SUN-SUB

SOLAR-POWERED, SUBMERSIBLE WATER PUMPING SYSTEMS

The Sun-Sub submersible pump system is a solar-powered system designed to efficiently and reliably transfer water from bores, springs, rivers, tanks and dams. The system draws energy from the sun and is completely self-contained, eliminating the need for diesel fuel or AC power. Components are low maintenance, designed for use in solar-powered pumping systems and highly efficient to maximise water output. Supplied as a complete package, the Sun-Sub system is easy to install and use.

THE SUN-SUB SYSTEM

Sun-Sub systems are comprised of four main parts – solar array; solar motor controller (SMC); brushless DC submersible motor with electrical drop cable and a subrotor pump (wet end) which is direct-coupled to the submersible motor.

Additional items such as bore caps, termination kits, water level controllers (WLCs) and float switches may also be supplied with the system.

It is critical that you install the right solar pumping system for your specific situation. Our Computer Aided Solar Selection (CASS) software, available at www.solarcass.com, can help to determine the right system for you.

KEY FEATURES AND SPECIFICATIONS

The Sun-Sub submersible pump systems have high daily flows with discharge pressures up to 150 metres. The systems can be easily automated using a float switch, pressure kit or built in electronic pressure control and are suitable for use in 100 mm (4") or larger boreholes. Sun-Sub systems come in three motor sizes – Series 1000 (300W output power rating), Series 2000 (600W output power rating) and Series 3000 (1200 W output power rating) and can operate in -10–50 °C temperatures and in water with a PH of 6.0–8.5.

SOLAR ARRAY

Range of output power from 200 Watts to 2400 Watts.

Available in either stationary or GPS tracking. Mono's patented GPS tracker can increase flows by around 30 per cent.

Designed to withstand 140 km/hr winds and can be easily modified to withstand 210 km/hr winds.

SOLAR MOTOR CONTROLLER (SMC)

Solar maximum power point tracker (MPPT) and brushless DC motor control electronics are combined in the one enclosure.

MPPT adjusts the voltage on the solar array to maximise power generation and increases or reduces voltage to suit the demands of the controller.

Variable speed control for easy regulation of pump flow – ideal for low yield bores.

Electronic pressure control enables automatic pump shutdown once tanks and troughs are full. Thermal overload protection is also in place.

Low motor speed cut-off to reduce pump and motor wear.

Easily accessible on/off switch and optional interface to a hand-held display unit.

BRUSHLESS DC SUBMERSIBLE MOTOR

Purpose-built motor for use in solar pumps.

High torque, high efficiency, brushless and sensorless DC submersible motor for coupling to the submersible pump. No sensor is needed to determine rotor position within the motor and without brushes to wear out, no on-going maintenance is required.

Manufactured with 316 stainless steel; fully sealed and filled with environmentally friendly oil.

Sealed, permanent magnet rotor supported by rolling element bearings.

Drive electronics are housed separately on the surface in the SMC.

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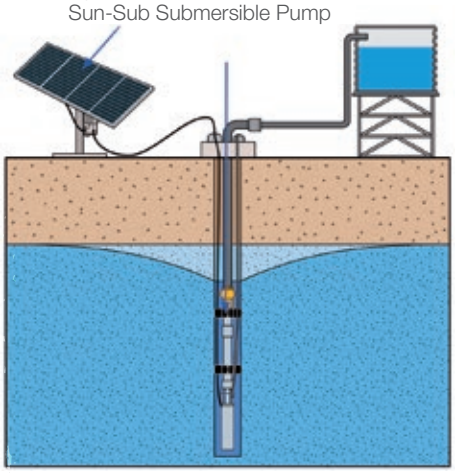
SUBROTOR PUMP, WET END

Progressing cavity pump designed specifically for the Sun-Sub system.

Helical rotor pump element provides maximum water output even when the water contains silt or iron oxide. Low pump speed means extended rotor and stator life in abrasive bores.

High operating efficiency of pump and SMC ensures maximum amount of water can be pumped over whole day and during cloudy conditions.

Array with 4 x 200W Solar Panels
Sun-Sub Submersible Pump



SUN-SUB PERFORMANCE CHARACTERISTICS

6.5KW/HR AVERAGE PERFORMANCE TRACKING								
SYSTEM SIZE (WATTS)	200	400	600	800	1200	1600	1800	2400
HEAD (M)								
5	28	71	107	113	116	117	118	120
10	24	64	93	104	113	115	115	115
15	21	54	79	95	108	113	113	113
20	18	45	62	81	102	109	111	112
25	16	34	55	69	96	105	107	111
30	14	29	48	58	88	100	103	108
35	10	24	41	53	78	94	99	105
40	9	22	35	46	68	88	94	102
45	8	20	31	41	59	79	84	92
50	8	18	28	35	56	66	68	72
55	7	17	26	33	51	62	65	70
60	6	13	23	30	45	59	63	68
65		12	21	27	40	44	45	47
70		11	20	25	38	43	45	47
75		11	18	22	36	42	43	46
80		10	17	22	34	41	42	45
85		9	11	20	31	37	41	44
90		9	11	19	29	37	40	43
95		8	11	17	22	25	28	28
100		7	11	16	22	24	27	27
105		7	10	14	23	24	26	27
110		6	10	13	21	23	25	26
115		5	9	12	20	22	24	26
120		5	9	10	19	22	24	25
125			8	9	18	21	23	24
130			7	9	17	19	22	24
135			7	9	15	17	21	23
140			6	8	13	15	20	22
145			5	8	12	14	19	21
150			4	7	10	13	18	20

	1000 Series	2000 Series	3000 Series

ARRAY STRUCTURE								
System Power [Watts]	200	400	600	800	1200	1600	1800	2400
No. of 200W Module	1	2	3	4	6	8	9	12
No. of Array Frames	1	1	1	1	2	2	3	3

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