

# PS600 BADU Top12

## Solar-operated Centrifugal Surface Pump

### Characteristics

- flow rate up to 15 m<sup>3</sup>/h
- maintenance-free thanks to brushless DC motor
- excellent efficiency

### Application

- swimming pool water circulation through a filter system and thermal collectors
- pond management
- irrigation
- aquariums
- etc.

### Components

#### Pump End (PE) BADU Top 12

- monoblock-type pump with integrated strainer tank
- bellow mechanical seal is mounted on a plastic shaft protected sleeve
- motor/pump shaft has no contact with fluid
- total electric separation
- strainer capacity approx. 3 l
- strainer basket mesh size approx. 3.2 × 2.6 mm

#### Material Used For Pump End

- pump casing, strainer basket: PP
- flange, gland housing: PP TV 40
- diffuser: PP TV 40
- impeller: PA 66 GF 30 / PC
- lid: PC, transparent
- mechanical seal: carbon / ceramic / NBR
- bolts: steel, galvanized

#### Motor ECDRIVE 600 BADU Top

- brushless, maintenance-free DC motor

#### Controller PS600

- controlling of the pump system and monitoring of the operating states
- mounted at surface (no submerged electronic parts)
- two control inputs for well probe (dry running protection), float or pressure switches, remote control etc.
- automatic reset 20 minutes after well probe turns pump off
- protected against reverse polarity, overload and high temperature
- speed control, max. pump speed adjustable to reduce flow rate to approx. 30 %
- solar operation: integrated MPPT (Maximum Power Point Tracking)
- battery operation: low voltage disconnect and restart after battery has recovered
- max. efficiency 92 % (motor + controller)

Pump System	PS600 BADU Top12
article #	2921
controller	PS600
motor	ECDRIVE 600 BADU Top
pump end (PE)	BADU Top12, manufacturer Speck Pumps
source of energy (not contained in delivery)	solar generator 340-900 Wp battery DC source



### Warranty

Two years manufacturer's warranty against defects in material and workmanship.

