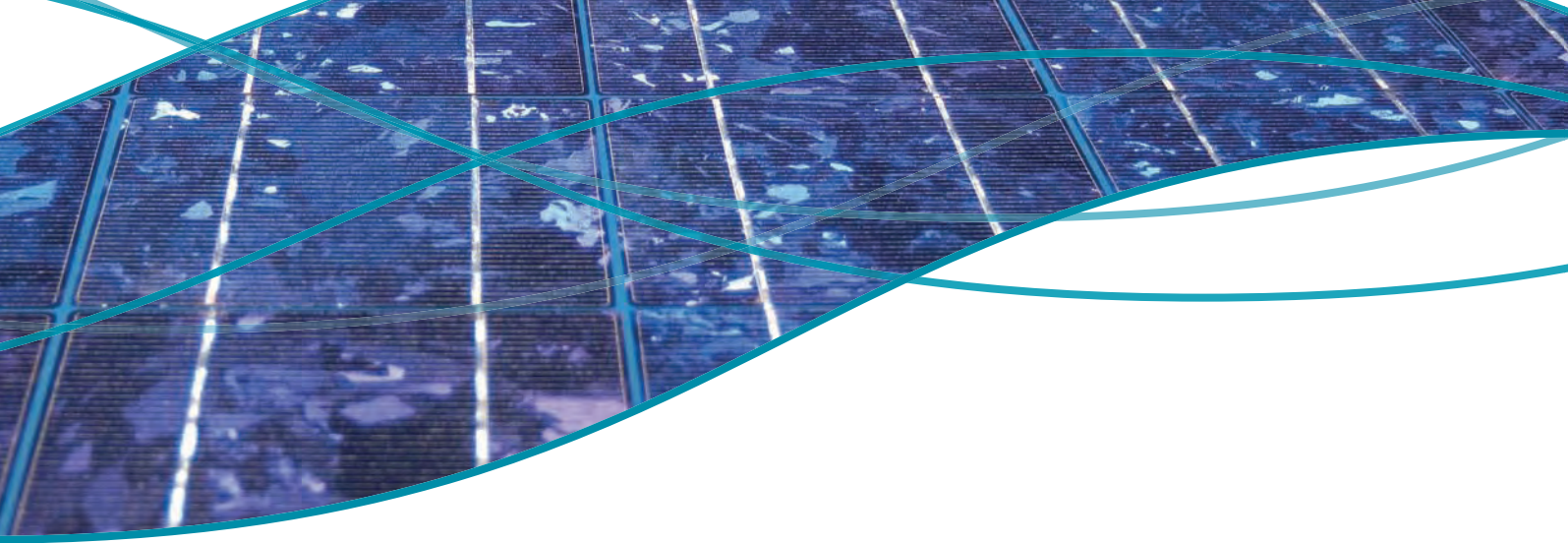


Solar Powered Water Pumping Systems



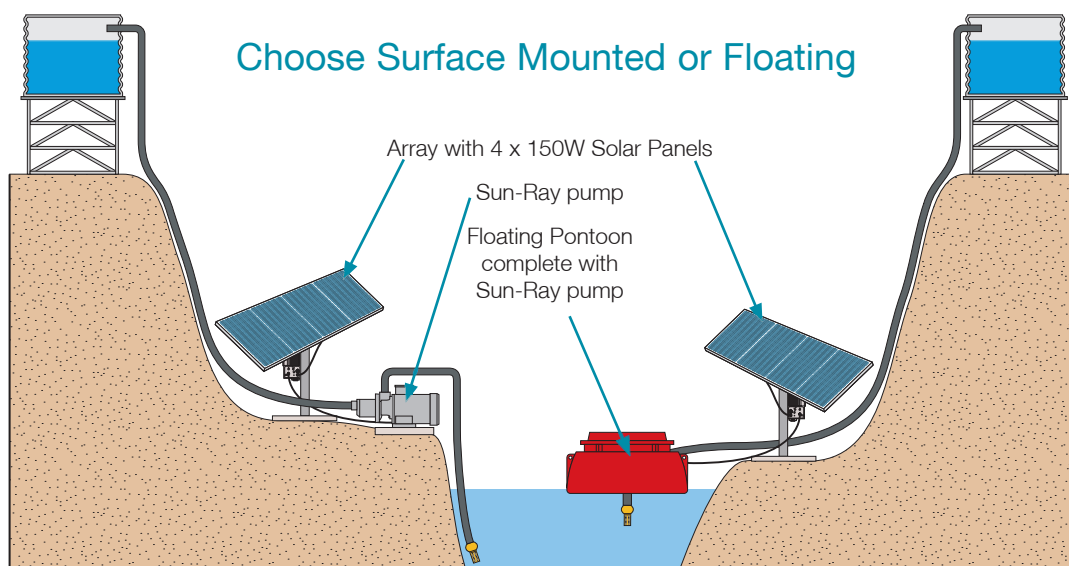
One Company, Unlimited Solutions





Sun-Ray Surface and Floating Pumps

- Compact and Rugged CP Pumps
- MPPT Power Maximiser
- Easy Priming
- Tracker or Fixed
- Rotor / Stator Simplicity
- No More Fuel Bills
- Ideal windmill replacement



Floating Solar Kits

