



2018 PREMIUM ELECTRIC OUTBOARD MOTORS

Electric Marine Propulsion Systems



INNOVATION - THE FUTURE OF SUSTAINABLE ELECTRIC PROPULSION

ePropulsion proudly presents premium electric outboard motors for sustainable and clean electric boating without exhaust or oil. Dedicated designers and engineers have introduced the latest Hydrocarbon and Nitrogen Oxide-free technology to these clean and efficient outboards. Through continuous innovation, ePropulsion's mission is to design

and manufacture safe and reliable electric motors that work in harmony with lakes, rivers, and ocean.

Motors from ePropulsion do not emit exhaust into the water, and are safe and simple with no smells and leaks. They are designed with a unique and well-balanced

efficiency utilizing a unique brushless DC motor design. There are no gears, thus ensuring a quiet operation without vibration, while still delivering high torque output and density. The high efficiency rating is achieved by delivering a high propulsive power rating from the available battery power.

Along with premium engineered performance, ePropulsion motors bring electric on-water transportation to a new level. The motors are elegantly designed and will make any boat owner proud to have on their dinghy, inflatable, or fishing boat.



About Us

Steer Toward Infinity

Founded in 2012 in Hong Kong by a few watersports loving engineers, ePropulsion is dedicated to developing intelligent and sustainable marine propulsion systems. Through continuous research and innovation, ePropulsion has taken its first important leap in last few years by successfully developing and manufacturing four major products – SPIRIT 1.0, NAVY 3.0, NAVY 6.0 and LAGOON - three electric outboard motors and one sup/kayak propulsion motor. For the future, ePropulsion will still keep its endeavor to offer a full range of clean, high efficient and exciting electric marine propulsion systems as well as explore possibilities of underwater intelligent propulsion to create more sustainable joy both on and in water.

SPIRIT 1.0

The Spirit of Watersports

Equivalent to 3HP gasoline outboards and designed for tenders, dinghies and sailboats, SPIRIT 1.0 is the perfect choice for fishing and short trips.

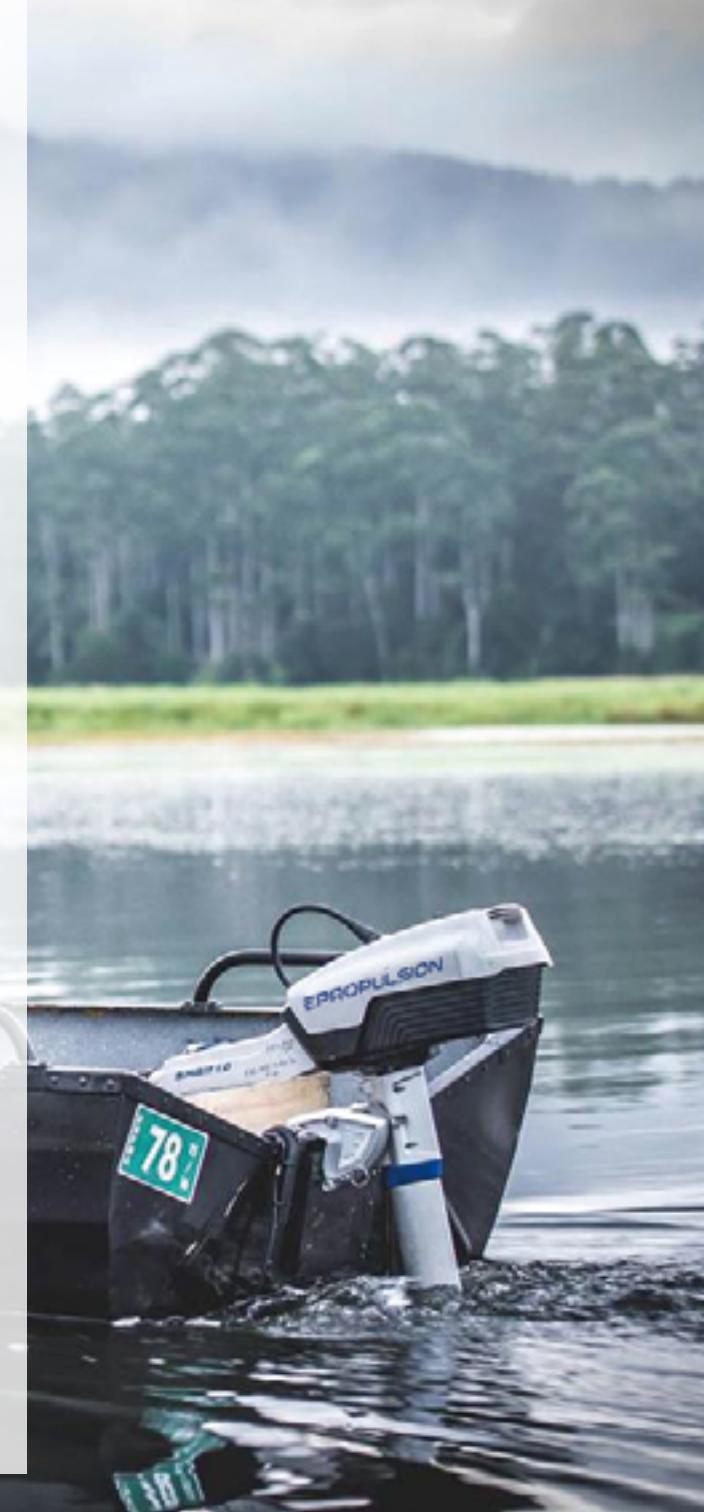
- 1KW power, equivalent to 3hp gas outboards
- Suitable for boats up to 3,000 lbs
- **Waterproof IP67** housing and plug connections when connected or disconnected
- 1018Wh lithium-polymer battery allows for cruising duration **2x longer** than other electric outboard motors
- Available in two shaft lengths
- High overall propulsive power efficiency
- **Safe and unsinkable battery design** - it floats, if accidentally mishandled