### System Sizing Table: Solar-direct Operation

solar generator: nominal voltage 48-72VDC, open circuit voltage max. 150VDC

total lift static + dynamic [m] / [ft]	solar genera- tor [Wp]	irradia- tion [kWh/m <sup>2</sup> / day]	flow rate						
			solar generator not tracked			solar generator single-axis tracked			
			[m <sup>3</sup> / day]	[1,000 US Gal./ day]	[1,000 Imp. Gal./ day]	[m <sup>3</sup> / day]	[1,000 US Gal./ day]	[1,000 Imp. Gal./ day]	
2m 6.5ft	340	4,5	54.0	14.3	11.9	76.7	20.3	16.9	
		6,0	70.0	18.5	15.4	105.0	27.7	23.1	
		7,5	82.0	21.7	18.0	131.2	34.7	28.9	
	400	4,5	61.0	16.1	13.4	86.6	22.9	19.1	
		6,0	78.0	20.6	17.2	117.0	30.9	25.7	
		7,5	92.0	24.3	20.2	147.2	38.9	32.4	
	480	4,5	71.0	18.8	15.6	100.8	26.6	22.2	
		6,0	90.0	23.8	19.8	135.0	35.7	29.7	
		7,5	105.0	27.7	23.1	168.0	44.4	37.0	
	600	4,5	85.0	22.5	18.7	120.7	31.9	26.6	
		6,0	105.0	27.7	23.1	157.5	41.6	34.6	
		7,5	120.0	31.7	26.4	192.0	50.7	42.2	
	720	4,5	95.0	25.1	20.9	134.9	35.6	29.7	
		6,0	117.0	30.9	25.7	175.5	46.4	38.6	
		7,5	129.0	34.1	28.4	206.4	54.5	45.4	
	4m 13ft	340	4,5	27.0	7.1	5.9	38.3	10.1	8.4
			6,0	43.0	11.4	9.5	64.5	17.0	14.2
			7,5	56.0	14.8	12.3	89.6	23.7	19.7
400		4,5	36.0	9.5	7.9	51.1	13.5	11.2	
		6,0	52.0	13.7	11.4	78.0	20.6	17.2	
		7,5	67.0	17.7	14.7	107.2	28.3	23.6	
480		4,5	46.0	12.2	10.1	65.3	17.3	14.4	
		6,0	65.0	17.2	14.3	97.5	25.8	21.4	
		7,5	80.0	21.1	17.6	128.0	33.8	28.2	
600		4,5	60.0	15.9	13.2	85.2	22.5	18.7	
		6,0	80.0	21.1	17.6	120.0	31.7	26.4	
		7,5	97.0	25.6	21.3	155.2	41.0	34.1	
720		4,5	73.0	19.3	16.1	103.7	27.4	22.8	
		6,0	94.0	24.8	20.7	141.0	37.3	31.0	
		7,5	108.0	28.5	23.8	172.8	45.7	38.0	
6m 20ft		340	4,5	10.0	2.6	2.2	14.2	3.8	3.1
			6,0	24.0	6.3	5.3	36.0	9.5	7.9
			7,5	36.0	9.5	7.9	57.6	15.2	12.7
	400	4,5	17.0	4.5	3.7	24.1	6.4	5.3	
		6,0	33.0	8.7	7.3	49.5	13.1	10.9	
		7,5	47.0	12.4	10.3	75.2	19.9	16.5	
	480	4,5	26.0	6.9	5.7	36.9	9.8	8.1	
		6,0	44.0	11.6	9.7	66.0	17.4	14.5	
		7,5	60.0	15.9	13.2	96.0	25.4	21.1	
	600	4,5	40.0	10.6	8.8	56.8	15.0	12.5	
		6,0	61.0	16.1	13.4	91.5	24.2	20.1	
		7,5	77.0	20.3	16.9	123.2	32.5	27.1	
	720	4,5	52.0	13.7	11.4	73.8	19.5	16.2	
		6,0	75.0	19.8	16.5	112.5	29.7	24.7	
		7,5	91.0	24.0	20.0	145.6	38.5	32.0	

