

**Your needs . . .**



**. . . our tailored solutions  
delivering reliability and peace of mind**

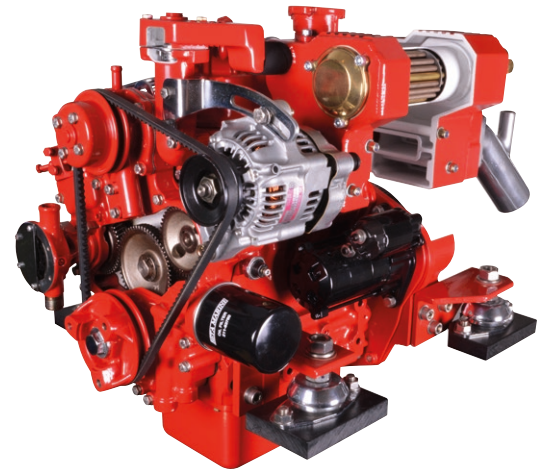
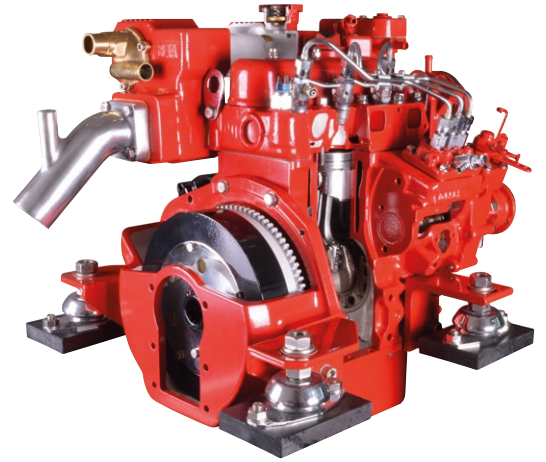
**Hybrid Engine Range**

**Heat Exchanger Cooled Beta 20 - Beta 150**

## Why Beta Marine?

### Your needs . . .

- Our company has built its renowned reputation on over 30 years of customer centred focus, listening to maritime propulsion or power needs and providing value solutions. Proving our support & product at pre-purchase, during installation be it a new build or re-power and post-purchase with the delivery of an after sales service both nationally and internationally that is second to none.
- We value our employees equally as highly as our customers, are extremely proud of the retained bank of skills, experience and loyalty that we have built and have available in place today, which enables us to excel at providing maritime solutions to fit bespoke needs.
- Our company strives to continue to build our reputation with all our customers be they end users, dealers, international distributors or boat builders and our mission is simply to capture, retain and service your valued custom throughout our products natural life cycle.
- The combined experience of our dedicated seagoing team and dealer network, supported by state of the art computer aided design we have planned, installed and re-powered thousands of vessels and sit comfortably & confidently that we can support your unique needs and exceed your expectation.



### . . . our tailored solutions delivering reliability and peace of mind

Beta Marine are an ISO Quality Assured Firm. Since 1987, we have been continually improving our Quality Procedures, whilst being monitored annually by ISO Quality Services Ltd.