#S1000000 – SPIRIT 1.0 Shortshaft #S1R00000 – SPIRIT 1.0R Shortshaft
#S1000000L – SPIRIT 1.0 Longshaft #S1R00000L – SPIRIT 1.0R Longshaft

- **Ultra low noise** - max 60dB
- **Light weight** - 21.6lbs / 9.8kg excluding battery
- Integrated and detachable battery and foldable tiller, for easy storage and carry from daysailer or dinghy to car
- Battery and motor are similar in weight, allowing for better weight balancing when carrying
- Integrated on-board computer with audible alarm for battery charge
- **No regular maintenance requirement**

TECHNICAL SPECIFICATION

Input Power (from battery)	1KW
Battery	1018Wh Lithium Polymer
Propulsive Power (thrust x speed, shaft power x propeller efficiency)	500W
Comparable Gasoline Outboards (propulsive power)	3HP
Comparable Gasoline Outboards (thrust power)	4HP
Max Overall Efficiency	50%
Max Propeller Speed	1200rpm
Weight (w/ battery)	S: 18.6kg / 41lbs L: 18.8kg / 41.4lbs
Weight (w/o battery)	S: 9.8kg / 21.6lbs L: 10.0kg / 22.0lbs
Weight of Battery	8.8kg / 19.4lbs
Battery Size	416mm x 275mm x 202mm 16.37inch x 10.82inch x 7.95inch
Shaft Length	S: 625mm / 24.6inch L: 750mm / 29.5inch
Standard Propeller Diameter	280mm / 11.5inch
Rated Current	24.6A
Nominal Voltage	40.7V
Final Charging Voltage	46.2V
Cut-off Voltage	33V
Temperature Range Operation	-10°C~40°C / +14°F - 104°F
Battery Charge Time (empty to full)	Standard charger: 6hrs Fast charger: 3hrs
Cycle Life (to 80% of rated capacity)	> 500 cycles
Static Thrust	66lbs
Control	Remote Throttle or Tiller
Trim / Tilt	(0°, 7°, 14°, 21°) / 75°



Brilliant Design Simplifies Your Life

This 3HP motor is designed to be portable while remarkably robust. It weighs only 21.6lbs / 9.8kg for the convenience of single-hand carrying. The integrated tiller eliminating the annoyance of carrying a tiller separately guarantees you delight in your journey.

Test performance for 1x SPIRIT 1.0 with 1x SPIRIT Battery on a 3.6m aluminum boat. *

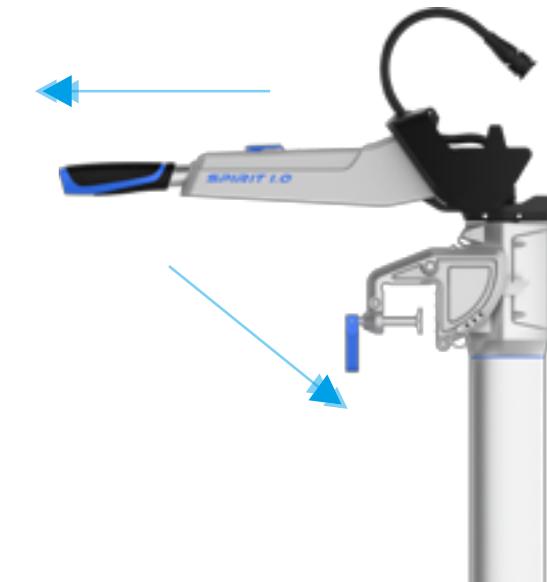
	Speed (MPH / KMH)	Range (MILE / KM)	Runtime (HH:MM)
1/4 Throttle	3.4 / 5.5	13.6 / 22	4:00
Half Throttle	4.3 / 7.0	8.6 / 14	2:00
Full throttle	5.7 / 9.2	5.7 / 9.2	1:00

*Depends on type of craft, boat, load weight, propeller, and weather conditions. Speed and range data table does not represent a legal guarantee of speed and range.



