SUNBEAM SYSTEM

Innovative power solutions

Premium solar panels

High-tech batteries

Advanced charge controllers

Catalogue 2018

WWW.SUNBEAMSYSTEM.COM

Presented by DanVolt Ltd:

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DANVOLT
Marine & RV Systems

SUNBEAMSYSTEM

The Swedish philosophy

SUNBEAMsystem produce an extensive range of flexible and walkable solar panels, specifically developed for applications in the marine and motor home sectors. These high-tech solar panels are designed to be a reliable source of sustainable energy, in even the most demanding conditions.

The record-holding Sunpower™ solar cells used in our panels, guarantee the highest energy production per square meter, a minimal efficiency loss and a higher performance in low light intensity. The solar panels are very small in size due to the super high efficiency of these unique cells (23.7% in Tough✚ models).

The Swedish Design and the high-quality finish, add up to a premium range of extremely efficient & durable solar panels.

OUR SOLAR PANELS

- Flexible
- Walkable
- High Power
- Small Footprint

OFF–GRID

MOBILITY

BOATING

SUNBEAMSYSTEM

TOUGH+

The Tough+ series

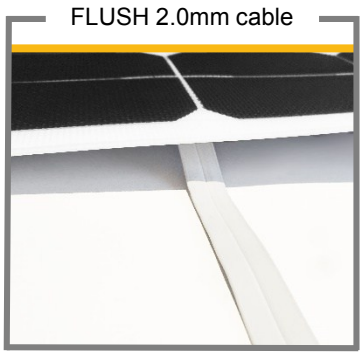
New for 2018

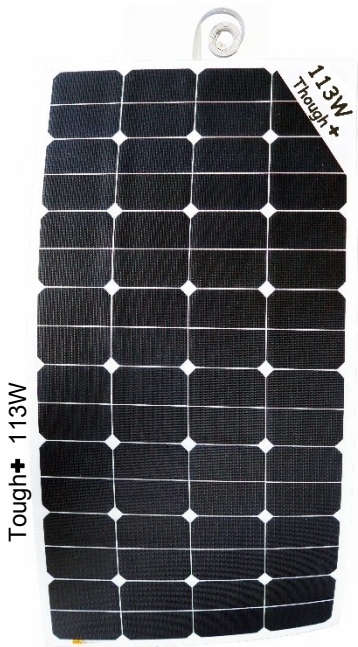
SUNBEAMsystem Tough+ represent the absolute latest solar technology to be found. Both in the incredible amount of power per surface unit and the longevity compared to other lightweight competitors. The unrivalled power output is safeguarded by our solar cell product partner, “Sunpower”. The cells inside a Tough+ panel have a stunning efficiency of 23.7% on average, resulting in a 13% higher output than ever previously available!

Tough+ features the same superior materials developed by SUNBEAMsystem for the original Tough series. Allowing a longevity never seen earlier for light and thin solar panels. The anti-slip surface is not only practical when fitted on a deck but is also better at catching light early and late in the day. The dirt repelling properties will keep up the power production by helping to keep the panel clean.

All the Tough+ models feature the new Flush 2.0mm cable and are designed for screw-less mounting. The new power cable is 30% flatter and has a 25% larger copper cross-section than its 1.6mm predecessor. All Tough+ models include a full size structural bonding tape, for quick mounting on a curved surface. For a slow curing alternative we recommend to use a *white* adhesive like Sikaflex 291 or Simson MSR CA. The result is a flush, low-rise surface, ideal for integrating the panels on any surface.

- 13% More Power
- Flatter 2.0mm Cable
- UV-Proof Anti-Slip Surface
- Easy Installation
- 5-Year Warranty





WHERE DECK SPACE IS PRECIOUS, TOUGH+ MODELS SUPPLY EXTRA POWER

Part #	Product	P_{max}	V_{oc}	I_{sc}	V_{mp}	I_{mp}	Weight	Dimensions	Cable	Holes	RRP (£)
TP38F	Tough+ 38W Flush 2.0	38W	23.6V	2.20A	17.6V	2.15A	0.7 kg	535 x 378 mm	2 m	No	269.00
TP56F	Tough+ 56W Flush 2.0	56W	24.0V	3.30A	17.6V	3.18A	1.0 kg	545 x 535 mm	2 m	No	389.00
TP80F	Tough+ 80W Flush 2.0	80W	24.0V	4.67A	17.6V	4.54	1.5 kg	778 x 540 mm	2 m	No	499.00
TP113F	Tough+ 113W Flush 2.0	113W	23.0V	6.62A	17.6V	6.42A	2.0 kg	1060 x 540 mm	2 m	No	699.00

* All Tough+ models are shipped in primary packaging with enclosed manual

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TOUGH

The Tough Flush series

SUNBEAMsystem is a multiple test winner, simply because it is designed to be superior in every detail. It is a reliable source of power in even the most demanding conditions and the TOUGH Flush models are fitted with high efficiency Sunpower cells (22.5%).

