{REFNUM}
Wed, 12-Jul-23

Wednesday, 12th Jul 2023
Kwale Water Pumping Solution
James Muigai
RFH4+766, RFH3+3W, RFG3+HGH, Kwale, Golini, Matuga, Kwale County, Kenya
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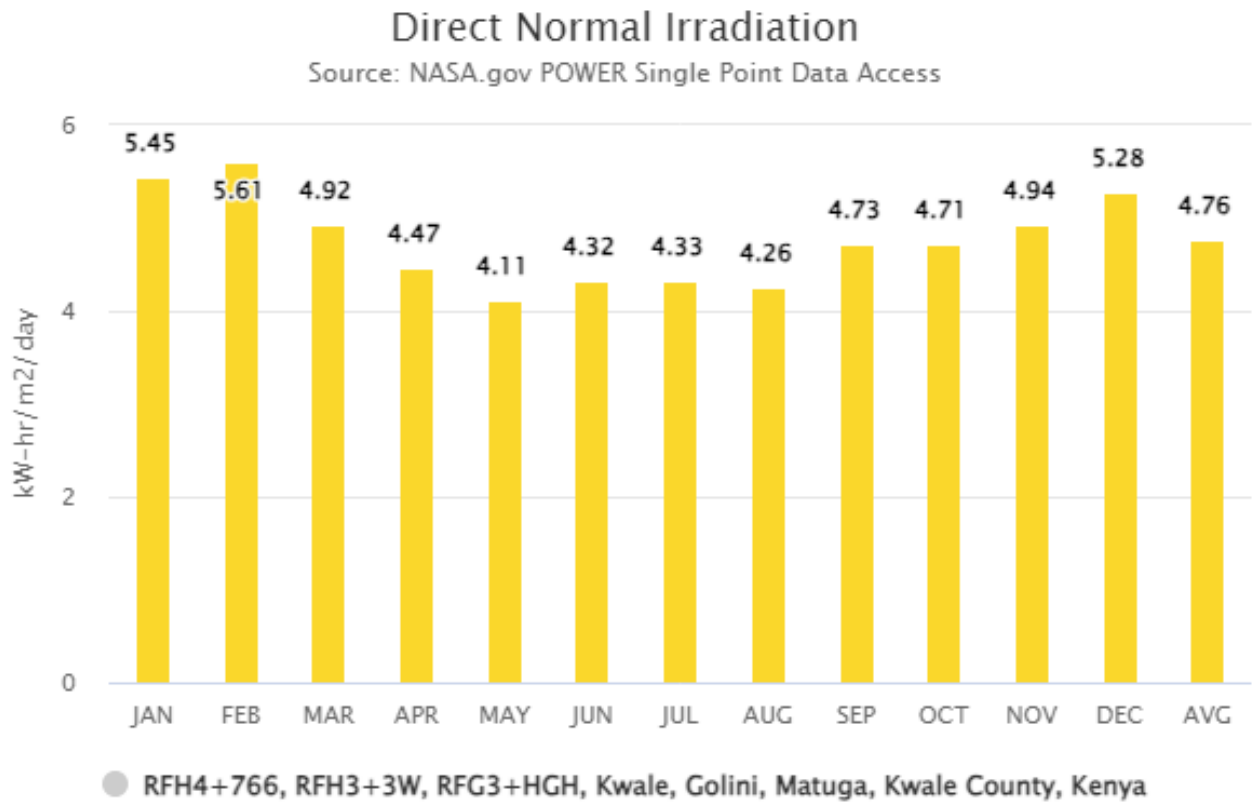
254723378853
Solar pumping solution for James Muigai in Kwale town for 30,000 litres at 200m head.

Paramaters									
Location	RFH4+766, RFH3+3W, RFG3+HGH, Kwale, Golini, Matuga, Kwale County, Kenya(-4.172328712354164, 39.45484548436276)								
Required Daily Output	30 m³	Pipe Type		Motor Cable	m	Pipe Length & Inner Diameter	m, "	Head (TDH)	200m