Easy Battery Installation

Align slots and blocks to place the battery on battery base



Integrated Tiller Design

This 3HP motor is designed to be portable while remarkably robust. It weighs only 21.6lbs / 9.8kg, and easy to carry with one hand. The integrated tiller eliminates carrying the tiller separately.

Folding the Tiller for Storage

Draw the tiller along axial direction to the end point and fold the tiller down to the lock position.

When Performance Combines With Elegance



Smart LCD Display:

The concise LCD displays battery charge level, voltage level, real-time power, and warnings.

Emergency Magnetic Kill Switch:

Once the emergency magnet is detached, the motor stops immediately, for safe operation of the boat and passengers on it.

Stepless Throttle:

Stepless throttle offers superior forward and reverse shifting smoothness.



Clamp:

This patented clamp allows for maximum stability of the engine while underway.

Charging Port:

When connected to charger through household sockets, full re-charge occurs in approximately 6 hours.

Plug-in and Go:

With an IP67 waterproof connector, the battery remains unaffected in rain or immersion situations. Its concise design ensures a perfect fit when installing the battery.

Long Duration Battery:

This 1000Wh battery offers smart Battery Management System (BMS) built inside, offering run time twice as long as other electric outboard engines.

Unsinkable Battery Design:

With its unique floating design, the SPIRIT Battery will not sink even it falls into water.

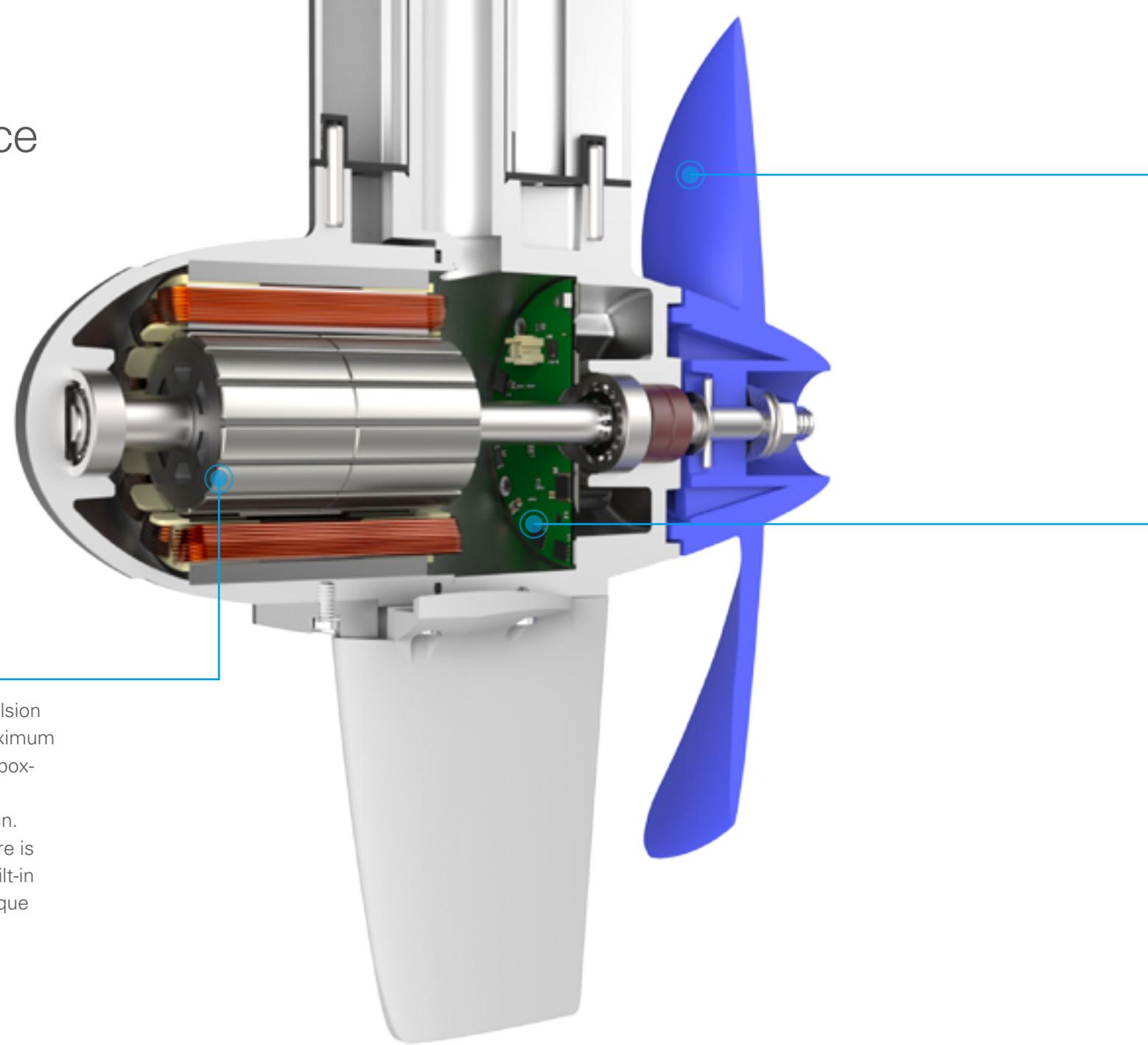
Advanced Design and Engineering for Performance

A higher efficiency could be considered as a major advantage over gasoline outboards. This electric motor features a gearbox-free design, which means the motor is maintenance free. Together with its optimized motor structure, SPIRIT achieves an overall efficiency of more than 50%.



