

**Your needs . . .**



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

**Hybrid Engine Range**

**Keel Cooled Beta 43 - Beta 115T**

## 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 inland waterway team and installation engineers, 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.



ISO  
9001

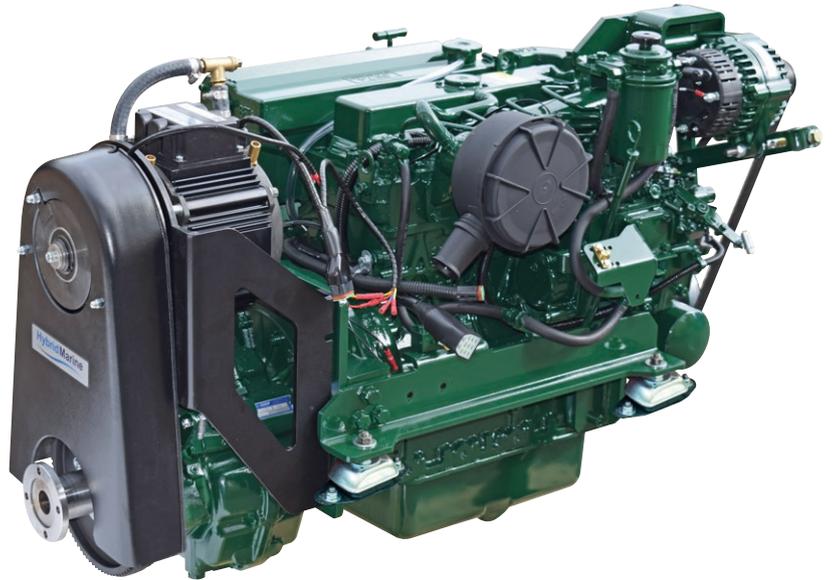
Quality  
Management  
Certification

Cutaway Images Are For Illustration  
Purposes & Not Necessarily Representative

## Beta Hybrid Propulsion

The Beta Marine, Hybrid-Marine partnership offers a range of integrated Hybrid systems developed to provide combined power and propulsion solutions for Narrowboats, Wide Beams & Dutch Barges.

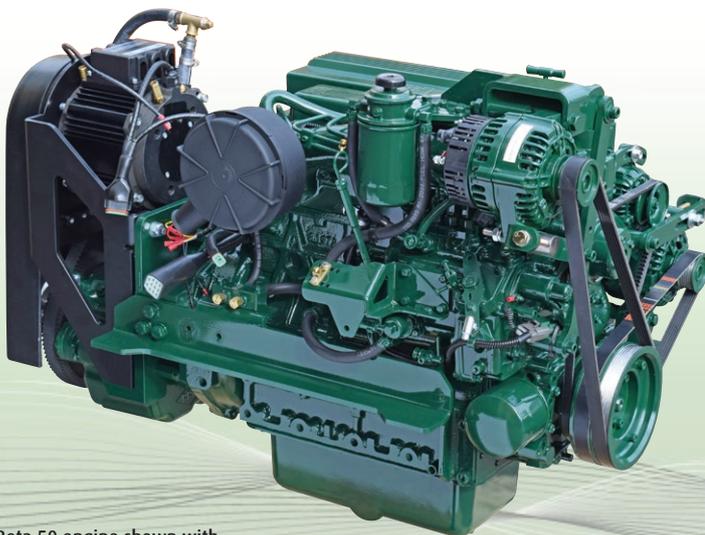
HybridMarine



## Single Hybrid Motor

**(Beta 43 – Beta 60)**

For the Beta 43 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. Which when added to the standard engine twin 60 Amp domestic battery alternators equates to a maximum of 8kW of available power whilst under diesel propulsion.