Due to the impressive specifications the Tough Flush models are often used in the marine industry, but also in industrial off-grid systems. The surface of the Tough series is extremely durable and will sustain high UV-radiation for a long time. It has a better light transmission than ordinary materials which will improve the overall performance. The surface structure adds anti-slip properties but will also improve power production at low solar angles.

The Tough Flush in sizes 50, 70 and 100 Watt models have a physical cell arrangement contributing to an increased partial shading production not found on other brands. The Flush option with the flat low-loss cable (without junction box) offers a superior solution for structural mounting. The anti-slip surface ensures a safe surface to walk on, and being only 3mm thick, models with the Tough surface are the perfect solution for permanent mounting on boat decks or on RV roof tops.

- Flush Fitting
- Small Size & High Power
- Improved Partial Shading
- UV-Proof Surface
- 5-year warranty

Tough 100W Flush

Tough 50W Flush

T O U G H BLACK series

TESTWINNER

Part #	Product	P_{max}	V_{oc}	I_{sc}	V_{mp}	I_{mp}	Weight	Dimensions	Cable	Holes	RRP (£)
T18F	Tough 18W Flush	18W	23.7V	0.99A	19.4V	0.92A	0.3 kg	434 x 277 mm	1.5m	4 x 6mm	149.00
T18LF	Tough 18W Long Flush	18W	23.7V	0.99A	19.4V	0.92A	0.3 kg	147 x 850 mm	1.5m	No	149.00
T30F	Tough 30W Flush	30W	21.2V	1.83A	17.6V	1.70A	0.7 kg	535 x 378 mm	1.5m	4 x 6mm	189.00
T50F2	Tough 50W Flush	50W	21.2V	3.05A	17.6V	2.84A	1.0 kg	555 x 535 mm	1.5m	4 x 6mm	259.00
T50F2B	Tough 50W Flush Black	50W	21.2V	3.05A	17.6V	2.84A	1.0 kg	555 x 535 mm	1.5m	4 x 6mm	269.00
T70F	Tough 70W Flush	70W	22.1V	4.26A	17.6V	3.98A	1.5 kg	778 x 540 mm	1.5m	4 x 6mm	359.00
T70FB	Tough 70W Flush Black	70W	22.1V	4.26A	17.6V	3.98A	1.5 kg	778 x 540 mm	1.5m	4 x 6mm	369.00
T100F	Tough 100W Flush	100W	21.6V	5.97A	17.8V	5.62A	2.0 kg	1060 x 540 mm	1.5m	6 x 6mm	449.00
T100FB	Tough 100W Flush Black	100W	21.6V	5.97A	17.8V	5.62A	2.0 kg	1060 x 540 mm	1.5m	6 x 6mm	459.00

*** All Tough models from 50W and upwards are composed of two groups of solar cells. This results in a higher performance when partially shaded.**

**** All Tough models *(except the 18W versions)* are shipped in primary packaging with enclosed manual**

SUNBEAMSYSTEM

FLUSH

The Flush supplemental

Most SUNBEAMsystem models have the Flush power cable option. This will allow for a professional installation without any visible cables. The result? An integrated, low-rise surface without a protruding Junction Box or visible wiring.

On all Flush models the flat power cable is connected to the backside of the panel, allowing for a connection underneath the panel. The cable can also be glued along the deck or other surface in an almost invisible manner.

The Flush cables are available in two versions: 1.6mm and the new 2.0mm (supplied with the Tough+ range). Both feature a white UV-resistant outer casing and pre-tinned copper throughout for the best longevity.