For the simplest water supply under the sun!

- ✓ Never Need Priming
- ✓ High Stability

So simple to install, and you will never have to worry about water level again. Wide range to choose from.

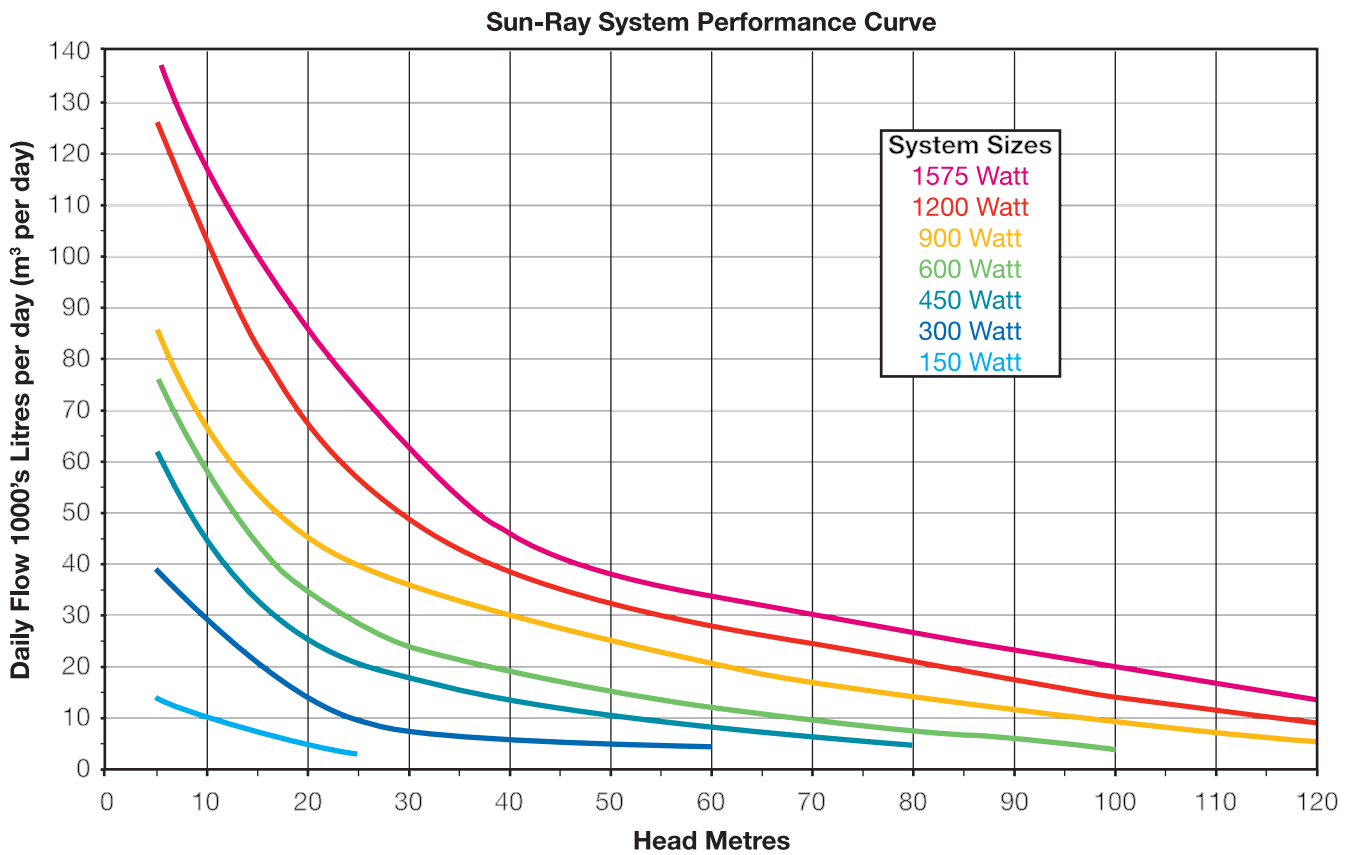
Complete with streamlined floating pontoon, MPPT (Maximum Power Point Tracker) and power cable to suit your application needs.