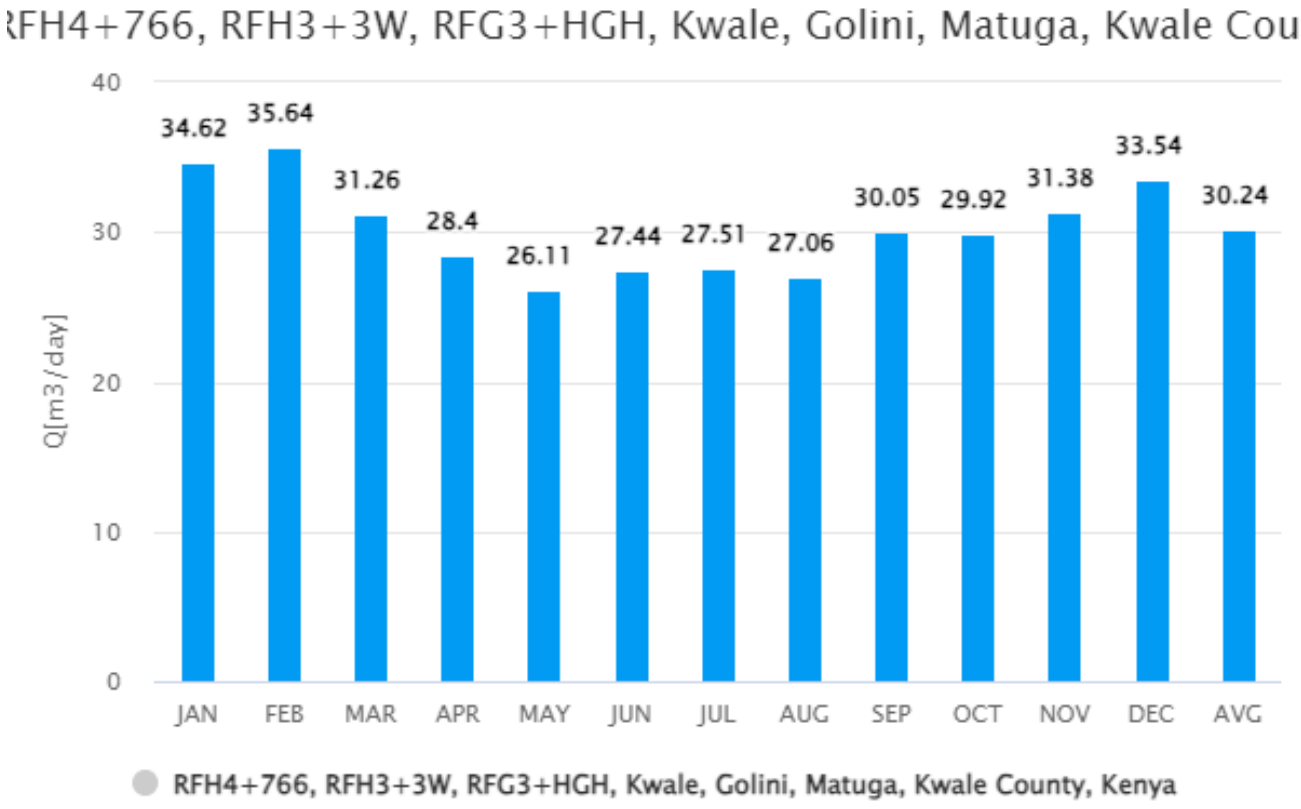
Product	**Quantity**	**Details**
Pump - DSD 8/45	1	Suitability **98.07**%, Efficiency **59.26**%
Inverter - SV3/7.5T	1	
Panels - AS340	16 x 2	**2** string(s) each with **16** Solar panels.
Motor Cable	Length , Cross Sectional Area **4mm²**	
Other Accessories		
Water Level Switch / Well Probe	1	
Water Level Sensor Cable	2 Core x 1.0mm2, Length -	
PV Disconnect	1	DAYLIFF 4ST 1000V/32A PV Disconnect Switch
Earthrod c/w Clamp	1	
6mm² DC Cable for Earthrod	(As required)	
Daily output in average month - 30.24		