- Flat Power Cable
- Flush Installation
- Low-Loss
- Pre - Tinned

Flat power cable for a perfect Flush fitting

Electrical Accessories

Part #	Product	RRP (£)
MC4	Set 2 pc. MC4 connectors	6.95
MC4-T	Set 2 pc. MC4 T-connector	13.95
MC4-Fuse8	MC4 fuse holder with 8A fuse	14.95
passdiod	By-pass diode for Flush models	3.90
outpassdiode	By-pass diode for outside installation	9.90
TCFlat16	Flush v1.0 cable 1.6mm^2 (Per metre)	3.20

Flush types

Flush 2.0

Only 1.4mm thin yet featuring an impressive 2 x 2.2mm^2 inner core

Flush

A mere 1.95mm thin and fitted with a 2 x 1.6mm^2 inner core

Information on the different options to correctly install your system can be found on the Knowledge Bank on the SUNBEAMsystem website

Explanation of listed values

All values are measured in standard testing conditions:

- 1000W/M^2, 1.5 atm, 25° Celsius.
- Temperature coëfficient I_{sc} = - 0.05 (%/°C)
- Temperature coëfficient V_{oc} = - 0.27 (%/°C)
- Temperature coëfficient P_{max} = - 0.38 (%/°C)

P_{max}	is the maximal attainable power.
V_{oc}	(Voltage open circuit), also referred to as the clamping voltage, is the maximum voltage when no load is connected.
I_{sc}	(Ampere short circuit) is the maximum current when the panel is short circuited.
V_{mp}	(Voltage maximum power) is the maximum voltage a panel produces under ideal circumstances.
I_{mp}	(Ampere maximum power) is the maximum current a panel produces under ideal circumstances.
Weight	Listed weight without cable.

SUNBEAM SYSTEM

QUICK FIX

The Quick Fix system

The Quick Fix (QF) system allows for a detachable mounting on either canvas or hard surfaces. Mounting the panels is a fast and easy process due to the stainless-steel quick fasteners. The Quick Fix system is the preferred option for use on sprayhoods and bimini's.

For a strong and robust installation on canvas surfaces, resistant to stronger winds, we recommend the optional QF-Zip system. This canvas pad is placed between the solar panel and the sprayhood (or Bimini) and so distributes the forces from the corners of the panel over a larger surface area. The QF-Zip backplate is attached using the supplied 4 Velcro strips (sewn to the canvas) for easy removal. QF-Zip system has been tested in winds up to 50 knots.

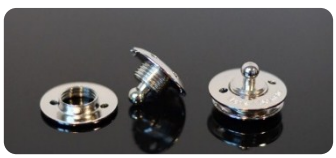
The T50QF panel has 2.5mm^2 cables fitted with waterproof (IP67) MC4 connectors. This allows an easy connection with variable options for adapting to the right system voltage as well as a quick disconnection when needed. Use a pair of our optional MC4 connectors to join to your panel cables to the controller.

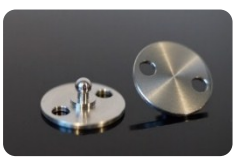
- Detachable Solar Panel
- Sprayhoods & Biminis
- Quick Fasteners
- Tough Surface
- 5-year warranty

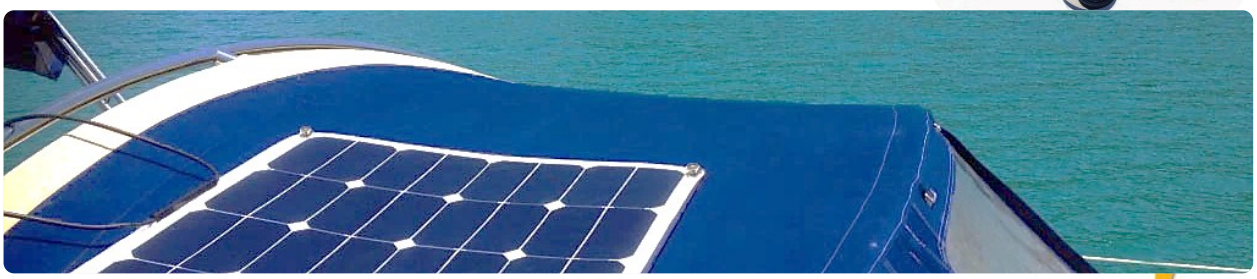
Part #	Product	P_{max}	V_{oc}	I_{sc}	V_{mp}	I_{mp}	Weight	Dimensions	Cable	RRP (£)
T50QF	Tough 50W Quick Fix	50W	21.0V	3.00A	17.6V	2.84A	1.0 kg	555 x 535 mm	2 x 0.8m	289.95