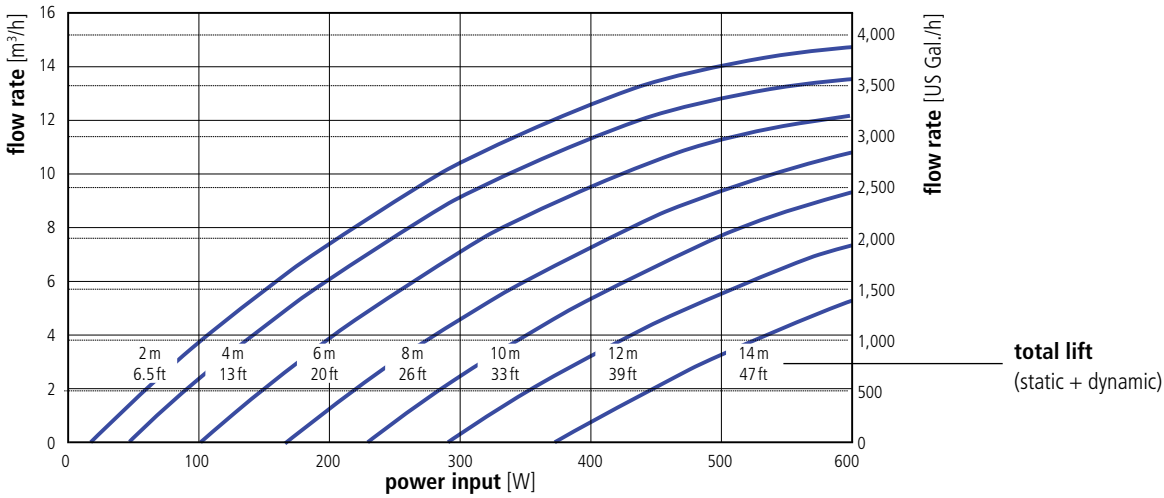
total lift static + dynamic [m] / [ft]	solar genera- tor [Wp]	irradia- tion [kWh/m <sup>2</sup> / day]	flow rate						
			solar generator not tracked			solar generator single-axis tracked			
			[m <sup>3</sup> / day]	[1,000 US Gal./ day]	[1,000 Imp. Gal./ day]	[m <sup>3</sup> / day]	[1,000 US Gal./ day]	[1,000 Imp. Gal./ day]	
8m 26ft	340	4,5							
		6,0	6.0	1.6	1.3	9.0	2.4	2.0	
		7,5	17.0	4.5	3.7	27.2	7.2	6.0	
	400	4,5	3.0	0.8	0.7	4.3	1.1	0.9	
		6,0	13.0	3.4	2.9	19.5	5.2	4.3	
		7,5	26.0	6.9	5.7	41.6	11.0	9.2	
	480	4,5	10.0	2.6	2.2	14.2	3.8	3.1	
		6,0	24.0	6.3	5.3	36.0	9.5	7.9	
		7,5	38.0	10.0	8.4	60.8	16.1	13.4	
	600	4,5	20.0	5.3	4.4	28.4	7.5	6.2	
		6,0	39.0	10.3	8.6	58.5	15.5	12.9	
		7,5	56.0	14.8	12.3	89.6	23.7	19.7	
	720	4,5	31.0	8.2	6.8	44.0	11.6	9.7	
		6,0	53.0	14.0	11.7	79.5	21.0	17.5	
		7,5	70.0	18.5	15.4	112.0	29.6	24.6	
	10m 33ft	600	4,5	7.0	1.8	1.5	11.2	3.0	2.5
			6,0	23.0	6.1	5.1	36.8	9.7	8.1
			7,5	39.0	10.3	8.6	62.4	16.5	13.7
720		4,5	16.0	4.2	3.5	25.6	6.8	5.6	
		6,0	36.0	9.5	7.9	57.6	15.2	12.7	
		7,5	54.0	14.3	11.9	86.4	22.8	19.0	
12m 39ft	600	4,5	1.0	0.3	0.2	1.6	0.4	0.4	
		6,0	10.0	2.6	2.2	16.0	4.2	3.5	
		7,5	24.0	6.3	5.3	38.4	10.1	8.4	
	720	4,5	6.0	1.6	1.3	9.6	2.5	2.1	
		6,0	20.0	5.3	4.4	32.0	8.5	7.0	
		7,5	37.0	9.8	8.1	59.2	15.6	13.0	
	900	4,5	17.0	4.5	3.7	27.2	7.2	6.0	
		6,0	37.0	9.8	8.1	59.2	15.6	13.0	
		7,5	50.0	13.2	11.0	80.0	21.1	17.6	
14m 46ft	600	4,5							
		6,0	3.0	0.8	0.7	4.8	1.3	1.1	
		7,5	8.0	2.1	1.8	12.8	3.4	2.8	
	720	4,5							
		6,0	7.0	1.8	1.5	11.2	3.0	2.5	
		7,5	21.0	5.5	4.6	33.6	8.9	7.4	
	900	4,5	5.0	1.3	1.1	8.0	2.1	1.8	
		6,0	21.0	5.5	4.6	33.6	8.9	7.4	
		7,5	33.0	8.7	7.3	52.8	13.9	11.6	

#### Basis Of Calculation

The power output of the solar generator is reduced by 17 % (degradation caused by ageing, dust, temperature influences etc. is taken into account). 10 sun hours per day