Monthly Irradiation Data



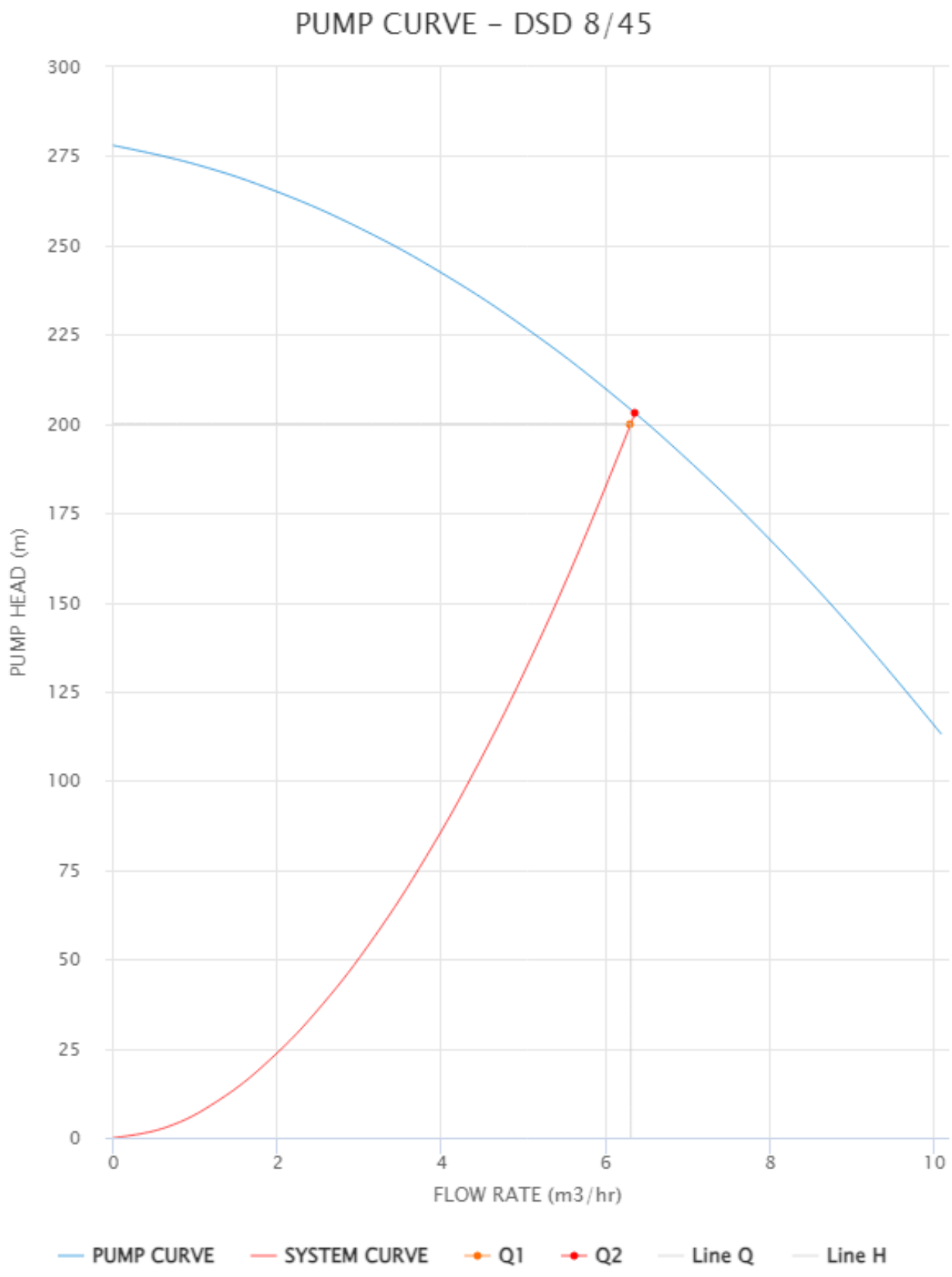
Irradiation [kWh/m²]	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg
	5.45	5.61	4.92	4.47	4.11	4.32	4.33	4.26	4.73	4.71	4.94	5.28	4.76

