed 20 knots and 55% at maximum speed 25 knots respectively, compared to the same hull shape without hydrofoils.



## Profile of Participant



**Contemporary Amperex Electric Vessel Technology Co. Ltd.**  
**Contemporary Amperex Technology Co. Ltd.**



The leading company CAEV is committed to developing core powertrain products for electric ships, including marine battery system, electric drive system, and electric control system. As a wholly-owned subsidiary of CATL, which ranked No. 1 globally in EV battery consumption volume since 2017, CAEV could rely on CATL's leading power battery technology to ensure true safety in both cell level and system level for marine battery application. There are more than 200 electric or hybrid vessels powered by CAEV & CATL battery system and certified by China Classification Society (CCS).

The partner company CATL is a global leader of lithium-ion battery technology, specializing in the application fields of electric vehicles (EV), energy storage systems (ESS), and electric ships.



□ Passenger ship - Pearl River Prince

**The electric passenger ship with the largest power / passenger capacity on the Pearl River**



□ Passenger ship - Da Wan Qu Yi Hao(Hybrid)

**Tribute to the 40th anniversary of Shenzhen's reform and opening-up**



□ Passenger ship - Yangtze River Sanxia 1 Hao

**The world's largest pure electric river passenger ship(7,500KWh)**

Typical Electric or Hybrid Vessels Powered by CAEV & CATL Battery System



广东中威复合材料有限公司

**Guangdong SINOWAY Composite Materials Co. Ltd.**  
**YUET HING Marine Supplies Co. Ltd.**

The partner company Sinoway is currently the only shipyard capable of building large carbon fiber vessels in mainland China. Sinoway occupies about 14,000m<sup>2</sup> land in Guangzhou, including 8,500m<sup>2</sup> plant area and 400-meter-long shoreline pier. The maximum annual production capacity is about eight 40-meter-long carbon fiber vessels.

The partner company Yuet Hing is a brother company to Sinoway, and will act as the capital guarantor to provide guarantee for the stable progress of the project. Both Yuet Hing and Sinoway are the wholly-owned subsidiaries of Chu Kong Shipping Enterprises (Group) Co., Ltd (CKS), which is one of the famous listed companies of Shipping and Marine industry in Hong Kong area.

Sinoway derives its technology from Brødrene Aa As (BrAa), a Norwegian company founded in 1947 as the world's first shipyard to build large carbon fiber vessels. As BrAa's manufacturer in Asia, Sinoway has the qualification and ability to independently design, build, sell and maintain carbon fiber vessels, based on the technical resources from BrAa and the financial resources from CKS.



**Seastel Marine System (Shanghai) Co. Ltd.**

The partner company Seastel conducts R&D, manufacture, consulting and engineering services in dynamic positioning system, motion stabilizing system, smart shipping system, wind farm O&M system, and other marine intelligent systems. The product SEATEL-DP1 was certified by China Classification Society (CCS) in 2018 as qualified Dynamic Positioning Control System.

Similar to the DP system, the hydrofoil is another type of marine products based on the combined knowledge of hydrodynamics and control theory. Seastel has strong capability and expertise in development of hydrofoil system.



Certificate of Type Approval for SEATEL-DP1