

February 21, 2013

## New project

Solar pumping project

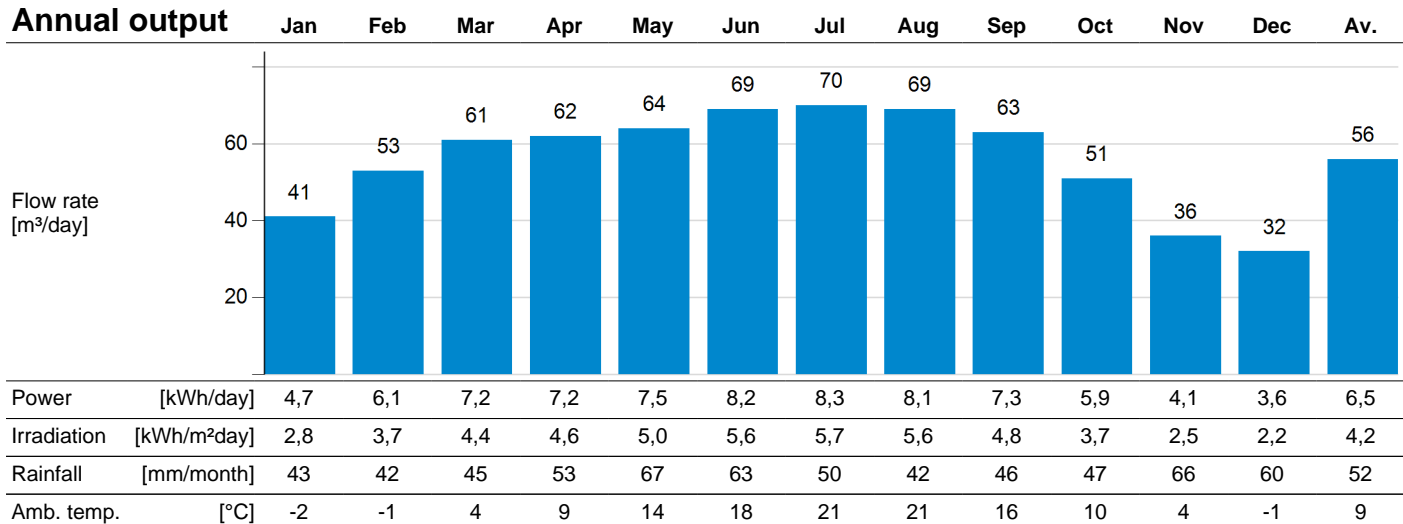
### Project data

Solar data:	Skopje, Macedonia (42°N; 21°E; 3,7 kWh/m <sup>2</sup> hor.)	Static head:	20 m	Cable length:	25 m
Required daily flow:	60 m <sup>3</sup> /day in annual average	Dirt loss:	5,0 %	Pipe length:	-

