Solar Surface Pump Technical Data

Dankoff Solar SunCentric Surface Pump

The Dankoff SunCentric uses solar-electric power to pump as much as 50,000 gallons (200 m3) per day from shallow water sources. Applications include irrigation, live stock watering, domestic water supply, pond management, water treatment, solar water heating, hydronic space heating, and fire protection. These pumps have been in worldwide use since 1989 and can be used without batteries.

Designed for reliability and maintainability, wear parts typically last 5-10 years, with an overall life expectancy of 15-20 years before rebuild.

PV Array-Direct Application

- A PV-direct system uses water storage instead of batteries. This is the simplest and most durable system for most applications
- A pump controller (linear current booster) is not required
- A solar tracker (optional) will help to maintain optimum flow through the entire solar day
- Storage of 3-7 days' water demand is recommended
- Optimum for circulation of solar-heated water

Battery Application

- A battery system is best where there is need for constant pressure or pressure on demand, where a tank is not feasible, or where a battery system is required for other power applications
- Batteries can be charged by any power source

Suction Capacity

- Suction limit is 10 vertical feet (3 m) at sea level– subtract 1 foot for every 1,000 ft. elevation (1 m per km)
- For best reliability, minimize or eliminate suction lift by placing the pump low and close to the water source. This will minimize the possibility of cavitation which causes excessive wear and loss of performance

Selecting a Pump

- Select the appropriate chart of "PV Array-Direct Models" or "Battery Models"
- Total Dynamic Head (TDH) = vertical distance from surface of the water source to the discharge or top of storage tank + pipe friction losses
- Locate the coordinates for the required head and flow. Find the pump curve that is nearest to that point
- If there is more than one curve to chose from, compare the power requirements. If PV-direct, the higher powered model will work better during low sun intensity
- For PV-Direct systems, array size (watts) is critical. Do not undersize the array. Oversizing will improve performance in low sunlight conditions
- Multiple pumps can be used to provide greater flow

Wire and Pipe Requirements

- Intake pipe: pipe should be as direct and short as possible. Avoid any high point that can trap an air pocket.
- Refer to a pipe sizing chart (included with the pump instructions). Pipe may need to be larger than the pump ports. Undersized pipe will greatly decrease pump performance
- Size the wire for less than 3% voltage drop. Undersized wire will greatly decrease pump performance

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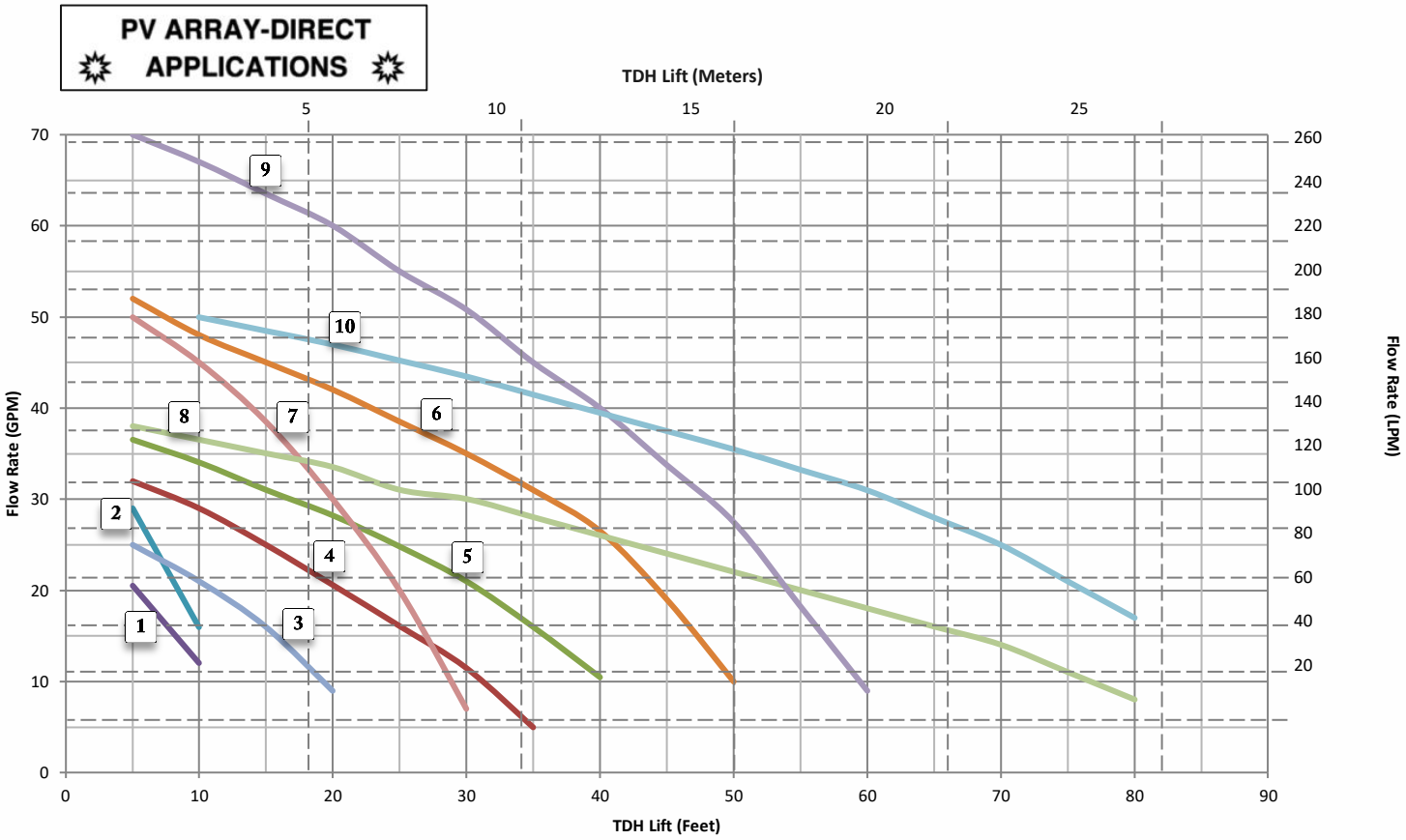