Motor:

The motor is one of the most important components in a marine propulsion system. ePropulsion uses high quality brushless DC motors with a maximum efficiency of 90% and high efficient water cooling. They feature a gearbox-free design to eliminate noise and reduce the maintenance concerns associated with other motors on the market that have a gear box design. If a user accidentally has the propeller strike an underwater object, there is no concern about costly gear box repair with an ePropulsion motor. Built-in motor protection slows and/or shuts down the motor, by sensing a torque difference when striking an underwater object.



Propeller:

The propeller of conventional small power outboards usually has a small diameter and high rotational speed due to insufficient torque output of gasoline engines at low speed. The large torque output of the ePropulsion product enables the motors to use a large diameter, low rotational speed propeller, which is much more efficient than conventional propellers. The propeller efficiency is optimized by using a variable-pitch design, which also keeps the propeller in high efficiency at a wider speed range.

Motor Driver:

An advanced motor driver based on Field Oriented Control (FOC) uses vector control algorithms designed to ensure the motor runs at high efficiency and low noise. FOC was originally developed for high performance motor applications that are required to operate smoothly over the full speed range, and utilizes higher efficiency and lower electromagnetic noise. ePropulsion has now brought this technology to the small electric outboard market. The controller has an efficiency of at least 98%, so almost all the power goes directly to the motor.

The intelligent motor driver ensures battery protection against high-temperature, motor stall, short circuit and under/over voltage.



NAVY

Shape your lifestyle

NAVY outboards series include NAVY 6.0 and NAVY 3.0. NAVY 6.0 delivers 6kw of input power, equivalent to 9.9HP in terms of propulsion. Its excellent design received iF Design Award 2015. NAVY 3.0 delivers 3kw of input power, equivalent to 6HP. Both products look elegant, support remote/tiller control and deliver high performance. They are both ideal choices for cruising, fishing and other on-water activities.



#N6R00000 – NAVY 6.0 Remote Shortshaft #N6T00000 – NAVY 6.0 Tiller Shortshaft
 #N6R00000L – NAVY 6.0 Remote Longshaft #N6T00000L – NAVY 6.0 Tiller Longshaft
 #N3R00000 – NAVY 3.0 Remote Shortshaft #N3T00000 – NAVY 3.0 Tiller Shortshaft
 #N3R00000L – NAVY 3.0 Remote Longshaft #N3T00000L – NAVY 3.0 Tiller Longshaft

TECHNICAL SPECIFICATION

	NAVY 6.0	NAVY 3.0
Input Power (from battery)	6KW	3KW
Comparable Gasoline Outboard	9.9HP	6HP
Max Overall Efficiency	55%	55%
Max Propeller Speed	1550rpm	2300rpm
Weight of	29kg / 64lbs(S); 29.6kg / 65lbs(L) 1.5kg / 3.0lbs 0.65kg / 1.43lbs	22kg / 48.5lbs(S); 22.6kg / 49.8lbs(L) 1.5kg / 3.0lbs 0.65kg / 1.43lbs
Shaft Length	650mm / 25.6inch(S) 775mm / 30.5inch(L)	650mm / 25.6inch(S) 775mm / 30.5inch(L)
Standard Propeller Diameter	High: 320mm / 12.6inch Low: 340mm / 13.4inch	260mm / 10.2inch
Rated Current	125A	63A
Rated Voltage	48V	48V
Gear Ratio	1.85:1	/
Pitch	High: 274mm / 10.8inch Low: 216mm / 8.5inch	157mm / 6.2inch
Cooling	Closed-loop Liquid Cooling	Natural-convection Heat Transfer
Control	Remote Throttle or Tiller	Remote Throttle or Tiller
Trim	4 steps (0°, 5°, 10°, 15°)	4 steps (0°, 5°, 10°, 15°)
Tilt	Manual: 60°	Manual: 60°

Features for NAVY 6.0

- 6KW, equivalent to 9.9HP
- Suitable for boats up to 6,000 lbs
- **Waterproof IP67** housing and plug connections when connected or disconnected
- 48V lithium-ion battery pack, 25% of traditional AGM battery weight
- Available in remote or tiller design, along with two shaft lengths
- Highest power-weight ratio in the market, along with high overall efficiency
- **Light weight** - 28.8kg / 63.5lbs excluding battery
- User friendly design - iF World Design Guide: **Design Excellence Award 2015**
- Battery is easy to carry and install
- **Wireless intelligent remote control** with integrated LCD display for all relevant information
- **Embedded GPS** - for providing velocity data and estimated distance
- Changing of gear oil is only maintenance required