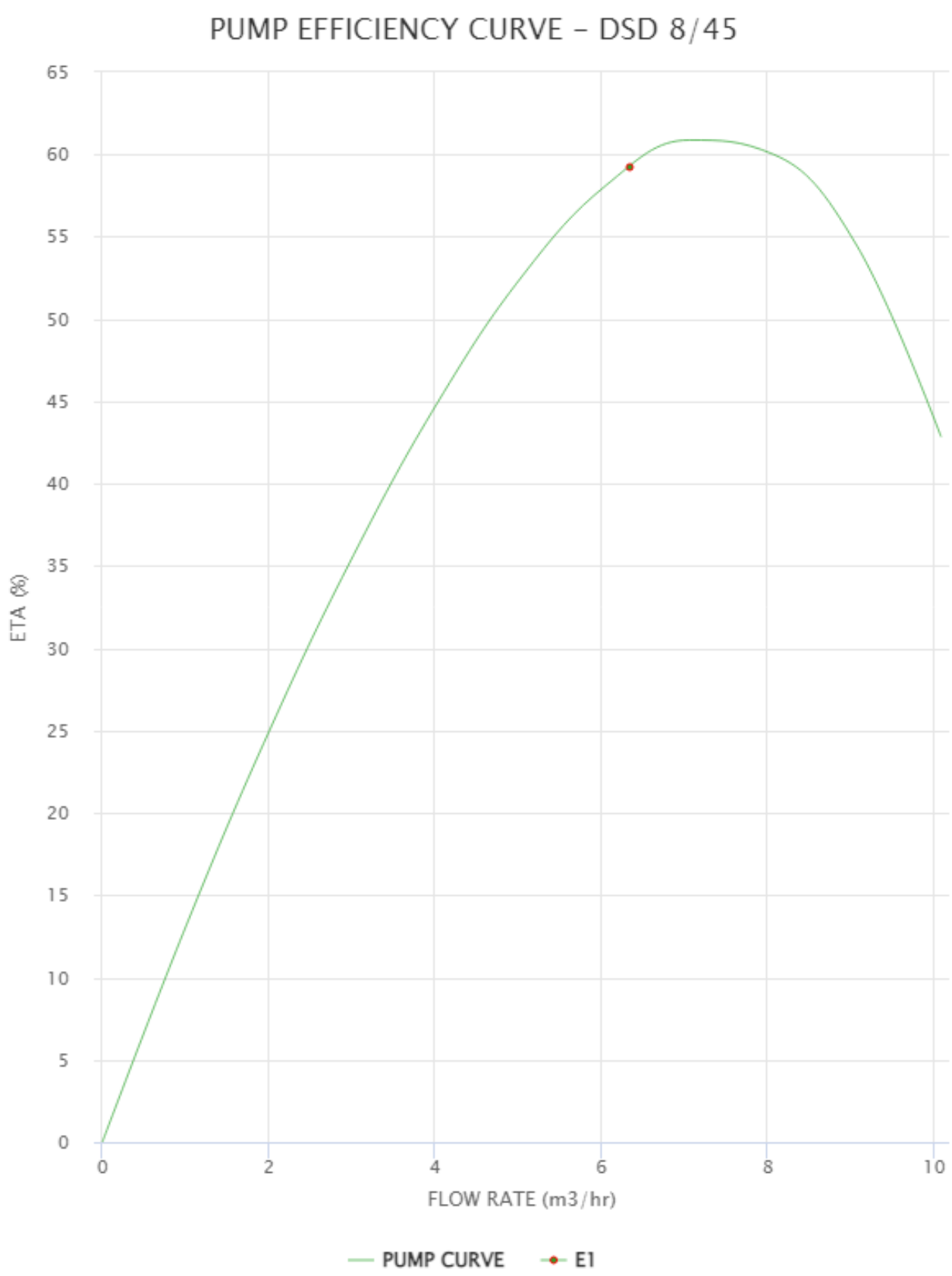
Monthly Output Data



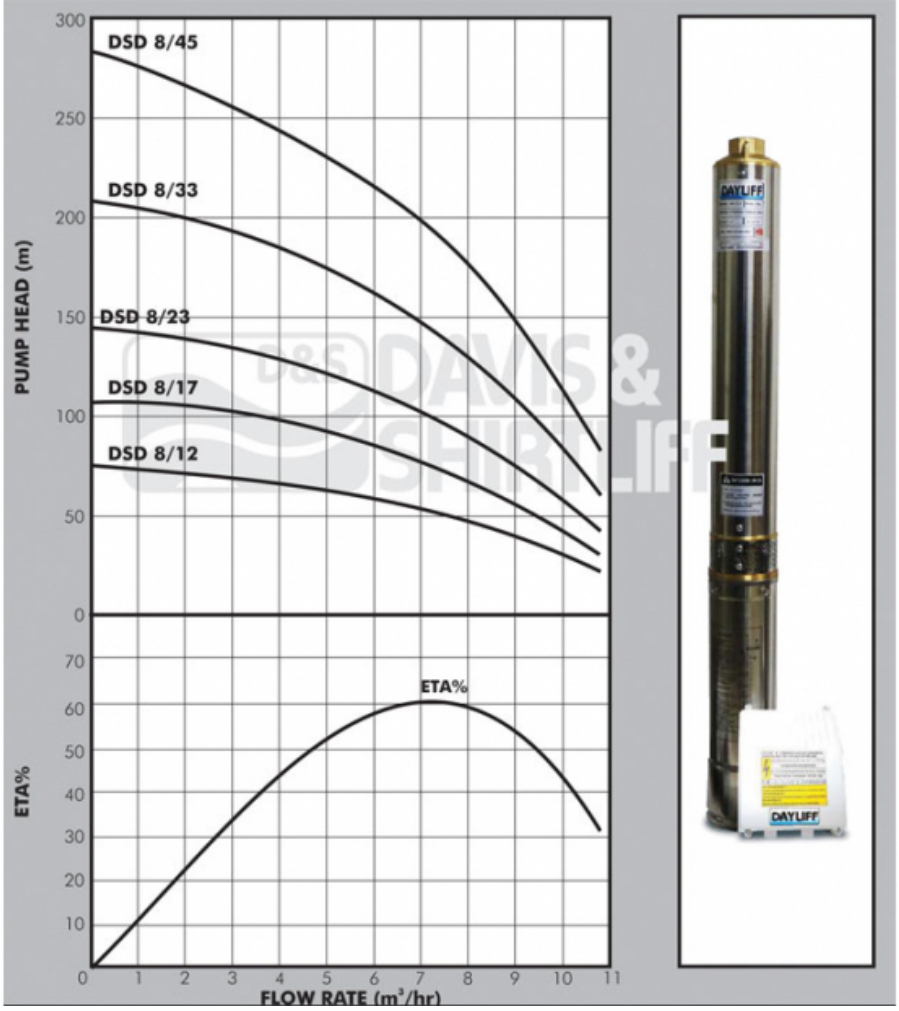
Output [m³/day]	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg
	34.62	35.64	31.26	28.4	26.11	27.44	27.51	27.06	30.05	29.92	31.38	33.54	30.24

Pump & System Curves




PUMP EFFICIENCY CURVE – DSD 8/45
65
60
55
50
45
40
35
30
25
20
15
10
5
0
ETA (%)
0
2
4
6
8
10
FLOW RATE (m3/hr)
PUMP CURVE
E1

DSD 8/45



Dayliff DSD range of Submersible Multistage centrifugal pumps are specially designed for water supply from wells and boreholes. Material of construction include polycarbonate impellers and diffusers, cast iron delivery and suction chambers and AISI 304 stainless steel pump housing, shaft and shaft coupling. These quality materials together with the polycarbonate impellers provide the pumps with excellent sand handling capabilities for a longer life. DSD8/12 is supplied complete with 30m cable and a control box.

Motor

The pump is coupled to a sealed liquid cooled 2-pole asynchronous squirrel-cage motor constructed of stainless steel. Single phase motoors should be supplied with purpose designed Dayliff SCM control boxes for operation and protection against overload, dry running and over/under voltage.The motors require a remote DOL starter; A DAYLIFF SCT electronic Pump Controller is recommended for comprehensive pump control including low level, motor overload and irregular power supply protection.