Maintenance

- No routine maintenance required.
- Pump can be repaired in the field using ordinary tools and skills, without removing the pipes.
- Instruction manual shows illustrated repair details.
- Motor brushes: typical brush life peak hours = working voltage x 800/3rd digit of model number. *EXAMPLE: PV Direct Curve #60 is Model 7526 working at 30V.* Typical brush life = 30 x 800/2 = 12,000 peak hours. **This represents about 5-8 years of service.**
- Shaft seal has a very long life under normal conditions. Purchase spare seals if water is loaded with abrasive silt or if pump can possibly run dry.
- For best reliability, minimize or eliminate suction lift by placing the pump low and close to the water source. This will minimize the possibility of cavitation which causes excessive wear and loss of performance.

Materials

- Pump body: cast iron, ASTM A48-76
- Impeller: glass filled polycarbonate
- Seal: carbon/ceramic, industry standard
- Temperature limit: 140 °F (60 °C)

POWER REQUIREMENTS							MIN. PV
#	CURVE	MODEL number	VOLTS nominal	Power at the Pump VOLTS	AMPS	WATTS	ARRAY WATTS
1		7324	12	15	6.0	90	117
2		7325	12	15	7.4	111	144
		7445	24	30	3.7	111	144
3		7442	36	45	3.5	158	205
4		7212	12	15	19.3	290	377
5		7322	24	30	9.7	290	377
6		7446	36	45	6.9	311	404
7		7424	24	30	16.0	480	624
		7444	48	60	8.0	480	624
8		7521	36	45	16.4	739	959
9		7526	24	30	24.4	732	952
10		7622	36	45	19.0	855	1112

Pump Installation

- Pump must be sheltered from rain and direct sunlight.
- Horizontal position: place outlet at the top. It can be rotated to face horizontally or vertically upward.
- Vertical position: place motor on top.