Test performance for 1x NAVY 6.0 with 2x NAVY Batteries on a 3.6m aluminum boat. *

	Speed (MPH / KMH)	Range (MILE / KM)	Runtime (HH:MM)
1/4 Throttle	5 / 8	50 / 80	10:00
Half Throttle	7 / 11	28 / 44	4:00
Full throttle	17 / 27	17 / 27	1:00

*Depends on type of craft, boat, load weight, propeller, and weather conditions. Speed and range data table does not represent a legal guarantee of speed and range.



GPS Module(built in):

The integrated GPS module indicates real-time cruising information eg. speed, distance, time, etc. via smart screen on the remote controller.

High-efficiency Motor:

ePropulsion motors use high quality brushless DC motors with a maximum efficiency of 90% and closed-loop liquid cooling technology.

Closed-loop Liquid Cooling Technology:

The system carries away heat generated by motor and driver in a much more effective way compared with traditional cooling methods. It also avoids constant system maintenance traditionally required.

Features for NAVY 3.0

In contrast to NAVY 6.0, the brushless DC motor of NAVY 3.0 is put at its bottom aluminum case, which makes cooling more direct and effective by heat exchange with water. Its gearbox free design eliminates noise effectively and avoids maintenance concerns associated with other motors in the market with gearbox design. The built-in motor protection slows and/or stops the motor when it strikes an underwater object by accident.



Test performance for 1x NAVY 3.0 with 1x NAVY Battery on a 3.6m aluminum boat. *

	Speed (MPH / KMH)	Range (MILE / KM)	Runtime (HH:MM)
1/4 Throttle	4 / 6	37 / 60	10:00
Half Throttle	6 / 9	22 / 36	4:00
Full throttle	12 / 20	12 / 20	1:00

*Depends on type of craft, boat, load weight, propeller, and weather conditions. Speed and range data table does not represent a legal guarantee of speed and range.



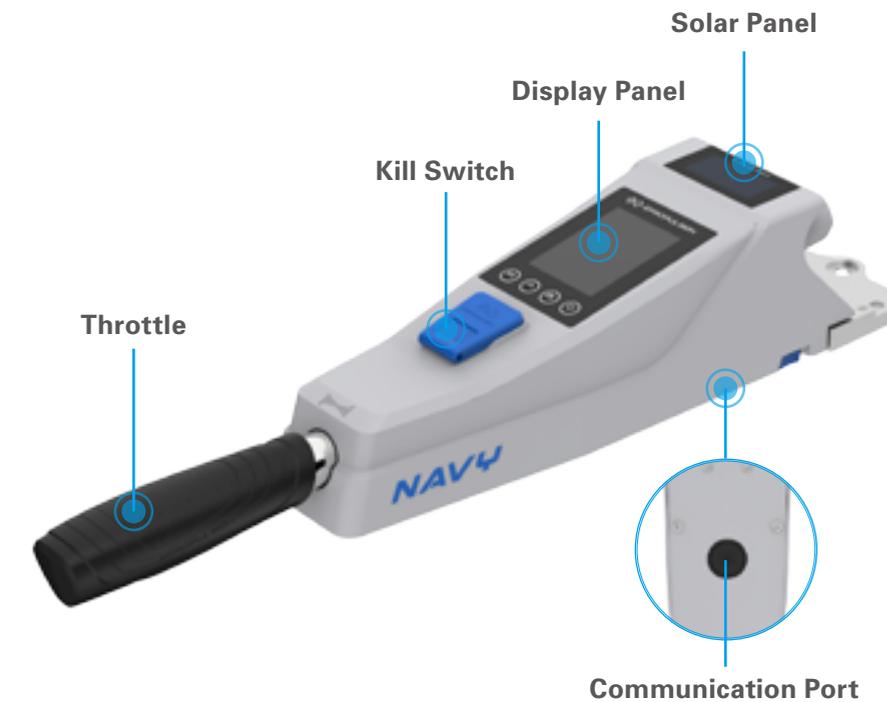
Tiller & Remote Control

NAVY Tiller:

The tiller is capable of both speed and heading control. Its 105° rotatable throttle has excellent maneuverability and offers superior forward and backward shifting smoothness. Kill switch and LCD screen also raise its intelligent performance. It can be mounted to the outboard with one easy step.

NAVY Remote Control:

It is designed to enable wireless control of forward/backward speed and provide essential real-time information on the LCD. Besides, its solar panel design guarantees sufficient power supply to itself. The remote control will create perfect boating experience while used with a steering wheel.