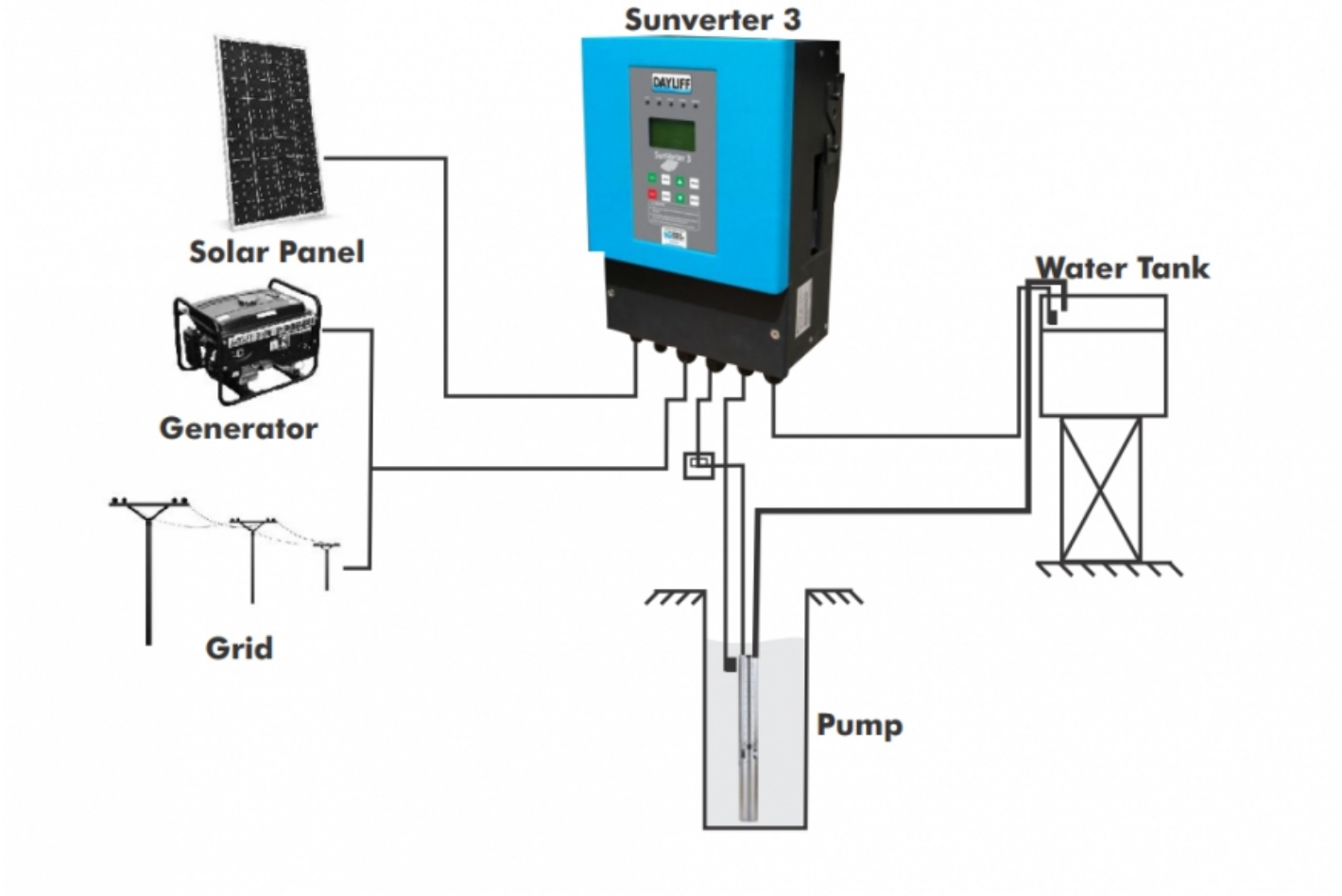
Enclosure Class: IP68
Insulation Class: B
Speed: 2900rpm

OPERATING CONDITIONS
Pumped liquid: Thin, clean, chemically non-aggressive liquids with a max. sand content of 0.25%
Max. Water temperature: +35°C
Max. immersion depth: 150m
Min. borehole diameter: 110m

Pump Data

Model	Motor		Voltage (V)	Current (A)	Istart I	DN (")	Dimensions(mm)		Weight (kg)
	kW	HP					A	D	
8/12	1.5	2.0	1x240 v	10.5	4		716	1192	13
8/17	2.2	3.0		15			945	1526	18
			3x415 v	6	7		945	1486	23
8/23	3	4.0		8			1093	1675	28
8/33	5.5	7.5		13	6.3		1586	2264	35
8/45	7.5	10		15	6.5		1955	2791	49

SV3/7.5T



Dayliff Sunverter 3 is the latest update of the established Sunverter range of advanced AC/DC inverters specially designed for solar-powering AC motors in various water pumping applications. As well as a general upgrade of the electronics and functionality an important new feature is hybrid capability that enables concurrent operation with direct AC power from mains or generator supply while prioritising solar supply. It is adaptable to all AC motor types and can be retro fitted to existing AC supply installations in solarisation projects. Particular features include;

- Hybrid capability with the option of DC solar power, generator or mains grid power inputs
- Patented MPPT (Maximum Power Point Tracking) capability providing fast response, good stability and up to 99% efficiency.
- Fully automatic operation with up to 8 years storage capacity of operating data.
- Supports motor soft start and gives full motor protection
- User friendly LCD display interface with comprehensive display information
- Integral remote monitoring and control capability activated by installing a registered Sim Card with data plan or alternatively signing up to the unique iDayliff Service
- Strong IP65 rated enclosure for enhanced component protection

CONTROLLER FUNCTIONALITY

The controller offers the following control functions:

- Settable minimum and maximum frequency and open circuit voltage.
- Display of operating parameters including frequency, voltage, amperage, input power and pump speed.
- Display of historical data including energy generation, maximum power and operating times.
- Protection against over and under voltage, over current, system overload and module over temperature.
- Fault detection with error code display.
- Selectable hybrid modes that prioritise solar supply as well as maximise output through optimal blending of both power supplies

