



Chase Zero

Hydrogen Powered Performance and HPiVS

HPi-CEproof NZ Limited (HPi-CEproof), part of HPi Verification Services (HPiVS), was approached by McConaghy Sales Limited and Team New Zealand to assess and provide 'statements of conformity' for their latest project: H2 Chase boats for the 37th America's Cup. The America's Cup is centred around sharing of new Hydrogen technological advancements led by Emirates Team New Zealand, the Defender of the 37th America's Cup and their innovative developments of 'Chase Zero' the hydrogen powered foiling chase boat. This is a key milestone to boost the use of this sustainable zero emissions source of energy in the marine industry.

The Hydrogen powered, 13m Chase Zero boat, designed for AC37 VIPs, high-speed transfer, race spectating, and race support. With a top speed of 50 knots. We are uniquely equipped with the knowledge and experience needed to evaluate the hydrogen system on the Chase boat.

In 2021, Team New Zealand built a prototype in New Zealand, which HPi-CEproof NZ inspected to gather the initial technical details.

Constructed from full carbon, Nomex, and structural foam, the 13m boat weighs 5,600kg, has a draft of 2.2 meters, and a beam of 4.5 meters. Each hull houses a Toyota hydrogen fuel cell delivering 80kW of power. The powertrain cooling system uses a seawater pick-up at the front of each foil-strut torpedo, with two pick-up pumps per hull. The port and starboard main foils are connected by a central wing foil spar, and the single rudder features an elevator with an adjustable rudder rake.

Hydrofoils are specifically excluded from the scope of the Recreational Craft Directive, and there are no other clear regulations at the moment, so compliance assessment is a challenge. HPiVS Verification Services is also a Notified Body for the Pressure Equipment Directive, providing the perfect combination of knowledge and experience to assess the hydrogen system. Through several meetings led by HPiVS Verification Services CEO, Alasdair Reay, the relevant requirements and procedures were finally agreed upon.

Negotiations and research were conducted with the Notified Body - HPi Verification Service Ireland and UK, led by CEO Alasdair Reay, to finalise the necessary requirements.

To achieve the goal outlined above, HPi-CEproof NZ Limited (HPi-CEproof) and HPiVS conducted a full review of the boat's systems, structure design, performance, and stability. All design plans and calculation were provided by McConaghy boat yard in Zhuhai, China.

HPi-CEproof NZ prepared the "Technical Construction File" and in cooperation with the HPiVS, the required essentials for Recreational Craft and Pressure equipment.

The hydrogen/fuel cell system for each boat was assembled in a mock-up in Christchurch, New Zealand and tested prior to delivery. Rolf Eidt, Managing Director HPi-CEproof NZ followed the test on site for a running system.

HPi-CEproof NZ Inspector and Naval Architect Georgi Yankov followed the technical execution on site in Zhuhai, China for the recreational part in cooperation with the Notified Body, QA Technical Director María García Donaíre.

In April 2024, the first H2 Chase boat was tested on the water in the presence of Georgi Yankov.

Contact us today to ensure full compliance with all regulations or to schedule inspections.