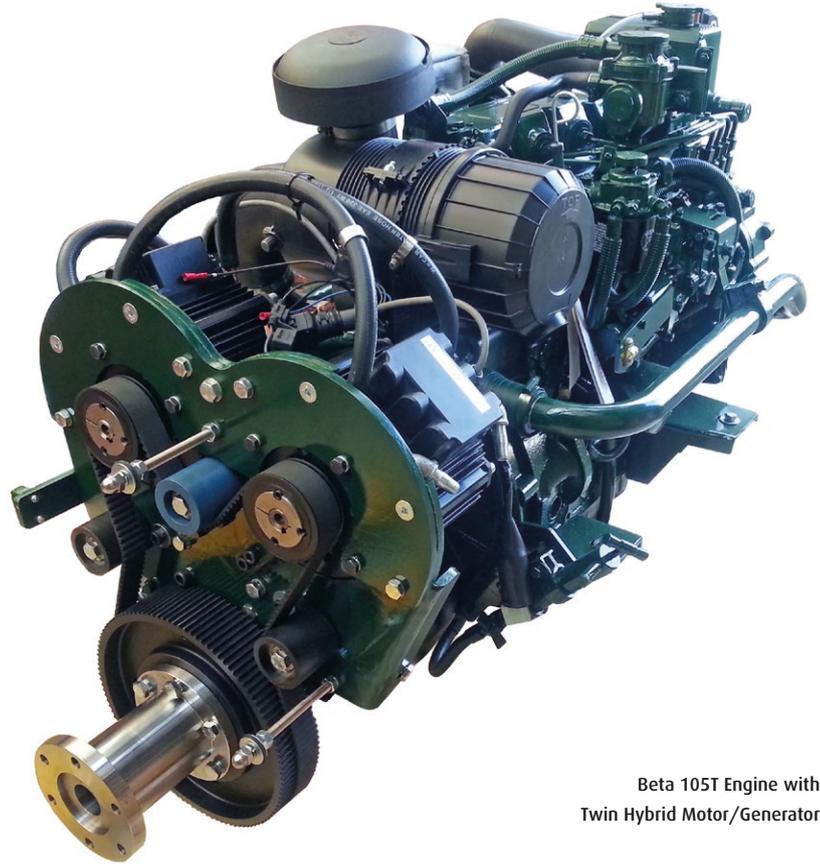
Beta 50 engine shown with Hybrid electric motor/generator



## Twin Hybrid Motor (Beta 75 - Beta 115T)

From the Beta 75 up to the Beta 115T, engines are fitted with a V twin motor/generator assembly which provides a total of 20kW of electric propulsion and when in generation mode a total of 10kW of power capability.

Again factoring in the standard engine twin 100 Amp domestic battery alternators a maximum of up to 15kW of power can be available whilst under diesel propulsion, maximum generation power is set according to battery bank size.



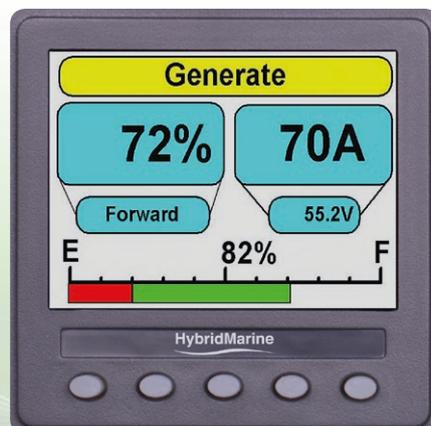
Beta 105T Engine with  
Twin Hybrid Motor/Generator

## 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 and Lithium. For inland craft the most appropriate technology is wet lead/acid cells. These batteries are very robust, provide long and reliable service (5 year warranty and 10 year expected life) and are cost effective. For safety we standardise on a low voltage 48v battery bank with a combined watering and venting system. The batteries can be topped up from a central watering point and safely vent charging gasses directly overboard.

The battery bank size is typically 15 to 30kWh and provides energy for both propulsion and house domestic loads. Using powerful inverter technology, you can run all the electrical domestic appliances you would expect at home and eliminate the need for gas on board (electric cooking).

The 30kWh battery bank can provide 8 to 12 hours of electric propulsion for a Narrowboat or 4 to 6 hours for a Wide Beam or Dutch Barge. Or if this energy is retained for domestic use there will be an abundance of power available during sensitive hours with no need to run the engine.