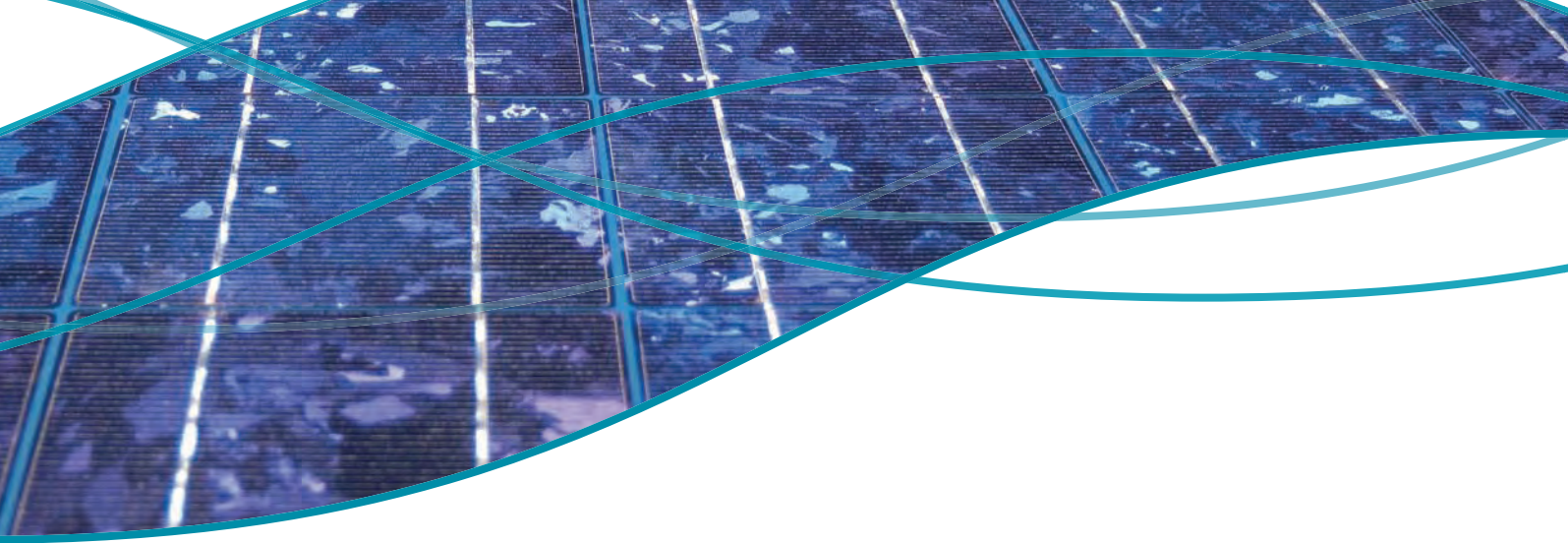
Mono High Transfer Solar Pumps

Higher heads and volumes



Typical ASP belt-drive system for high heads





Sun-Sub Submersible Pumps

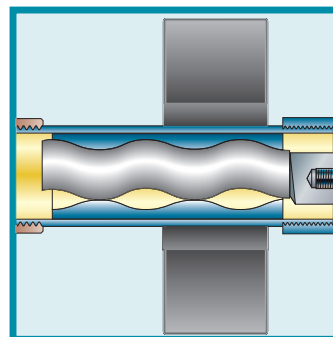
- Power from the Sun
- Flows up to 135,000 l/day
- Heads up to 150m
- 100% plug and socket assembly
- Built in electronic pressure control
- GPS tracking arrays
- Variable speed control
- Helical rotor pump
- Designed and built in Australia



