

Complete Broad Beam Hybrid Power & Propulsion Package

BARRUS

By working closely with manufacturers and suppliers, Hybrid Marine are able to offer everything you need to Hybridise your Broad Beam Barge in one cost effective package. This complete system provides enhanced propulsion and power supply for your boat. In short our Hybrid system makes pleasure boating more pleasurable.



Enhanced Propulsion

Our parallel Hybrid concept allows you to drive the propeller with the engine in the normal way or alternatively to use the efficient electric motor. When moving under engine power the system automatically reconfigures itself as a very powerful generator. At standard canal speeds, for every hour of engine propulsion, you generate enough electrical energy to go for a further one to two hours under clean / quiet electric drive. In general our Hybrid canal boats see a 50% reduction in engine hours.



Shire 70 fitted with a twin motor/generator hybrid

The best way to use the Hybrid is to employ the engine on open stretches to rapidly charge up your batteries. When your batteries are charged you can then switch to electric drive and enjoy the countryside in complete silence. It takes about 6kW to 10kW to push a 60' Broad Beam at canal speeds, the motor is rated at a peak power of 20kW so it has plenty of reserve power for manoeuvring. In adverse conditions, (e.g. a river running with a strong flow), then revert back to the engine.

When manoeuvring past moorings, or transiting a flight of locks, use electric drive. Why sit in a lock for 15 minutes filling it with fumes and noise when you can do it on electric drive? You should never need to idle the engine again once you have a Hybrid. Overall you can expect up to a 50% improvement in fuel economy when Hybrid cycling.

Some of our customers install very large battery banks and can go for days on electric drive only. If you then marina hop to charge up over night you can drastically reduce your use of diesel fuel. Considerable savings in running costs can be achieved together with a large reduction in emissions.

When manoeuvring you can turn the electric motor at very low RPM giving much improved slow speed control.

With the high torque of the motor and no gear changes, you can also accelerate from full forward to full reverse very quickly. This results in a considerable improvement in manoeuvrability. At tricky times when you need to instruct your crew, without a noisy diesel running, they can actually hear you and you can hear them, making the whole operation safer and less stressful. There is nothing quite like piloting thirty tons of boat in complete silence, there are no words to express this experience.

Enhanced Power

Your Hybrid is a portable power station. With the powerful generator capability, a substantial battery bank and inverter technology, you have an optimum power solution. Some of our boats take full advantage of this by being all electric (no gas onboard). Every domestic appliance you use at home can now be powered on your boat : Washer/dryers, electric oven & hobs, toaster, kettle, fridge/freezer, bread maker etc.



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Forget running your generator at dusk/dawn to top up the batteries. The enhanced battery bank of the Hybrid supplies, in complete silence, more than enough power for the night and can be charged again when you are under way the next day.

A typical Hybrid System contains the following components

Hybrid Engine

The hybrid can be fitted to a Shire 70hp or 90 hp engine (for other options please contact us). The motor/generators are fitted to the PRM500 gearbox (also available as a retrofit option). A single motor hybrid provides 10Kw of propulsion power and the twin motor assembly gives 20kW of electric drive. All broad beam hybrids are also fitted with the Power Station alternator that works in tandem with the hybrid motor generator/s.



All systems are designed to provide full generation power at a typical engine cruising speed of 1,200 RPM. A single motor hybrid is suitable for lighter displacement craft and will generate at 10kW when underway (prop spinning). A double motor system is a better choice for larger craft and this will generate at 13kW when under way. Both systems will provide a powerful 5.5kW of charging when in neutral.

Control system

The Hybrid system has a master control box and a user friendly colour LCD display. All mechanical components come integrated with the engine. The engine is installed in the normal way and the master control box is no more difficult to install than an inverter. Simple connections to the engine and display complete the Hybrid installation.



hybrid control box and display

Battery bank

The battery bank is constructed from top quality 2V wet traction cells you find in industrial vehicles such as fork lift trucks and milk floats. These batteries give a long service life (in the region of 10 years) and carry a 5 year guarantee. Twenty four cells are used to provide



the Hybrid power supply of 775Ah @ 48V. This battery bank gives 4 to 5 hours of electric drive and enough stored energy to spend many days tied to the bank without charging. A combined watering and venting system is provided to allow top up from one central point and simple safe venting of gases overboard.

Charger / Inverter

A 5KVA (10kVA peak) combined Battery charger and Inverter unit charges the batteries when mains power is available and powers the 240V circuit from the battery bank when away from the marina. Electric cooking can be employed to eliminate gas onboard.



12V cross charger

For those few items of equipment that do need 12V a cross charger is provided to charge a 12V buffer battery from the 48V battery bank. If you require a 12V bow thruster then you can place this buffer battery in the bows to provide the short bursts of high current required.



The addition of solar panels can make a significant contribution to your power needs (1kW array shown disguised as a hatch).