QF Attachment Options

Part #	Product	RRP (£)
QF-Zip	Canvas reinforcing pad with male Loxx 4 Velcro attachment strips	99.00
QF-Loxx	4 pc male Loxx fasteners for canvas surface (inc. tool)	10.90
QF-Std	4 pc male Loxx fasteners for deck mount (oblong)	8.90
QF-SS	4 pc male Loxx fasteners for deck mount (round 20mm stainless steel)	18.90







SUNBEAMSYSTEM

NORDIC

The Nordic series

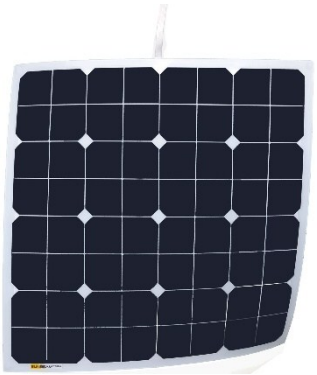
New for 2018

The new Nordic series is designed to find the perfect balance between innovation and price. Going back to the main reason SUNBEAMsystem was founded: the wish to enjoy solar power in the Scandinavian region. Nordic offers compact yet powerful solar panels of which all details are designed for the demanding conditions at sea.

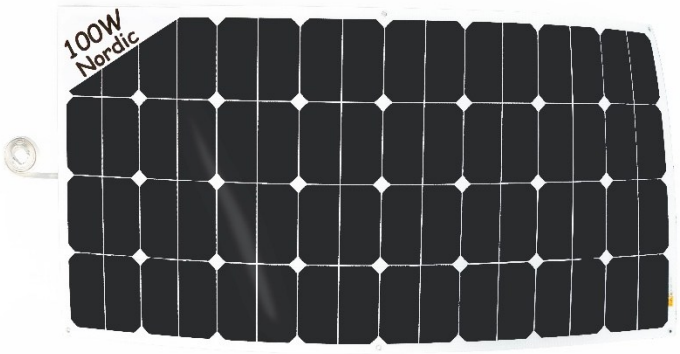
All Nordic models feature our arrangement for better partial shading power output, not found on competitors.

The Nordic models with the Flush supplemental offers a superior integration on any surface. The lack of screw holes results in a discreet glued installation. We recommend the use of *white* Sikaflex 291, Simson MSR CA or structural bonding tape for installation.

- Powerful & Compact
- Improved Partial Shading
- Flush Cable
- 2-year warranty



Nordic 50W Flush



Nordic 100W Flush

Part #	Product	P_{max}	V_{oc}	I_{sc}	V_{mp}	I_{mp}	Weight	Dimensions	Cable	Holes	RRP (£)
N50F	Nordic 50W Flush	50W	21.2V	3.05A	17.6V	2.84A	0.90 kg	555 x 535 mm	1.5 m	No	159.95
N100F	Nordic 100W Flush	100W	21.6V	5.97A	17.8V	5.62A	1.80 kg	1060 x 540 mm	1.5m	No	269.95

* All Nordic models are composed of two groups of solar cells. This results in a higher performance when partially shaded.

** All Nordic models are shipped in primary packaging with enclosed manual.

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CLASSIC

The Classic series

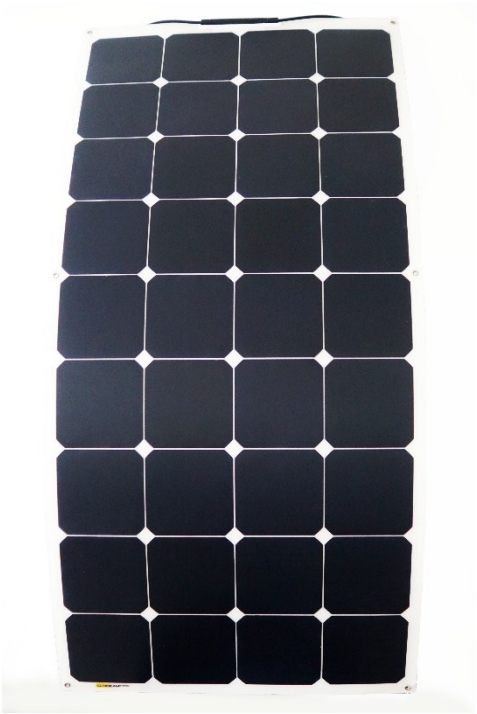
The Classic models are the economic choice when the available space is not the limiting factor. Classic is the only SUNBEAMsystem model that uses Sunpower cells with a regular efficiency. This makes them less compact, but perfect for high power output demands where panel size is not crucial.