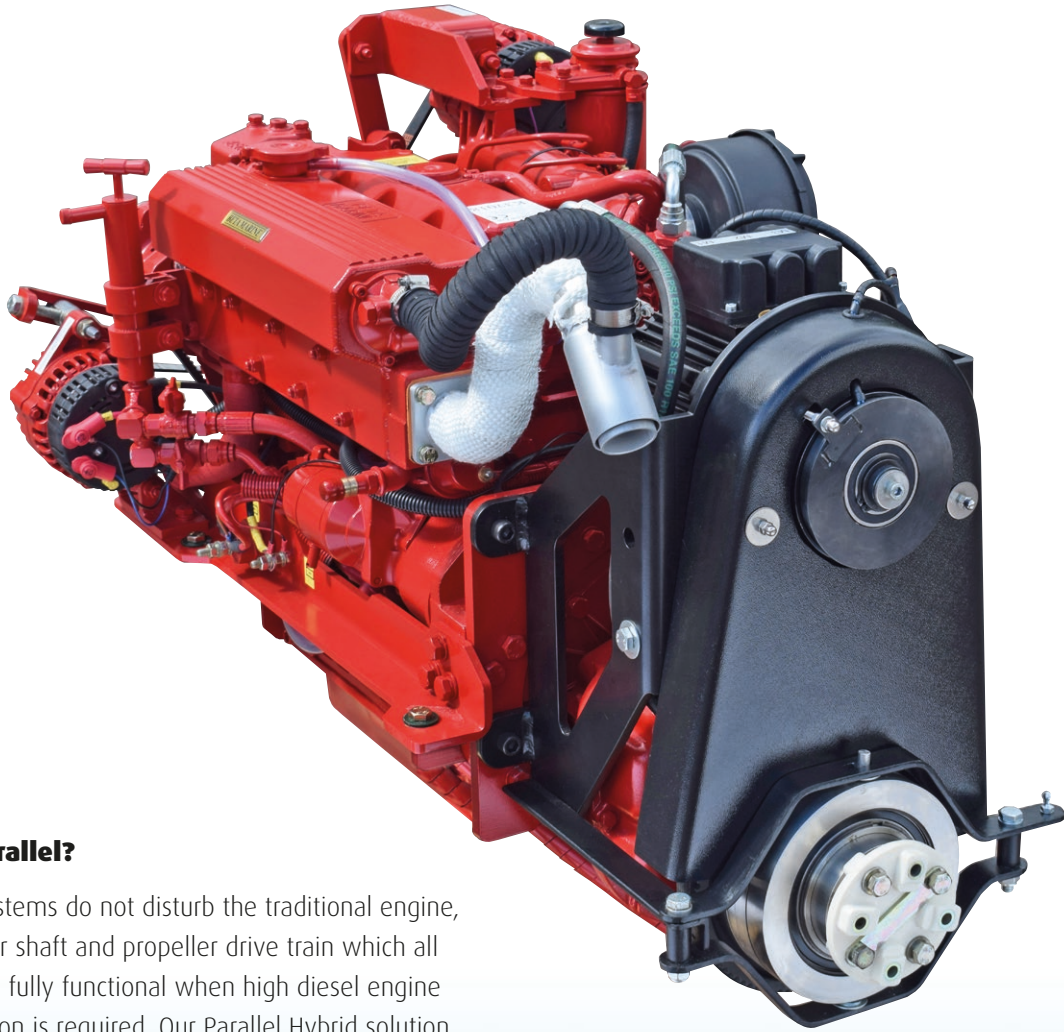
Cutaway Images Are For Illustration  
Purposes & Not Necessarily Representative



## Beta Hybrid Propulsion

HybridMarine

The Beta Marine, Hybrid-Marine partnership offers a range of integrated Hybrid systems developed to provide combined power and propulsion solutions for smaller seagoing vessels.



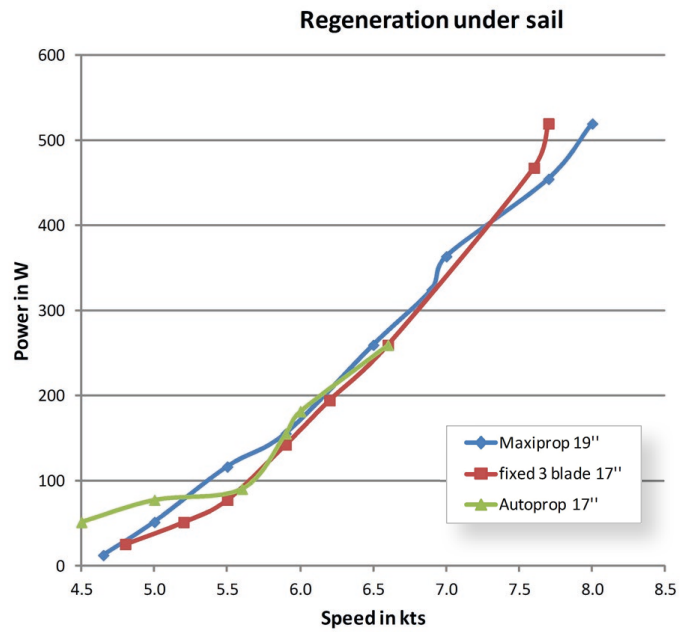
### Why Hybrid Parallel?

Parallel hybrid systems do not disturb the traditional engine, gearbox, propeller shaft and propeller drive train which all remain intact and fully functional when high diesel engine powered propulsion is required. Our Parallel Hybrid solution delivers high efficiency and versatility for low to mid power propulsion. The diesel engine is selected to economically provide the propulsion power required to achieve the vessels maximum hull speed, while the electric motor/generator has been designed to match the vessels mid to low propulsion needs allowing the components to be more compact and more cost effective.

By using a Hybrid Electric Motor/Generator in combination with the traditional diesel engine allows superb versatility and usability, whilst delivering efficient DC/AC electrical power together with a reduction in installation footprint, cost, fuel consumption, emissions and noise.