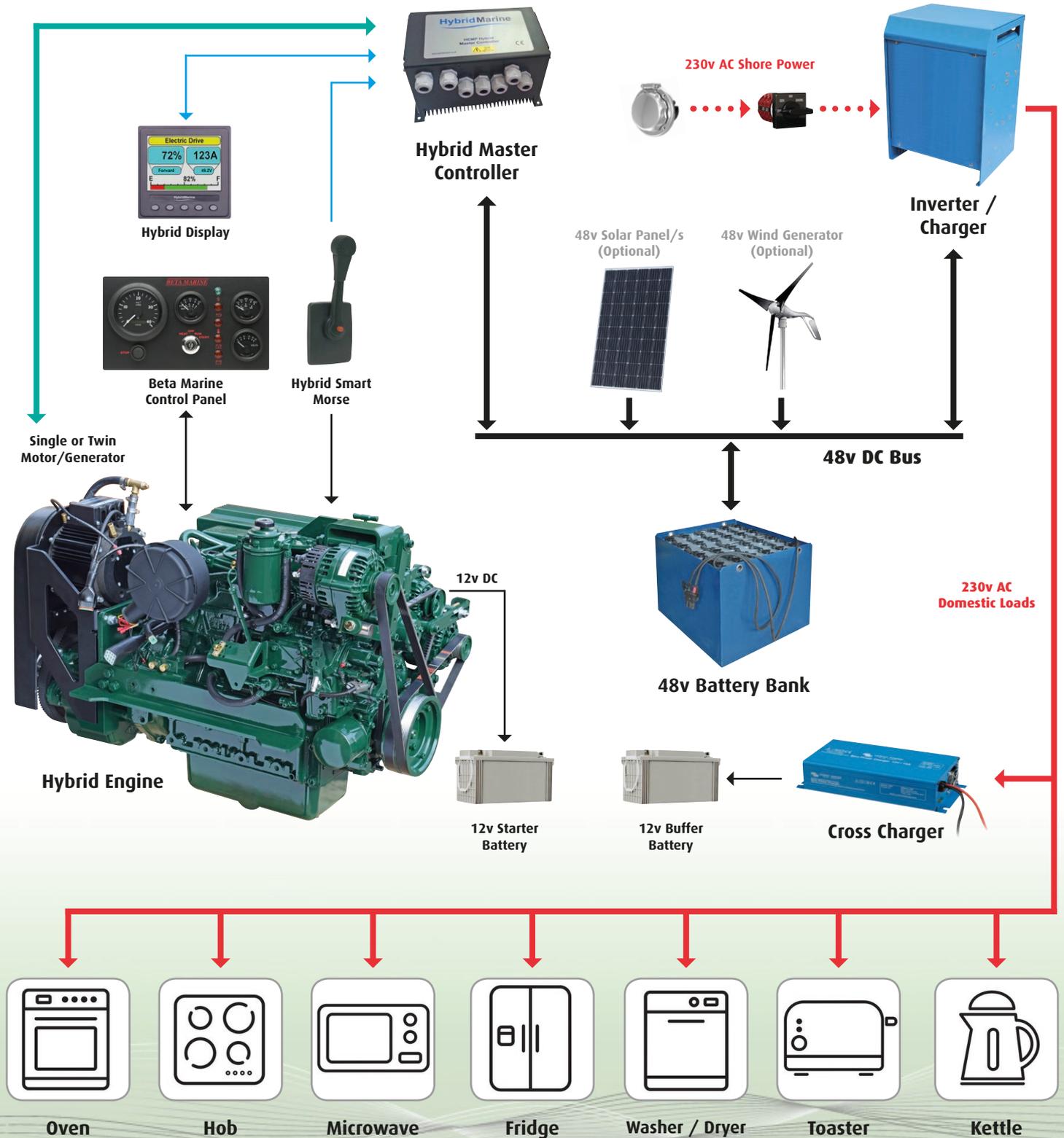
## Additional Means of Charging

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, shown is 1kW array shown disguised as a hatch.



# Typical Hybrid System



## Availability

Inland Keel Cooled Engines that are available with a Hybrid option are the Beta 43 through to the Beta 115T\*, please refer to our Inland Waterways (Greenline) 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.



## Use – Best Practice

The most efficient way to charge your battery bank is under diesel propulsion, which depending on engine model either the full 9 or 16kW is available at cruising speed 1,200 > 1,400 engine RPM. However should you decide to moor up in the countryside for an extended period and the batteries start to run low, depending on model the engine twin domestic alternators will provide either a 3kW or 5kW battery bank charging capability without the need to spin the prop.

In electric propulsion mode, the powerful single 10kW or twin 20kW motor/s provide ample power for non-tidal inland waterways and allows a silent & serene departure, voyage and arrival, no matter the time of the day.

Additionally this mode produces no exhaust fumes which is especially pleasant when passing through extended canal tunnels or negotiating large flights of locks as well as being beneficial to the environment.

For every hour of diesel propulsion enough electrical energy is generated to power the electric motor for up to two hours of propulsion dependent on loads. By adopting this rule as best practice for diesel hybrid cycling, a significant improvement in fuel economy can be achieved together with an abundant storage of energy available for running domestic appliances.



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