Dankoff Solar Force Piston Pump draws water from a shallow well, spring, pond, river or tank. It can push water uphill and over long distances for home, village, irrigation or livestock uses. It can use power directly from a photovoltaic array or from storage batteries to fill a storage tank or to pressurize water.

**Ultra-efficient**
Uses less power than any other pump in its range, starts pumping in low light conditions

**Economical**
Reduces power system cost by 25-75% compared to centrifugal or AC pumps

**Solar-Direct Application**
Starts pumping in low light conditions

**Pressurizing Application**
DC version is most efficient. AC version uses a low-surge permanent magnet motor that greatly reduces starting surge, inverter size, and wire size requirements (when compared to conventional AC pumps).

**Rugged and Reliable**
Proven design with a 20-year life expectancy, simple to maintain with common tools (5-10 yr. maintenance interval)

**Good Tolerance for Dirt and Dry Run**

**Mechanical Drive**
Allows engine or hand-lever backup

**Illustrated Instruction Manual**
Makes it easy for anyone to install and service, with no previous experience

**Voltages Available**
- 12, 24, 48 V DC
  
  *Note: PV-Direct full working voltage is typically 20% higher than nominal (example: 29 V for a 24 V system)*
- 115 V or 230 V AC, 50-60 Hz

**Warranty**
2 years against defects in materials and workmanship

**Construction**
- Cast iron body
- Brass cylinder and valve seats
- Leather cup piston seals
- Neoprene valve seals
- Oil-bath crankcase
- Gear (timing) belt drive on PV models
- Standard V-belt on B models
- Pressure relief valve
- Permanent Magnet DC Motor
- Surge tank included (not in photo)

**Suction Capacity**
25 vertical feet (7.6 m) at sea level. Subtract 1 foot for every 1000 ft. elevation (1 m for every 1,000 m). Suction capacity may be further limited by intake pipe friction. Intake piping should be minimum 1” (3010, 3020 models) or minimum 1 1/4” (3040). For best reliability, place the pump as close to the water source as possible.

**Fittings**
- Intake: 1 1/4” female pipe thread
- Outlet: 1” female pipe thread

**Dimensions**
- 22 x 13 x 16” high (56 x 33 x 41 cm)
- With Surge Tank (not shown in photo), total height 26” (60 cm)
- Weight, max. 80 lbs (36 kg)
  
  *Shipped in 2 or 3 boxes*
System Requirements

- Solar-Direct Systems: Chart indicates power (w) required at the pump. The rated power of the PV array must exceed this number by 20 % or more. A pump controller (linear current booster) is required for the pump to start and run in varying light conditions. A solar tracker may be used to increase daily yield (40-55 % in summer).
- Pressurizing Systems: battery power system, pressure switch, and pressure tank of minimum 60 gallon (230 l) size (captive-air tank, available locally)

Reading the Chart

**Total Lift** = vertical Distance from surface of the water source to the pipe outlet or top of storage tank

*GPM* = U.S. Gallons Per Minute

*LPD* = Liters Per Minute

Model Designation:

V=voltage, B=battery model, PV=PV array-direct model

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Specifications may vary ± 10%

PV Models are measured at 14, 28, or 56V (array direct)