NAVY Battery

The 48V lithium-ion battery pack is specially designed for NAVY with safety as its first priority. With high energy density lithium ion battery cells, it is only one-fourth the weight and half the volume of traditional AGM batteries, but still delivers output energy of more than 3000Wh. The automotive grade battery management system, together with 18650 cells from first-class manufacturers, ensures high performance and reliability of the battery pack. The battery communicates with the outboard system through the RS485 protocol.

In multiple battery applications, parallel strategy supports up to eight batteries, allowing them to charge and discharge simultaneously as if they are a single battery.



Over-Discharge Protection Short-Circuit Protection Over-Current Protection



Over-Charge Protection Overheat Protection Battery Unit Protection

Battery Management System:

As the brain of all battery cells, BMS is not only in charge of accurate gauge calculation and normal operation, but also protects the battery against over charge/discharge, current fluctuations, excess temperature, and short circuit. Together with redundant safety design, the battery is guaranteed to be safe even when it encounters a failure. In addition, the BMS extends the battery lifetime with the cell balancing technology and smart "deep sleep" design.



System Communications:

Two identical communication ports with dual function on the battery top cover provide the most flexibility for system connections. One function is for parallel battery communication up to eight batteries at the same time, while the other function is for communicating with the NAVY controller for implementing intelligent control strategy and displaying battery information on the monitor.

Power Switch:

The simple ON-OFF switch allows user the ability to set the battery in "deep sleep" mode directly and easily, which can reduce the consuming power and extend the storage time of the battery.

Housing:

The aluminum alloy body is made by high strength extrusion with precision machining technology, which provides better thermal conduction and stronger structure to protect the battery cells.

IP67 Waterproof:

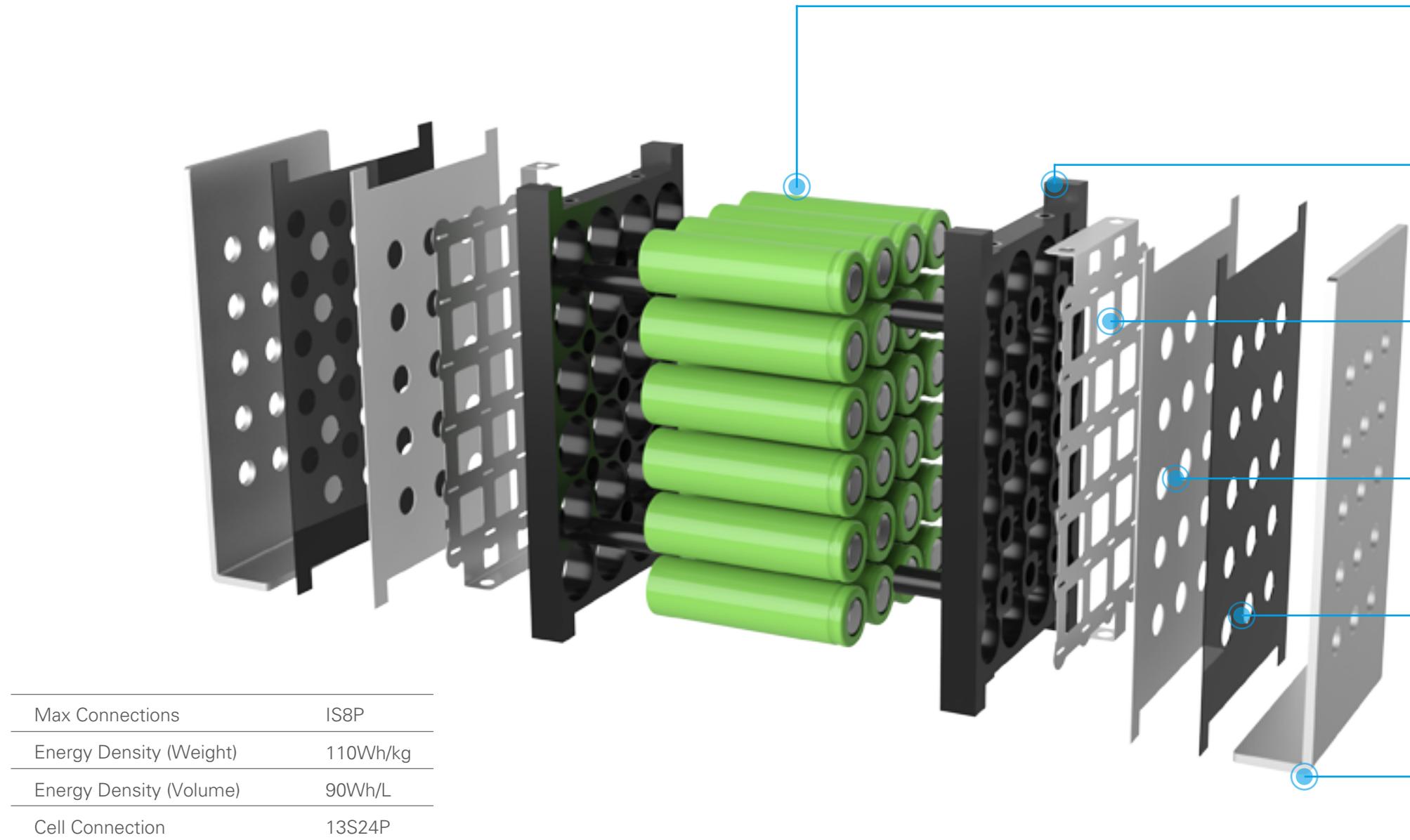
The battery carries the IP67 waterproof housing and plug connections. Rigorous testing ensures quality before packing.