The Classic panels feature 6mm stainless steel holes. The 2.5mm^2 cables with MC4 (IP67) connectors have an UV-resistant outer casing and are connected to the panel via a small Junction Box.

- Only 3mm thickness
- Economic Choice
- Junction Box
- 2-year warranty

Minimal sized Junction Box

Classic 50W Junction Box



Classic 100W Junction Box

Part #	Product	P_{max}	V_{oc}	I_{sc}	V_{mp}	I_{mp}	Weight	Dimensions	Cable	Holes	RRP (£)
C50JB	Classic 50W Junction Box	50W	21.2V	3.05A	17.6V	2.84A	1.0 kg	622 x 535 mm	2 x 0.8m	4 x 6mm	109.95
C100JB	Classic100W Junction Box	100W	21.6V	5.97A	17.8V	5.62A	1.9 kg	1180 x 540 mm	2 x 0.8m	6 x 6mm	219.00

SUNBEAMSYSTEM

MPPT

MPPT Charge Controllers

New for 2018

A MPPT regulator is an essential component for utilizing the maximum efficiency of any solar panel. Due to the Maximum Power Point Tracking (MPPT) technology these regulators offer a higher average output compared to standard regulators. The MPPT regulators have built-in charging programs for different types of batteries, ensuring a safe and correct charge resulting in a longer life expectancy of the battery. Information on the right type of regulator to use can be found at **www.SUNBEAMsystem.com/en/knowledge-db**

Special Solar Technology

30% More Power

Multiple Battery Types

EP PeakPower

The new EP PeakPower XTRA series is equipped with highly efficient **MPPT technology**. The regulators have a low self-consumption and a peak conversion of 98%. The build-in LCD display allows for easy configuration. The separately sold **MT-50** display shows the current performance of the system and can be installed in a convenient place. It also provides the option for adjusting more advanced settings.

The XTRA regulators automatically recognize the systems voltage (12V or 24V) and can be used on lead acid batteries (gel, sealed or flooded). With a **MT50** display, custom charge settings can be set according to battery producer recommendations (suited for AGM / Lithium).

PWM

The standard (PWM) regulator provides basic control over your solar system at a budget price point. Compared to the MPPT system, this unit will give around 20% less power. However, it is a compact unit and so is suitable for smaller installations where space maybe limited.

The PWM & the MPPT models can be connected to the MT50 remote display.

PWM G2 10amp

EP PeakPower XTRA

MT50 Display

Part #	Product	System voltage	Max. PV power	Weight	Dimensions	RRP (£)
MPPT10XTRA	EPsolar Tracer A 10A MPPT	12/24V DC	130W (12V) 260W (24V)	0.6kg	172 x 139 x 44 mm	99.95
MPPT20XTRA	EPsolar Tracer A 20A MPPT	12/24V DC	260W (12V) 520W (24V)	1.1kg	220 x 154 x 52 mm	159.95
MPPT40XTRA	EPsolar Tracer A 40A MPPT	12/24V DC	520W (12V) 1040W (24V)	1.9kg	252 x 180 x 63 mm	299.95
PWM-G2	EPsolar Tracer PWM 10A	12/24V DC	120W (12V) 240W (24V)	0.18kg	140 x 65 x 31 mm	39.78
MT50	Remote Meter (inc. RS485 cable)	5V DC	N/A	N/A	114 x 114 x 36.1 mm	59.95

SUNBEAMSYSTEM

SMART LITHIUM

New for 2018

Did you know that Lead-Acid type batteries were the first type of rechargeable battery and were invented back in 1859? Even though many improvements have been made since then , the technology just doesn't live up to our modern requirements. Due to the lack of a modern type of energy storage for a yacht or RV, users have to live with Lead-Acid and its shortcomings. Early Lithium type batteries are available for Yachts and RV's but their installation often required a rebuild. Also the State of Charge has been hard to measure due to the flat voltage discharge.

Our new **SMART LITHIUM** battery has been designed to solve ALL problems previously found on other batteries available today. It is highly efficient, fail proof, easy to install and user friendly.

+ **Plug & Play** no additional components needed
+ **Safest** battery technology available on market
+ **Smartphone app** no separate display required

SMART LITHIUM

- Plug & Play Install
- Compact & Lightweight
- Free iOS / Android app
- Safe Lithium technology
- Long Life Expectancy

Ease of Use

SUNBEAMsystem **SMART LITHIUM** is a drop-in replacement for your low-tech domestic batteries.