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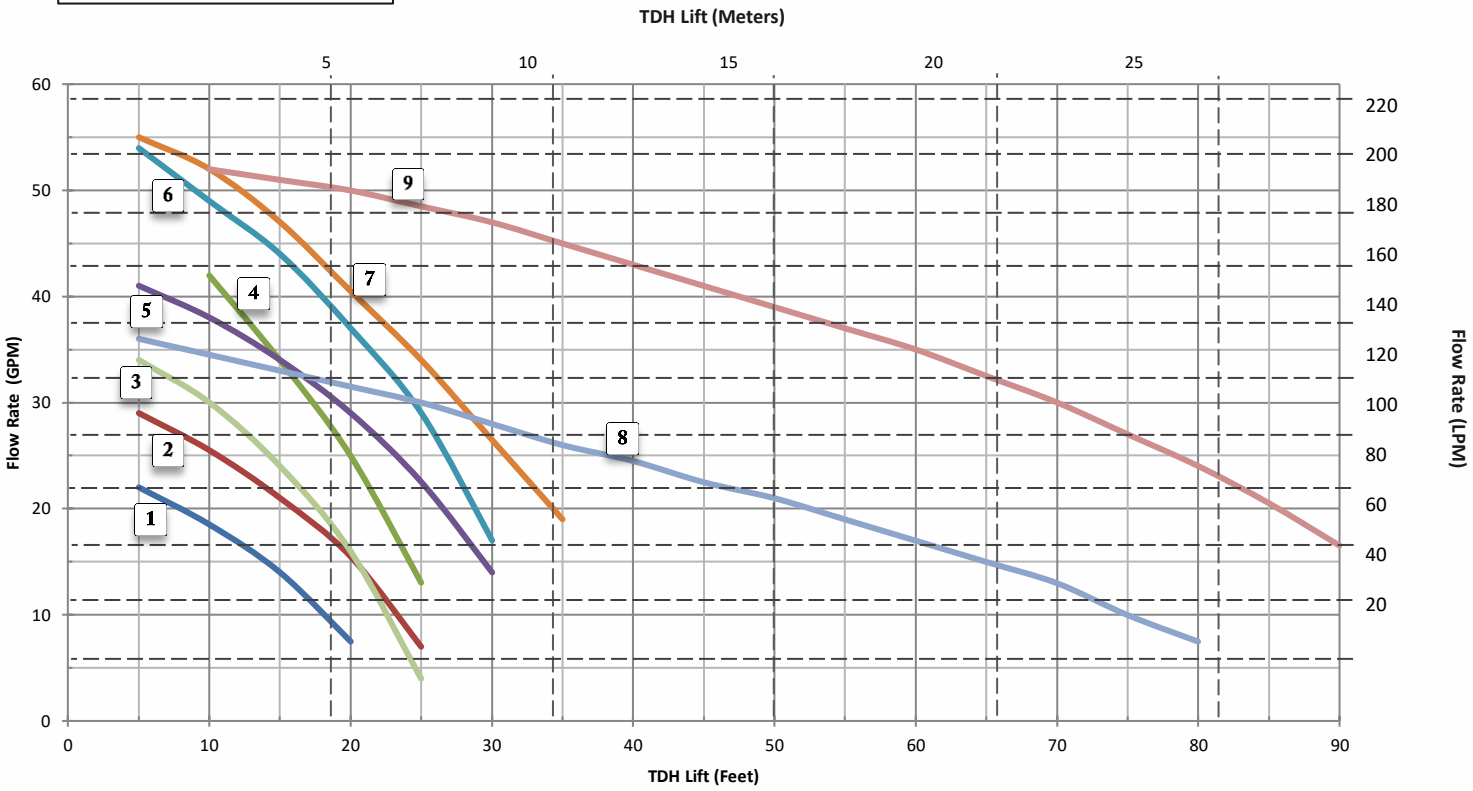
BATTERY APPLICATIONS



High Temperature Option

- Temperature limit: 240 °F (115 °C)
- Impeller: brass
- Brass impeller reduces flow by about 15 % (same watts)
- Order standard pump + High Temp Option

Accessories

- Foot Valve (for pump placed higher than water source)
- Float switches: please inquire
- Basket Strainer: swimming pool type, fits on pump inlet, catches debris and allows easy cleanout; 1 ¼" in/out, *Item #DSP-11046*

Spare Parts

- Seal & Gasket Kit: specify model number, if high temperature
- Motor Brush Kits: specify model number

POWER REQUIREMENTS					
#	CURVE	MODEL	VOLTS	AMPS	WATTS
1		7212	12	14.0	168
		7321	24	7.0	168
2		7322	24	8.3	199
		7442	48	3.8	182
3		7214	12	17.0	204
4		7415	12	23.6	283
5		7424	24	11.9	286
6		7425	24	14.4	346
		7446	48	7.8	374
7		7426	24	16.3	391
8		7511	24	27.1	650
		7521	48	13.5	648
9		7622	48	20.3	974

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Warranty
1 year against defects in materials and workmanship

Overcurrent Protection
- Fuse or circuit breaker is required.
- Ampere rating = amps at the pump + 15-25 %
- Minimum DC voltage rating = volts at the pump x2. (Type FRN fuses are rated 125 V DC)

Technical Data - SunCentric

Pump Model Number X = third digit			Dimensions Length (inches)	Height (inches)	Ship weight (lbs)	Page size Inlet NPT	Outlet NPT
72x1	72x2	72x4	15.5	9.1	49	1 1/4"	1"
		72x5	17	10.5	54	1 1/2"	1 1/4"
		72x6	17	10.5	54	2"	1 1/2"
73x1	73x2	73x4	17	9.1	50	1 1/4"	1"
		73x5	18	10.5	55	1 1/2"	1 1/4"
		73x6	18	10.5	55	2"	1 1/2"
74x1	74x2	74x4	17	9.1	58	1 1/4"	1"
		74x5	18.5	10.5	63	1 1/2"	1 1/4"
		74x6	18.5	10.5	63	2"	1 1/2"
75x1	75x2	75x4	18	9.1	60	1 1/4"	1"
		75x5	19.5	10.5	65	1 1/2"	1 1/4"
		75x6	19.5	10.5	65	2"	1 1/2"
76x1	76x2	76x4	19	9.1	65	1 1/4"	1"
		76x5	20.5	10.5	70	1 1/2"	1 1/4"
		76x6	20.5	10.5	70	2"	1 1/2"

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