Battery Module

Each battery pack is produced by a strictly controlled and managed assembly process. This honeycomb-structure design ensures the safety distance between each cell. The layered flame-resistant structure, heat conduction material, and aluminum alloy shell shield the cells comprehensively.

Technical Specification

Battery Type	Lithium-ion
Weight	31.5kg / 69.4lbs
Dimensions	594mmx209mmx283mm / 23.4inchx8.2inchx11.1inch
Waterproof	IP67
Nominal Voltage	46.8V
Rated Capacity	65Ah
Nominal Energy	3042Wh
Max Cont. Discharging Current	80A
Charging Voltage	54.6V
Discharge Cut-off Voltage	39V
Charging Temperature	0°C~40°C / 32°F~104°F
Discharging Temperature	-20°C~65°C / -4°F~149°F
Cycle Life (to 80% of rated capacity)	500 cycles with approx. 20% capacity loss



Max Connections	1S8P
Energy Density (Weight)	110Wh/kg
Energy Density (Volume)	90Wh/L
Cell Connection	13S24P

High Quality Battery Cells:
Each of the uniform cells has a PTC (Positive Temperature Coefficient) component to protect it from overheating.

Flame Resistant Bracket:
Fastens battery cells and makes sure there is a safe distance between each cell.

Electricity Connection Tablet:
Connecting battery cells by machine welding assures the resistance uniformity of each cell.

Silicone Pad:
Transfers heat efficiently with good insulation effect.

Insulating Layer:
Provides extra insulated protection between electricity connection tablet and aluminum plate.

Aluminum Plate:
High thermal conductivity allows it to transfer heat to body shell efficiently.

POD & Side Mount Control

In response to increasing market demand, ePropulsion has developed two Pod drives for sailboats – SPIRIT 1.0P and NAVY 3.0P. Both pod drives are easy to mount and works high efficiently with brushless DC motor built inside. The lightweight pods also have fixing holes which can be customized to fit special mounting needs. With built-in motor protection, the pods stops when striking an underwater object to protect.

#S1P00000 – SPIRIT 1.0P #N3P00000 – NAVY 3.0P # SMC00000 – Side Mount Control



SPIRIT 1.0P



NAVY 3.0P



Side Mount Control

SPIRIT 1.0P

Power: 1KW
 Equivalent to 3HP
 Maintenance free
 Brushless DC motor
 6kg only

Test performance for 1× SPIRIT 1.0P with 1× SPIRIT Battery on a 4.5m sailboat.*

	Speed (MPH / KMH)	Runtime (HH:MM)
1/4 Throttle	3.4 / 5.5	4:00
Half Throttle	4.3 / 7.0	2:00
Full throttle	5.7 / 9.2	1:00

NAVY 3.0P

Power: 3KW
 Equivalent to 6HP
 Maintenance free
 Brushless DC motor
 9kg only

Test performance for 1× NAVY 3.0P with 1× NAVY Battery on a 4.5m sailboat.*

	Speed (MPH / KMH)	Runtime (HH:MM)
1/4 Throttle	4 / 6	10:00
Half Throttle	6 / 9	4:00
Full throttle	12 / 20	1:00

*Depends on type of craft, boat, load weight, propeller, and weather conditions. Speed and range data table does not represent a legal guarantee of speed and range.

Compatible with SPIRIT 1.0P, NAVY 3.0P and all the ePropulsion electric outboard motors.
 Easily fixed on boats powered by ePropulsion motors.
 Free forward and backward speed control and stop in neutral.

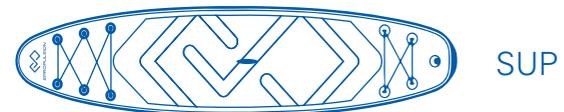
LAGOON

Take You Further

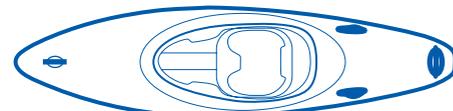
#LA000000 – LAGOON
 #LAM000000 – LAGOON Motor
 #LAB000000 – LAGOON Battery
 #LARC0000 – LAGOON Controller

The well-adapted LAGOON can be used with nearly all kinds of SUPs, kayaks, canoes, hobbies as well as most other small-sized boats. The small-but-mighty power system supports 1.1 hours full-speed running, perfectly backing you up whether you need a rest or want to go further.