INSTALLATION

Dayliff Sunverter 3 controllers are surface mounted and should be provided with a housing for water and heat protection. They must also be provided with a circuit breaker between the PV modules and controller. Due to the high operating voltages proper earthing is essential, which must be done by a qualified electrician. As a rule, all PV powered solar pumping systems should be provided with a solar module array with a nominal output about 30% greater than the motor size. In hybrid applications, higher array MPP voltage is specified to allow achievement of larger solar supply share of hybrid power supply. The arrays should be wired in a combination of series and parallel connections to ensure that the correct voltage is available into the inverter. It is important that the connection arrangement is approved by the pump supplier.

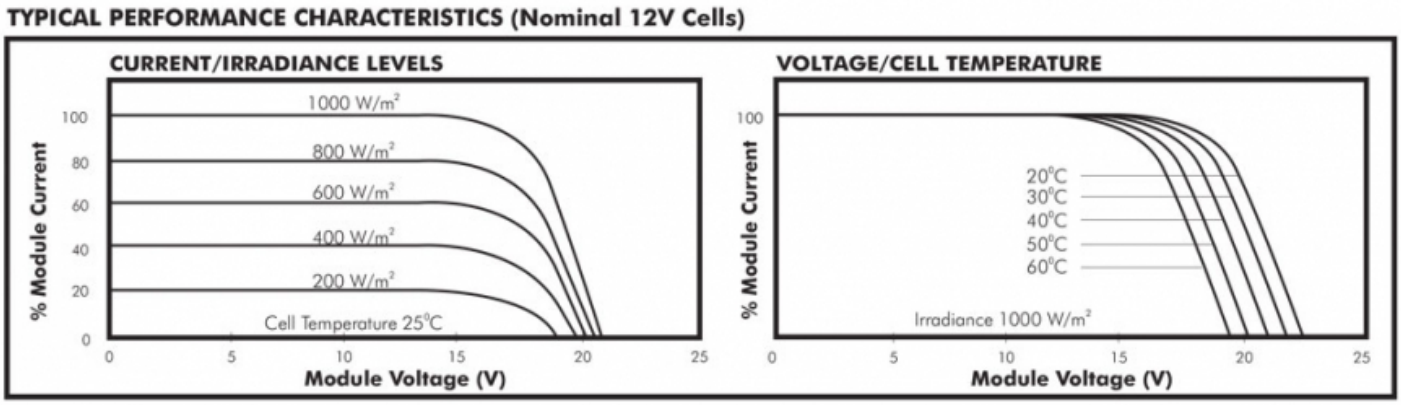
OPERATING CONDITIONS

Enclosure Class: IP65 Ambient
Temperature: -20°C to 60°C
Relative Humidity: 0-95%
Frequency: 0-60Hz

Model	Motor Rated Power (kW)	Rated Voltage	Output Current (A)	Max DC Input Voltage VDC	MPP Voltage VDC, Solar	MPP Voltage VDC, Hybrid	Dimensions (mm)	Weight (kg)

H	W	D								
SV3/1.5M	1.1	1x240V	8.6	450	150-360	150-370	416	257	158	8.5
SV3/2.2M	1.5		11							
SV3/3.7M	2.2		17		310-360	324-370				
SV3/3.7T	3.7	3x415V	9	850	500-700	600-700	458	300	175	8
SV3/5.5T	5.5		13							
SV3/7.5T	7.5		18							11.5
SV3/11T	11		24							
SV3/15T	15		30							
SV3/18T	18.5		39							
SV3/22T	22		45							
SV3/30T	30		60	780	500-600		625	388	235	29
SV3/37T	37		84							
SV3/45T	45		98							

AS340



The heart of all effective photovoltaic systems is an efficient and reliable solar module and there are none better than Dayliff PV Modules. All are sourced directly from leading global PV module manufacturers who comply with the highest standards of quality and durability and offer the following features:-

- High efficiency multi/Mono crystalline solar cells with minimum 15% energy conversion rates to provide maximum power even at low irradiation levels
- High transmission rate tempered glass with an anti-reflection coating to increase the power output and provide mechanical strength.
- Multi function water proof junction box for easy connection.
- 25 year power output warranty.
- Global Certification.