During mid to low power cruising conditions (2/3rd maximum hull speed) the electric Motor/Generator can be used to electrically motor the vessel using the energy stored within the battery bank. Once depleted and the diesel engine is engaged to propel the vessel, the Electric Motor/Generator will automatically switch to electrical generation mode and recharge the battery bank. The extra load on the diesel engine caused by both propulsion and the Electric Motor/Generator improves its efficiency. Once the battery bank is recharged the diesel engine can be stopped and the Electric Motor/Generator re-engaged to propel the vessel.

When under sail although it adds a little drag, the propeller can be allowed to free wheel and drive the Electric Motor/Generator providing a secondary means of supplying electrical energy to the battery bank. In low or light airs this method of electrical regeneration maybe either reduced or entirely disabled via the control panel.

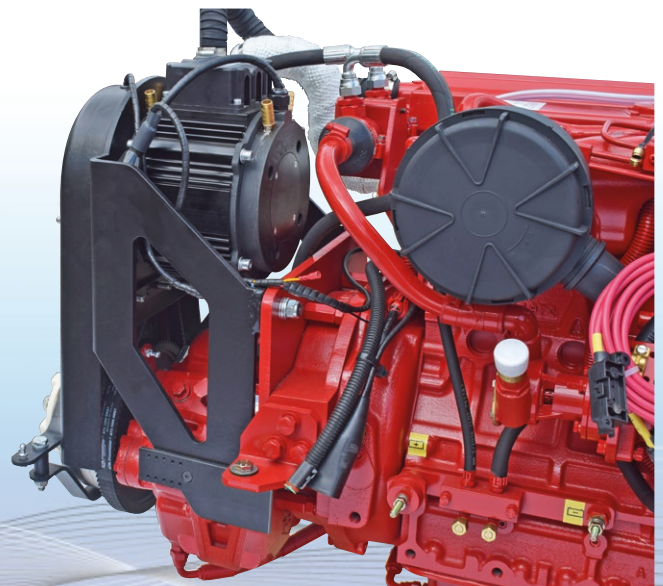


## Single Hybrid Motor (Beta 20 – Beta 60)

For the Beta 20 up to the Beta 60, engines are fitted with a single motor/generator which provides 10kW of electric propulsion and when in generation mode 5kW of power capability (8kW with optional boost alternators fitted).



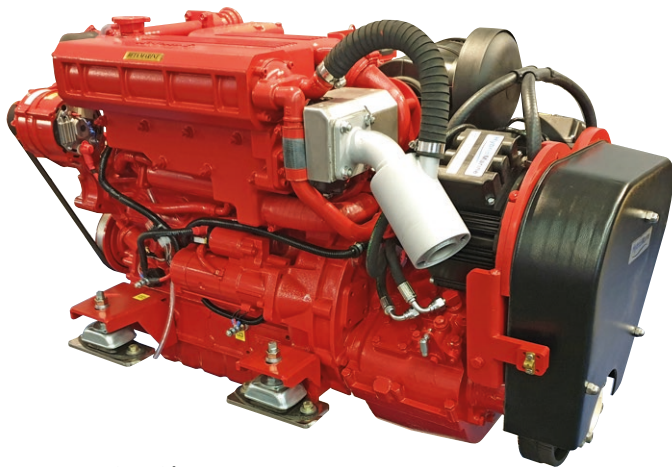
Beta 50 Engine with  
Single Hybrid Motor/Generator



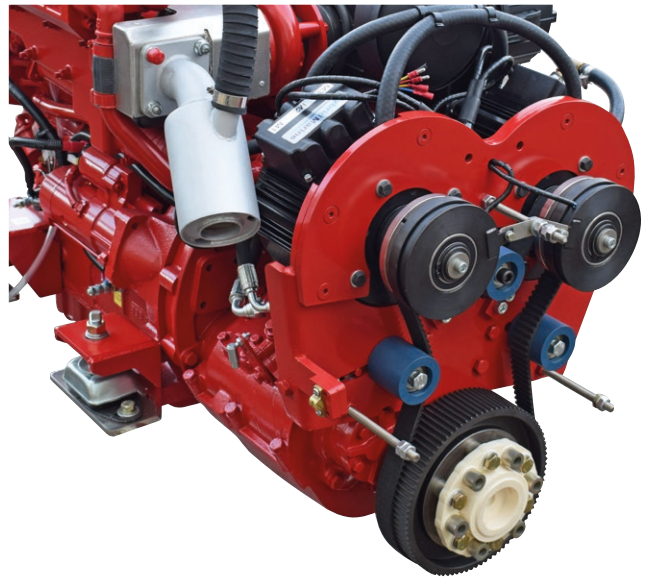
## Twin Hybrid Motor

(Beta 75 - Beta 150\*)

From the Beta 75 up to the Beta 150, engines are fitted with a twin motor/generator which provides a total of 20kW of electric propulsion and when in generation mode a total of 10kW of power capability (15kW with optional boost alternators fitted).