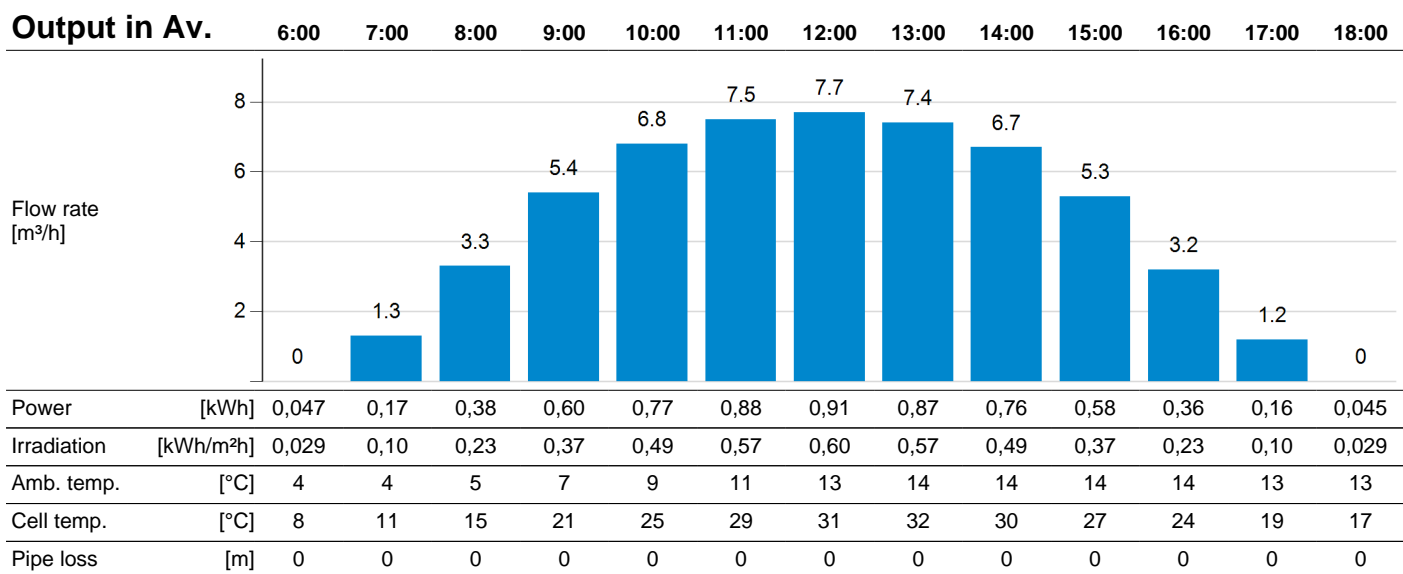
### Products

Products	Quantity	Details	Item #
PS1800 C-SJ8-7	1 pc.	Pump system incl. Controller, Motor, Pump end	1169
LC185-24M	9 pc.	1.665 Wp; 3 x 3 modules; 42 ° tilted fixed array	968
Motor cable	25 m	4mm <sup>2</sup> 3-phase cable	-
Well probe sensor	1 pc.	Dry running protection	1658
Cable splice kit	1 pc.	Submersible Cable splice kit (2.5 ... 6 mm <sup>2</sup> )	1660

### Annual output



### Output in Av.

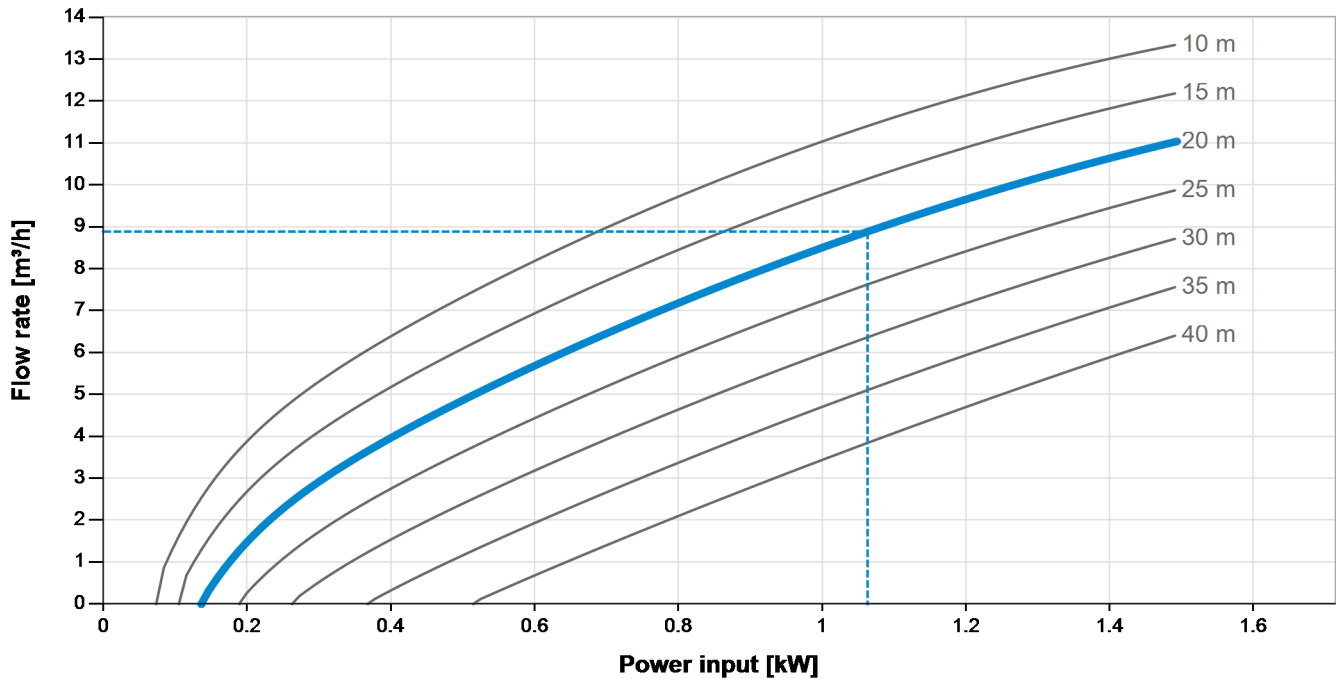


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### System performance



			Min.	at 800 W/m², 20 °C	Max./STC*
<b>PV generator</b>	Cell temperature	[°C]		46	25
	Power loss (temp)	[%]		11	-
	Dirt loss	[%]		5,0	-
	Pmax	[Wp]		1.135	1.665
	Vmp	[V]		98	109
	Imp	[A]		12	15
	Voc	[V]		122	134
	Isc	[A]		13	17
	Pout	[W]		1.100	-
	Vout	[V]		105	-
	Iout	[A]		11	-
<b>Motor cable</b>	Power loss (temp)	[%]	0,79	2,3	2,3
<b>Pump system</b>	Motor power	[W]	137	1.065	1.495
	Motor voltage	[V EC]	62	102	121
	Motor current	[A]	2,2	10	12
	Motor speed	[rpm]	2.025	2.705	3.010
	Flow rate	[m³/h]	0	8,9	11
	Efficiency	[%]	0	45	53

\*STC: Standard Test Conditions for Photovoltaic Modules, 1000 W/m² inplane irradiation, 25° C cell temperature