- Adaptable - for SUPs, Kayaks and Canoes
- Long duration and extended travel range Intelligent protection
- Quick charge - only 3 hours
- High overall efficiency - excellent performance
- Battery unsinkable design
- Super light - Lagoon including battery weighs only 8.8lbs / 4kg
- User friendly design - easy to carry and store
- Wireless remote control



SUP



Canoe



Kayak

TECHNICAL SPECIFICATION

Input Power	300W
Static Thrust	23lbs
Nominal Voltage	22.2V
Final Charging Voltage	25.2V
Motor Weight (without battery)	1.5kg / 3.3lbs
Motor Size	162mm×167mm×182mm 6.38inch×6.57inch×7.17inch
Standard Propeller	150mm / 5.9inch
Propeller Pitch	115mm / 4.5inch
Max Propeller Speed	1800rpm
Control	Wireless Remote
Battery Type	Lithium-ion
Battery Capacity	333Wh
Weight of Battery	2.5kg / 5.5lbs
Battery Dimension (LxWxH)	216mm×178mm×100mm 8.5inch×7inch×3.94inch
Cycle Life	300 cycles (to 80% of rated capacity)
Relative Humidity	65 ± 20%RH

Outstanding Features

Intelligent LEDs:

The four LEDs indicate not only battery level, but also warning information and pairing status of the remote controller.

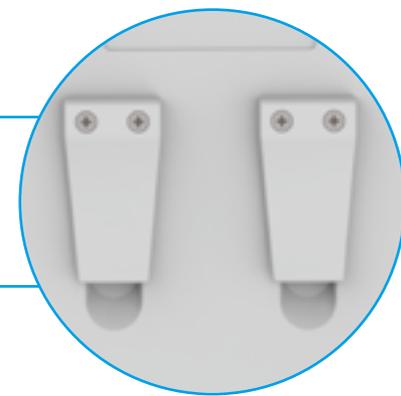
Integrated BMS:

The integrated BMS protects the battery against over-charge, over-discharge, short-circuit, over-current and over-temperature.

Easy to Fix:

The four hollowed up corners make the battery easily fixed on the board by ropes.

The two buckles on the battery bottom offer you another option to fix the battery.



Throttle



Small and Wearable:

The small-sized remote controller can be either fixed on a paddle or worn around on wrist like a watch.

Smooth Speedup:

Slide the throttle forward to speed up smoothly.

Intelligent Protection:

Lagoon will stop automatically once it detects the remote controller attached to the user or propeller falling into water.



Accessories - SPIRIT 1.0



SPIRIT Propeller / S1M00100
Good-performing and durable marine propeller



SPIRIT Anode / S1M01100
Zinc block for anti-corrosive purpose



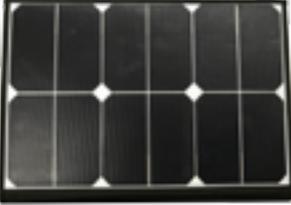
SPIRIT Bag Set / S1BG0000
Durable material with waterproof feature



SPIRIT Battery / S1B00000
1018Wh lithium polymer battery with IP67 rating and unsinkable feature



SPIRIT Skeg / S1M00400
Protect propeller and reduce water resistance



Foldable Solar Panel / FSP00000
100W foldable solar panel with zip design



SPIRIT Standard Charger / S1C00100
SPIRIT 180W standard charger (4A charging current)



SPIRIT Fast Charger / S1C00200
SPIRIT 500W fast charger (9A charging current)



SPIRIT Solar Charger / S1C00300
SPIRIT 200W Solar charger

Accessories - NAVY

Dual Remote Control / NDRC0000
With Dual Remote Control, you can enjoy the amazing experience from two same NAVYs.



NAVY Battery / NB000000
48V li-ion battery, usually one is enough to power NAVY 3.0 and two in parallel is needed to power NAVY 6.0.



NAVY Charger / NBC00100
It only takes 2 hours and 40 minutes to fill the charge bank by household socket.



NAVY 3.0 Propeller / N3LU0100
High efficient and exceptionally tough.



Remote Control / N6RC0000
With wireless communication, the NAVY can be controlled remotely.



NAVY Tiller / N6TH0000
The integrated intelligent tiller controls both forward/backward speed and heading direction.



NAVY 6.0 Propeller / N6LU0200H - High Pitch / N6LU0200 - Low Pitch
Absorb larger power with increased blade area ratio.

Accessories - LAGOON



ePropulsion SUP / SUP00000
This inflatable stand up paddle board designed by ePropulsion is a perfect match for LAGOON. It brings you super cool experience while using with LAGOON.



LAGOON Bag / LABG0000
It is designed to store all LAGOON components together and facilitate carrying with one hand.



LAGOON Battery Charger / LAC00000
Input voltage (AC): 100v ~ 240v
Input frequency: 50Hz / 60Hz
Max input current: 3A
Output voltage (DC): 25.2V / 7A



Follow ePropulsion on



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