Brushless DC Motor



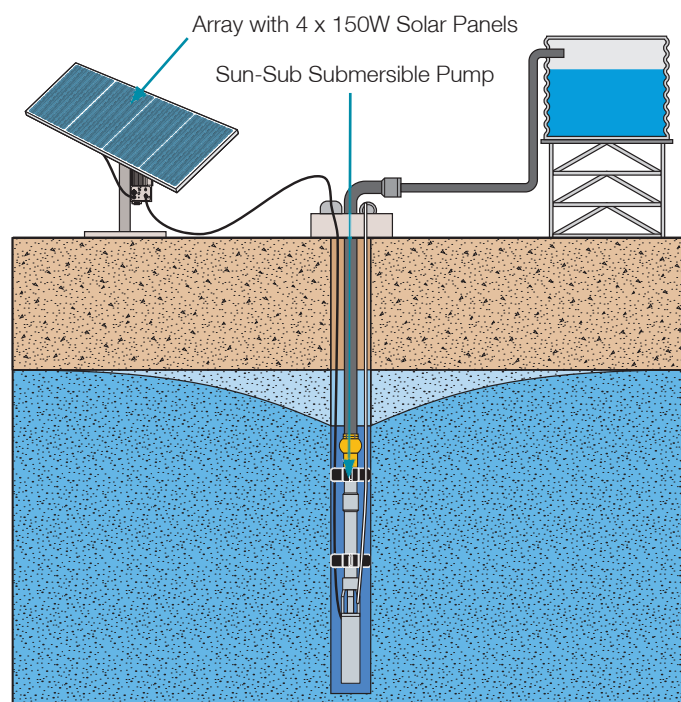
Solar Controllers

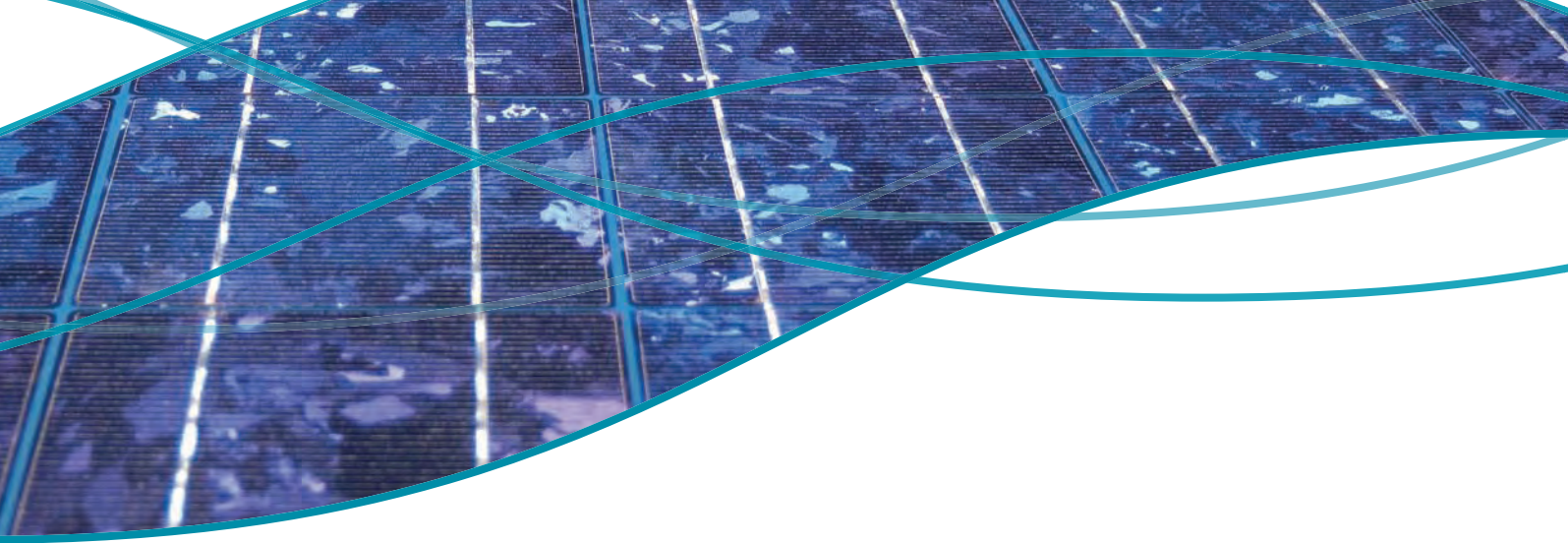


Rotor / Stator



Hand Held Display Unit (HHDU)