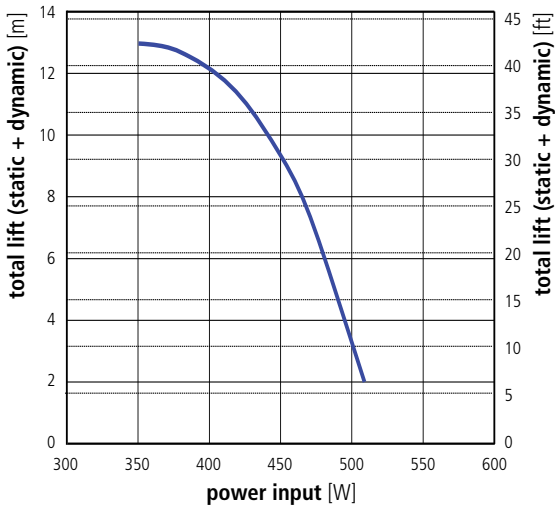
**Chart: Solar-direct Operation**

solar generator: nominal voltage 48-72VDC, open circuit voltage max. 150VDC

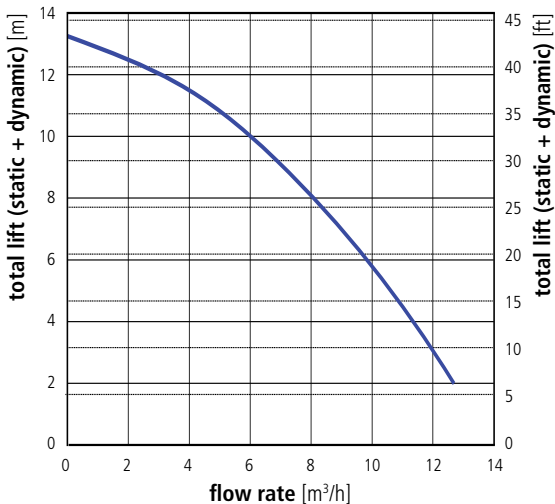


**Chart: Battery Operation**

battery, DC power supply: nominal voltage 48 V DC



total lift (static + dynamic)		flow rate			power input	current input
[m]	[ft]	[m³/h]	[US Gal./h]	[Imp. Gal./h]	[W]	[A]
2	6.6	12.8	3,382	2,816	507	10.6
3	9.8	12.3	3,250	2,706	502	10.5
4	13.1	11.4	3,022	2,516	496	10.3
5	16.4	10.6	2,801	2,332	489	10.2
6	19.7	9.9	2,616	2,178	480	10.0
7	23.0	9.2	2,431	2,024	471	9.8
8	26.2	8.2	2,166	1,804	464	9.7
9	29.5	7.2	1,902	1,584	454	9.5
10	32.8	6.0	1,585	1,320	443	9.2
11	36.1	4.8	1,268	1,056	426	8.9
12	39.4	3.0	793	660	406	8.5
13	42.7	0.0	0	0	350	7.3



**Technical Data**

PS600 BADU Top 12	Solar Operation	Battery Operation
max. flow rate	15 m <sup>3</sup> /h, 4,000 US-Gal./h	13 m <sup>3</sup> /h, 3,400 US-Gal./h
max. lift	14 m, 46 ft	13 m, 43 ft
ambient temperature	-30° C to +45° C	
<b>Controller PS600</b>		
input voltage	solar generator: nominal voltage 48-72VDC open circuit voltage max. 150VDC	battery, DC source: nominal voltage 48VDC
type of enclosure	IP 54	
dimensions: net, packing	395 × 175 × 165 mm, 450 × 250 × 240 mm (0.027 m <sup>3</sup> )	
weight: net, gross	4.5 kg, 5.3 kg	
<b>Motor ECDRIVE 600 BADU Top</b>		
max. power input	600W	
type of enclosure	IPX4	
class of insulation	F	
<b>Pump End BADU Top 12</b>		
manufacturer	Speck Pumps	
suction, max. positive inlet lift	3 m, 10 ft	
max. casing pressure	2.5 bar	
max. water temperature	+60° C	
<b>Pump unit (motor + pump end)</b>		
dimensions: net, packing	see drawing below, 520 × 220 × 350 mm (0.04 m <sup>3</sup> )	
weight: net, gross	8.7 kg, 9.7 kg	

**Dimensions For Pump Unit (Motor + Pump End)**

