



## QE IV: Carbon fibre-built passenger tandem cat to handle a treacherous deep ocean route

Builder: ..... **Gold Coast Yachts, Inc**  
 Designer: ..... **Gold Coast Yachts, Inc / Warren Mosler**  
 Vessel's name ..... **QE IV**  
 Owner/operator ..... **Warren Mosler**  
 Country ..... **US**  
 Flag ..... **US**  
 Total number of sister ships  
 already completed ..... **0**  
 Total number of sister ships still on order ..... **1**  
 Contract date ..... **August 2015**  
 Delivery date ..... **August 2016**

Tasked with making daily trips across the 38nm of deep ocean that separate the Caribbean islands of St Croix and St Thomas in the US Virgin Islands, the passenger ferry *QE IV* is described by builder Gold Coast Yachts as having succeeded “where all predecessors had failed”.

Although a seemingly undaunting distance, the route between the islands is subject to extremely volatile sea conditions. Coupled with strong passenger demand, this has proven a challenge too much for the large conventional ferries, hydrofoils, sea planes and catamarans that have attempted to provide this service in the past. As Gold Coast Yachts puts it: “The prevailing wind and wave direction on the route places the vessel in a beam-on wave orientation for the majority of days in operation”.

*QE IV* was subsequently influenced by multihull vessel design, adapted to introduce a tandem-catamaran hull form so as to optimise fuel consumption whilst improving sea motion. Four hulls have been placed in a ‘2+2’ arrangement, with a large span between the forward and aft pairs, at the behest of owner Warren Mosler. Gold Coast Yachts adds: “By removing displacement from the centre, both transversely and longitudinally, the vessel has a reduced tendency to react to head and beam seas, as well as reducing wetted surface and hull weight.” This is not without its own challenges

– for instance, by grouping four hulls closely together, one encounters additional complexity in hull-wave interactions and cross structuring – but CFD and small-scale modelling lend credence to the concept overall.

To further reduce weight, *QE IV*'s components were fashioned from carbon fibre – resulting in an approximate vessel weight of just 14tonnes. “FEA was used to analyse the loading in the monocoque structure, which was then calibrated with measurements from strain gauges during sea trials,” Gold Coast Yachts explains.

For optimal passenger comfort, *QE IV* features round windows, two aft heads and six 4.4kW air-con units. The helm has been positioned forward for enhanced visibility in the wheelhouse, and to grant the captain “maximum experience of ship motion and accelerations”, so that the passengers are not adversely affected by sudden adjustments in vessel course and/or speed.

### TECHNICAL PARTICULARS

Length, oa ..... 31.45m  
 Length, bp ..... 29.98m  
 Breadth, moulded ..... 5.33m  
 Depth, moulded ..... 2.11m  
 Displacement ..... 22.8tonnes  
 Design, draught ..... 0.85m  
 Design, deadweight ..... 8.88tonnes  
 Lightweight ..... 13.95tonnes  
 Deck space (total) ..... 120m<sup>2</sup>  
 Service speed ..... 18knots  
 Max speed ..... 22knots  
 Range (nautical miles) ..... 300  
 Fuel consumption ..... 0.83tonnes / day  
 Classification society ..... N/A  
 Notations ..... N/A  
 Main engine(s)  
 Make ..... Cummins  
 Model ..... QSB6.7

Number ..... 2  
 Output of each ..... 279kW  
 Gearbox(es)  
 Make ..... ZF  
 Model ..... 280-1  
 Number ..... 2  
 Output ..... 1:1  
 Propeller(s)  
 Material ..... Stainless steel  
 Manufacturer ..... Konrad  
 Number ..... 4  
 Fixed/controllable pitch ..... Fixed  
 Special adaptations ..... Twin prop stern drives  
 Open or nozzled ..... Open  
 Alternators  
 Make ..... Cummins Onan 11.5MDKBM  
 Number ..... 2  
 Output of each set ..... 95.8A  
 Deck machinery ..... 6 x Dometic DuraSea 4.4kW AC units  
 Bridge electronics  
 Radar(s) ..... Simrad Broadband 4G  
 Autopilot ..... Simrad AC70  
 VHF/GMDSS ..... 2 x Simrad RS12 DCS  
 Displays ..... 2 x Simrad NSS12 evo2 Multifunction  
 AIS ..... Simrad NAIS-400  
 Gyro ..... 4" Danforth Constellation Compass  
 Chart plotter ..... Standard Horizon CP590  
 Engine monitoring system ..... SmartCraft VV7  
 Fire detection system ..... Fireboy MA2  
 Onboard capacities  
 Fuel oil ..... 1,900litres  
 Fresh water ..... 208litres  
 Waste water ..... 208litres  
 Complement  
 Crew ..... 3  
 Passengers ..... 70  
 Number of cabins ..... 1