Beta 105T Engine with  
Twin Hybrid Motor/Generator



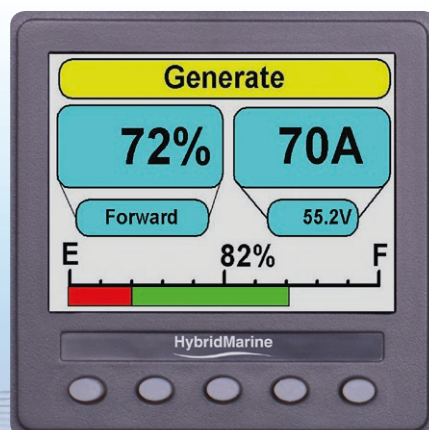
\*The Beta 115T & 150 are not RCD 2 (Recreational Craft Directive 2013/53/EU) exhaust emission compliant - They are for use by and on sale strictly to Non-Recreational Craft up to 24m in length.

## Control Box & Control Panels

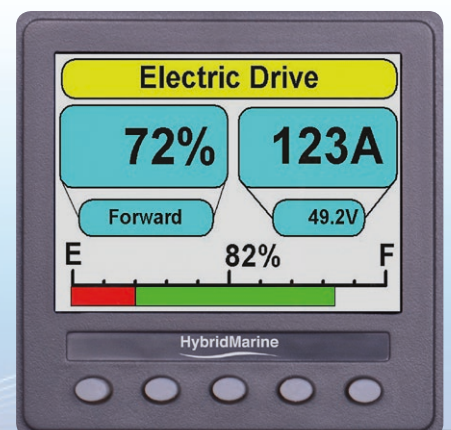
The electric motor/generator is also connected to a master control box managed by a push button controller complete with display panel.



Hybrid Master Controller



Push Button Controller  
with display Panel



Push Button Controller  
with display Panel

## Battery Bank

Our Hybrids can use many different battery technologies, this includes Lead/Acid, AGM & Lithium. For seagoing craft sealed batteries are required and AGM offers the most cost effective solution. For Lithium options please contact Hybrid Marine. Using powerful inverter technology, it is possible to run all the electrical domestic appliances you would expect at home and eliminate the need for gas (cooking) on board.

Electrical propulsion range will depend on the size of the available battery bank but a 40' sailing vessel requiring 4kW to achieve 5-6kts and utilising a 48v/200Ah battery bank (4x 12v/200Ah) would be able to travel for 2hrs at 5-6kts. Increasing the battery bank Ah size will allow a higher hull speed or greater range.



## Additional Means of Charging

Our solution additionally allows solar panels, wind generators and shore power integration. The addition of solar panels can make a significant contribution to your power needs.

## Use – Best Practice

The most efficient way to generate power and charge you battery bank, is when cruising on the engine. However if the shaft clutch option is selected this will allow the engine to operate as a stand-alone generator when at anchor or in harbour.