Sun-Sub SMC - Series 1000 & Series 2000. Up to 700W Arrays



Sun-Sub Series 3000 SMC
750W to 1800W Arrays



Mini MPPT
Up to 300W Arrays



Power Master MPPT
Various models up to
1575W Arrays

Solar Controllers & Accessories



Solar Motor Controller (SMC)

The SMC is the heart of the Sun-Sub solar pumping system. The highly efficient microprocessor controlled drive, coupled with the brushless DC submersible motor ensures the maximum water output of your solar pump.

- Microprocessor controlled power point tracking
- Variable speed control - low yield bores
- High pressure cut-out - tank filling applications
- Compatible with HHDU (Hand Held Display Unit) diagnostic tool
- Fully plug and socket design - no electrical wiring required



GPS Tracking Array (Optional Accessory)

To maximise the efficiency of your solar pumping system, you need an accurate and reliable tracking array. Mono's patented GPS tracker will ensure that your solar array is always facing the sun.

Utilising a GPS (Global Positioning Satellite) sensor built into the controller, the system can accurately calculate the exact position of the sun and correctly positions the solar array to take advantage of the available light. The GPS tracker overcomes problems traditionally associated with refrigerant gas, light sensor and timer trackers. Increased flows of around 30% are achievable with the GPS tracker.



AC PowerPak (Optional Accessory)

Not every solar pump needs generator backup, however if you do, you need a 100% reliable supply - designed to enable connection of your Sun-Sub pump to a generator. The AC PowerPak, designed by Mono will enable you to pump water 24/7.

- Compact design - easy to move it to where you need it
- Efficient - only requires 1KVA generator, (but will also work on large generators). Less fuel consumption, longer run time
- Intelligent - Automatically protects itself and the solar pump from voltage spikes
- Auto change over - Automatically switches from AC back to solar power when the generator stops



Power Master Controller

The Mono Power Master or Maximum Power Point Tracker (MPPT) continually monitors the available solar power to ensure the maximum power is delivered to the DC motor used in Sun-Ray solar pumping systems.

- Microprocessor controlled power point tracking
- Full plug & socket design
- Compatible with HHDU diagnostic tool



GPS Actuator and
Solar Tracker Controller



AC PowerPak

Solar Selection - CASS

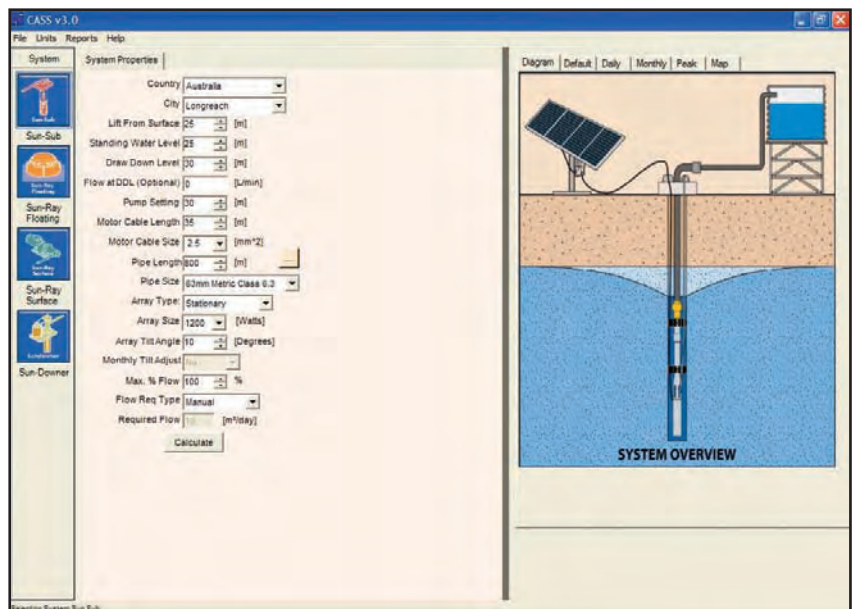
The right solution for your site.