Modules are sourced from world leading PV module manufacturers principally Yingli, Topray and Amerisolar who are all large scale vertically integrated manufacturers that process from silicon production to module assembly to ensure consistently high quality levels. Module types are recognised as quality products and are internationally certified by TUV Rheinland to ISO, CE and IEC standards as follows.

All Dayliff modules are manufactured to the highest standards and are guaranteed to provide reliable performance over long life spans. They are quality products in terms of both technology and performance and are ideal power sources for all types of solar applications.

THERMAL CHARACTERISTICS

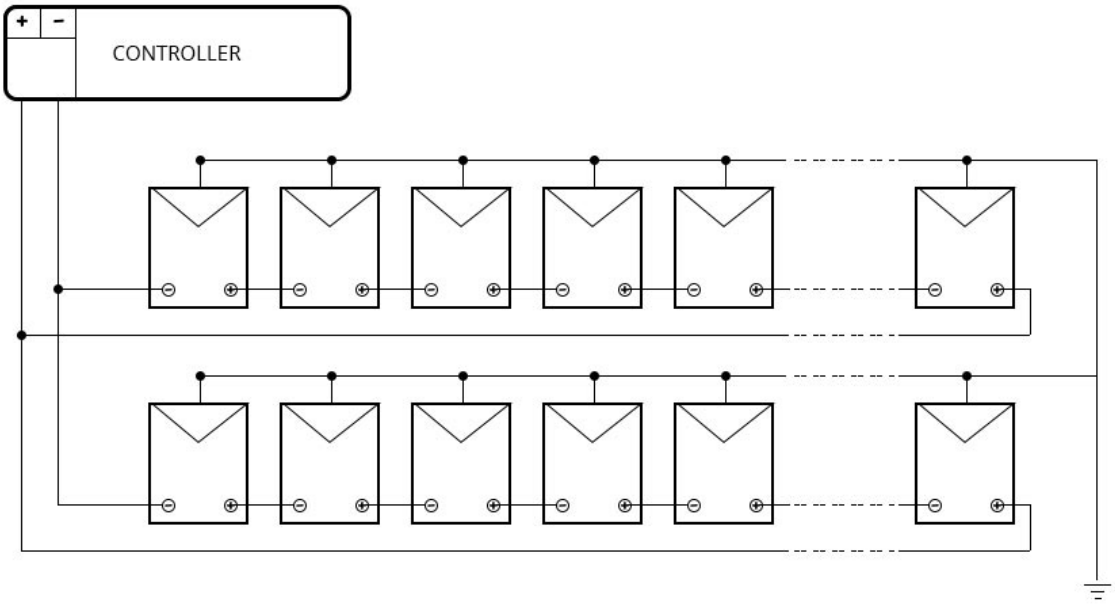
Nominal Operating Cell Temperature: 46+/-2°C
Temperature Coefficient Pmax: - 0.45%/°C
Temperature Coefficient Voc: - 0.37%/°C
Temperature Coefficient Isc: 0.06%/°C

ELECTRICAL DATA

Model	Rated Power (W)	Nominal Voltage (V)	Peak Voltage(V)	Open Circuit Voltage (V)	Short Circuit Current (A)	Number of Cells	Dimensions						Weight (kg)
SL20P	20	12	18	21.6	1.2	36	496	495	296	350	100	23	2
SL40P	40	12	18	21.6	2.5	36	665	665	316	516	100	25	4
SL50P	50	12	18	21.6	2.9	36	667	665	467	588	100	25	4
SL60P	60	12	18	21.6	3.7	36	689	667	467	665	100	25	5
TPS 125P	125	12	17.5	21.5	7.4	6	1179	664	899	626.4	140	35	9
TPS 150P	150	24	36	43.2	4.45	72	1486	664	1206	626.4	140	35	12
TPS 200P	200	24	36	44.5	5.6	144	1372	1002	1092	964	140	35	18
AS280P	280	24	31.8	39.0	9.48	60	1640	992	640	942	500	35	18
AS335P	335	24	37.5	46.1	9.44	72	1956	992	1556	942	200	35	21
YL400M	400	24	30.7	37.1	13.78	108	1722	1134	1300	1085	200	30	21
YL535M	535	24	41.5	49.4	13.76	144	2279	1134	1400	1084	400	35	29

Data is given at Standard Test Conditions: Irradiance 1000W/m² , spectrum AM 1.5 and 25°C cell temperature All modules Polycrystalline except when indicated 'Mono' for Monocrystalline

Wiring Diagram



16 panels by **2** string(s)

Scan with the Dayliff App