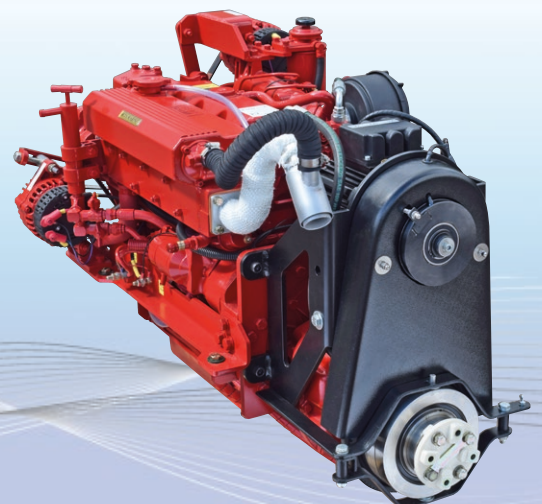


## Availability

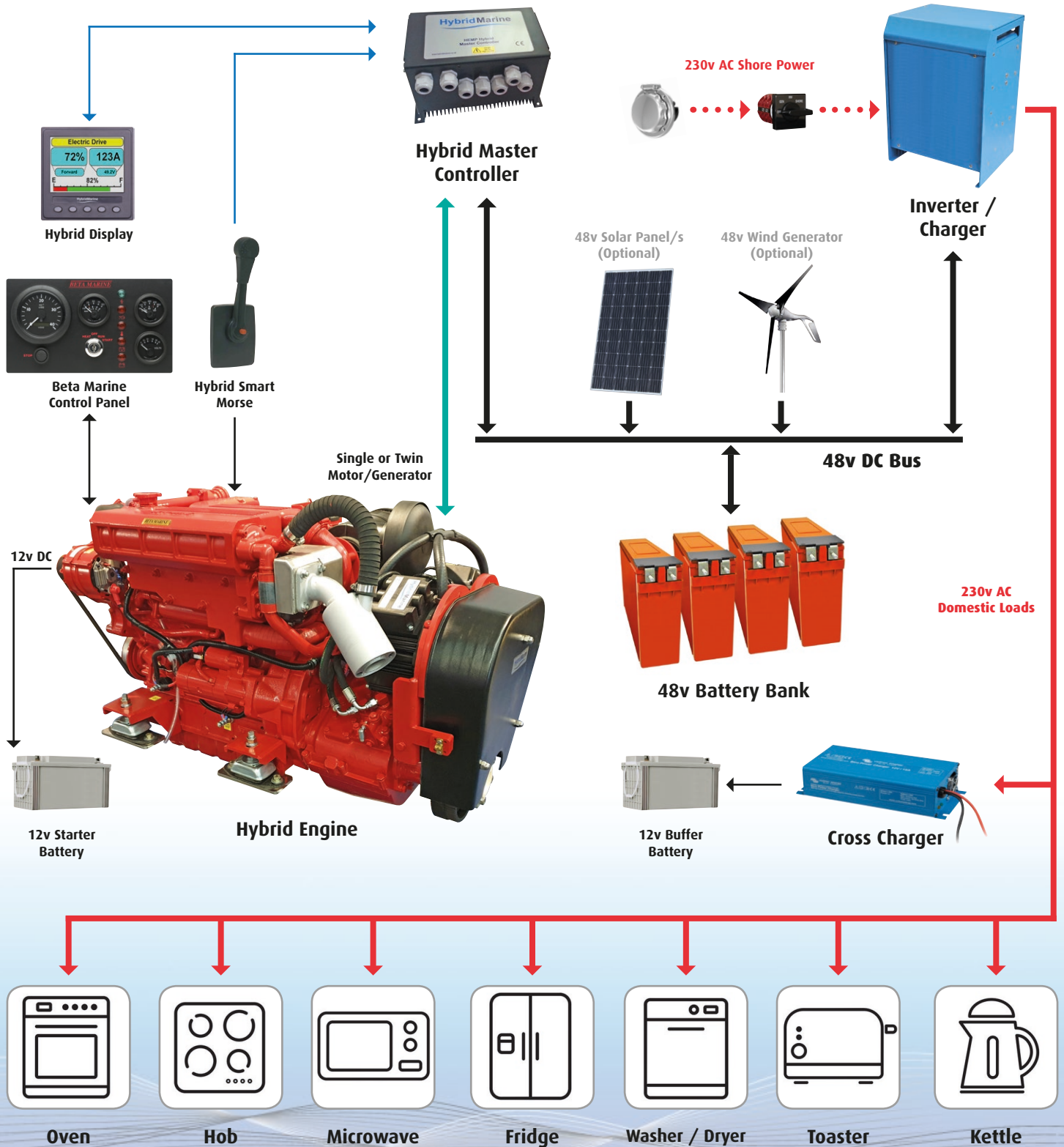
Seagoing Heat Exchanger Cooled Engines that are available with a Hybrid option are the Beta 20 through to the Beta 150\*, please refer to our Seagoing Engine Range brochure/s or website.

**\*Hybrid is only available for engines specified with either a PRM150 or PRM500 gearbox option.**

For more detailed Hybrid information please contact Beta Marine or Hybrid Marine.



## Typical Hybrid System





Hybrid-Marine Ltd, 11 Melville Street, Sandown, Isle-of-Wight, P036 8LF. UK  
Tel: +44 (0)1983 403236 Email: [info@hybridmarine.co.uk](mailto:info@hybridmarine.co.uk) Website: [www.hybridmarine.co.uk](http://www.hybridmarine.co.uk)

***BETA MARINE***

Beta Marine Limited, Davy Way, Waterwells, Quedgeley, Gloucester, GL2 2AD. UK.  
Tel: +44 (0)1452 723492 Fax: +44 (0)1452 883742 Email: [sales@betamarine.co.uk](mailto:sales@betamarine.co.uk) Website: [www.betamarine.co.uk](http://www.betamarine.co.uk)

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