This is vital in the selection of every solar pumping system. Through the use of the Mono CASS program, this is what you will get.

Using historical meteorological data and the results of extensive system testing we can predict the daily average flows from every system in the Mono solar range, for hundreds of locations around the world.

CASS takes into consideration location, type of pumping system, solar array size and length of your discharge pipe work. This information allows CASS to accurately predict the flow rate of your system, with your pipe work, in your location.

CASS allows for a variety of systems to be modelled easily to ensure you get the Mono solar system to suit your requirements.



Frequently Asked Questions

On cloudy days

A Mono solar pump keeps working even in low light. When it is cloudy, your Mono will slow down but because it has no minimum speed (unlike a centrifugal pump), it will keep drawing water.

Daily flow rates

Minute by minute flow is irrelevant to a system that pumps from dawn to dusk. Our figures are based on the daily average performance of a pump. Flow will be highest on sunny days when you most need water.

Weather resistance

Solar panels are far more cyclone resistant than windmills. All array frames have been designed to withstand 140km/hr winds and can be easily modified to withstand 210km/hr storms. The toughened glass panels are famous for their resistance to hail.

Pump and panel life

Mono pumps can last for decades. We do not yet know how long it takes to wear out solar panels. Our first installations were installed in 1985 and are still going strong many years later. Their owners expect many more years of reliable pumping power.

How Mono solar pumps work without batteries

Other solar pump motors need batteries to keep up speed, wasting up to 30% of the electrical energy in the process. Mono solar pumps use the same DC (direct current) produced by the panels. Add Mono's low-speed pumping power and the electrical efficiency of the MPPT and you have today's most productive solar pumping systems.

Store energy as water

The simplest way to store solar energy is to use gravity by pumping water into elevated tanks.

Budgeting for solar

A solar pumping system costs about the same as an old-fashioned windmill. And your Mono solar powered pump will quickly pay for itself in savings on diesel, petrol or electricity.

Water level protection

Like any electric pump, your Mono solar pump can be controlled with pressure and/or float switches. A connector on the MPPT control box makes it easy to protect against dry bores or full water storage.

Europe

Mono Pumps Ltd, Martin Street, Audenshaw
Manchester, M34 5JA, England
T. +44 (0)161 339 9000
E. info@mono-pumps.com

D.M.I. EST, 56 rue du Pont
88300 Rebeuville, France
T. +33 (0)3 29 94 26 88
E. dmi-est@dmi-est.fr

Americas

Monoflo NOV, 9700 West Gulf Bank
Houston, Texas 77040, USA
T. +1 281 272 7700
E. inquire@monoflo.com

Monoflo S.A., Ing Huergo 2239
(1842) Monte Grande
Pcia. de Buenos Aires, Argentina
T. +54 11 4290 9940/50
E. info@monoflo.com.ar

Australasia

Mono Pumps (Australia) Pty Ltd
Mono House, 338-348 Lower Dandenong Road
Mordialloc, Victoria 3195, Australia
T. +1800 333 138
E. ozsales@mono-pumps.com

Mono Pumps (New Zealand) Ltd
PO Box 71-021, Fremlin Place, Avondale
Auckland 7, New Zealand
T. +64 (0)9 829 0333
E. info@mono-pumps.co.nz

Asia

Mono Pumps Ltd, No. 500 YaGang Road
Lujia Village, Malu, Jiading District
Shanghai 201801, P.R. China
T. +86 (0)21 5915 7168
E. monoshanghai@nov.com

www.mono-pumps.com



Published information other than that marked CERTIFIED does not extend any warranty or representation, expressed or implied, regarding these products. Any such warranties or other terms and conditions of sales and products shall be in accordance with Mono Pumps Limited standard terms and conditions of sale, available on request.

© Mono Pumps Limited July 2008 Literature reference: MPSB/08/01

Mono® is a registered trademark of Mono Pumps Ltd.
Registered in England No 300721