As opposed to other Lithium battery solutions the SUNBEAMsystem **SMART LITHIUM** battery is fully compatible with old Lead-Acid batteries, *without* the need for additional relays or rebuilding the existing system. One can even *keep* Lead-Acid batteries in the circuit if needed. Several **SMART LITHIUM** batteries can be installed in parallel. There is *no need to change* or alter the generator nor the shore power charger. When installed the batteries can be easily monitored via our Bluetooth APP, available for iOS and Android.

We call this **Plug & Play!**

Multi Layered Safety

By choosing a LiFePO4 chemistry, we reach a level of security higher than any other chemistry available. LiFePO4 is superior to any lithium type battery used in mobile phones or computers in regard to safety. On top of this high security we add another layer of security by implementing a safety vent on each battery cell.

Together, this makes it possible for us to certify the battery under the UN 38.3 legislation, guaranteeing it's safe for air-transport. This means the battery is safe even after penetrating or crushing cells. It also means we can guarantee safety in extreme external conditions such as fire, changing air pressure or repeated vibrations. The product is tested on shock impact, short circuiting and overcharging.

On top of this we also offer the built-in safety provided by the smart and fully automatic battery management system.

All-in-all the multi layered security makes it the premier safety choice for sensitive vessels.

Part #				Max. cont. charge	Max. cont. discharge	Peak discharge (10s)	Weight	Dimensions	RRP (£)
SmartLi100	Smart Lithium	100Ah	12V	150A	150A	450A	14.5kg	340 x 170 x 210 mm	1,899.00

SUNBEAM SYSTEM

Long Life

The lifetime of a SMART L I T H I U M is incredible. Even after 2000 cycles of fully empty and fully recharge (0.5C) everytime, It will still remain at least 80% of it's out-of-factory storage capacity.

In real life, not many users will cycle full to empty, hence most producers refer to a 50% discharge level, where we will get an astounding 5000 cycles. Especially compared to Lithium-ion batteries, often found in smartphones, which typically only endure 400-1200 cycles.

Hence, SMART L I T H I U M will not only offer peace of mind – it can be more cost effective in the long term compared the now out dated Lead-based batteries!

Depth of Discharge	80% of factory capacity after
100% DoD	2000 cycles
80% DoD	2500 cycles
70% DoD	3000 cycles
50% DoD	5000 cycles

High Efficiency

The round trip energy efficiency of a LiFePO4 battery is 92%, compared to a Lead Acid battery with about 80% efficiency. These values are calculated at low currents, when faced with higher currents this gap will become even larger.

SMART L I T H I U M will allow for higher currents, both while charging and discharging, without the increased energy loss experienced in a Lead Acid battery. The most noticeable result is that the charging rate from the engine alternator/generator will improve. Even without an upgrade or rearrangement of the electrical system all users will experience shorter charging times. With the right equipment the SMART L I T H I U M could be Quick Charged in under one hour.

Almost all energy stored can be used, minimizing the need to run larger consumers like a fridge only during charge.

The voltage will stay at approximately 13.3 Volt through the main part of the discharge cycle. Even under high load the voltage will be almost untouched compared to a lead based battery. This is thanks to the high efficiency in the battery but will also lead to a more effective use for most appliances in the electrical system.

High Capacity

The capacity (100Ah) is fully available on a Lithium battery, while on a lead-based battery a discharge below 50% will permanently damage the battery.

In addition, virtually only solar panels or a grid connected power charger are able to (slowly) charge a Lead based battery above an 80% charge.

The above two serious flaws are the reason why it is common to explain the difference between Lithium and Lead batteries as if 100Ah Lithium corresponds to a 200Ah Lead based battery. In other words, the usable stored capacity is twice as high. This on a battery half the size and weight of a lead battery.

The constant loss of power over time, found in conventional batteries, is history. Going away for a longer period (> 1 month)? Simply disconnect the battery from the charger and enjoy a ready-to-use battery on return.

- VAKE Organic Anti-freeze liquid is produced from natural, biological material under the same pharmaceutical control as used for food additives.
- VAKE is completely safe for humans, animals, sea life and of course the environment.
- VAKE contains lubricating properties for pumps, valves and gaskets. Natural corrosion inhibiting without toxic additives.
- VAKE is ideal for use in marine applications to avoid contamination of the environment and where recycling of liquid is difficult e.g. Sewage, tanks, toilet, waterborne heating system.