

DANKOFF ETAPUMP®



SOLAR SUBMERSIBLE PUMPS

VERSION 3.1 SEPTEMBER 2003

The world's most economical solar pumps

Lift from as deep as 750 feet (230m)

Maximum 16,000 gallons per day (60 cu.m.)

ETAPUMP eliminates the costs of fuel delivery, engine maintenance, and pollution.

In many cases it is LESS COSTLY than a conventional pump and generator installation!

- Great reliability and life expectancy
- Only one moving part, brushless motor
- High resistance to sand and corrosion
- Fits 4" and larger well casings

HIGH EFFICIENCY = LOWER COST

ETA is a Greek letter that engineers use to represent ENERGY EFFICIENCY.

In solar pumping, HIGH ETA = LOW SYSTEM COST.

ETAPUMP uses a solar array of 20-50% less power than other solar pumps, to do the same work. It is the most economical solar submersible pump available.

RELIABLE AND MAINTENANCE-FREE

The pump has only one moving part —*no failure-prone diaphragms or motor brushes to replace.*

The controller is above ground for easy access and greatest reliability. Be cautious of solar pumps with controls sealed inside the motor—if one tiny part fails, the pump must be pulled and the whole motor replaced.

ETAPUMP INTEGRATED SYSTEM™ is complete and ready to install

An ETAPUMP INTEGRATED SYSTEM is a complete system kit, engineered for the lift and daily volume that you require. It includes premium crystalline UL-listed solar modules (panels) with a life expectancy beyond 30 years. The fixed solar array rack is engineered for 90 MPH (145 km/h) wind, tracked rack is for 75 MPH (120 km/h) The controller is weather-sealed for all climates.

SYSTEM INSTALLATION

Install the pump by the same methods and materials used for conventional submersible pumps. The solar array requires nuts-and-bolts assembly and standard wiring practice. The ETAPUMP instruction manual is clearly illustrated. No special product training is required.



ETAPUMP INTEGRATED SYSTEM™

This is ETA-300 / fixed array.

Components vary with the system number.

"I'm very satisfied with ETAPUMP. My local pump installer was very impressed, and agreed that this is a step up for the solar pumping world."

G.P., remote home owner, California

ETAPUMP INTEGRATED SYSTEM™ INCLUDES

- Pump • Pump controller • Solar modules (panels)
- Solar array mounting rack (top-of-pole)
- Junction box with internal PV disconnect switch
- Flexible conduit, junction box to controller, pre-wired
- Submersible cable splice kit • Low-water probe
- Complete illustrated instruction manual

THESE ITEMS ARE NOT INCLUDED

They are available from local suppliers.

- Steel pole and concrete to support the solar array (schedule 40 pipe, size and length specified in the rack instructions)
- Drop pipe (refer to a pipe sizing chart)
- Submersible pump cable, 3-wire + ground
- Water well safety rope (1/4")
- Wire and standard electrical hardware

DEEP WELL APPLICATIONS

ETAPUMP can be submersed as deep as necessary.

SURFACE WATER APPLICATIONS

ETAPUMP can be installed in a stream, pond, tank or shallow well, in any position. There is no need for a pump house or for periodic priming.

DRY RUN PROTECTION

A low water sensor (included) turns pump off to prevent dry-run damage. Reset is automatic after 20 minutes. The controller has an RPM limit adjustment to reduce the maximum flow rate to about 50%, to help match a limited water source.

SAND AND SILT TOLERANCE

ETAPUMP has high resistance to wear from sand, clay, etc. that may occur in a properly constructed water well. However, a concentration of solids greater than 2% (by volume) may cause blockage in the pump or the drop pipe, especially at low flow rates. Do not use ETAPUMP to clean out a dirty well.

CONTROLLER DISPLAY

Lights indicate: system on, pump on, tank full, water source low, overload, and battery low (battery models only).

STORAGE REQUIREMENT

A storage tank (not included) should be sized to supply a minimum of 5-10 days' water supply, depending on climate and application. Water storage is generally more economical than energy storage in batteries.

BATTERY SYSTEMS

ETAPUMP battery versions are for pressurizing systems or where a storage tank is not desirable. They use a different controller than solar-direct systems. Voltages: 24V and 48V. Request the "Battery System Performance Table".

PIPE SIZES

Models ETA-75C, ETA-14, and ETA-20 have 1 1/4" outlet. Others have 1" outlet. Drop pipe larger than the outlet is not recommended because sand may accumulate during low flow. For sizing of long pipelines, consult a pipe sizing chart.

DIMENSIONS & WEIGHTS

PUMP & MOTOR

- Diameter: 3.78" (96mm)
- Height: 20"-32" (500-800mm) depending on model
- Weight: 25lbs (11.5kg) or less, depending on model

CONTROLLER & Junction/PV-Disconnect Box

- Controller: 17" x 7" x 6" (425 x 175 x 150mm)
- Junction box: 10.2" x 7.1" x 4" (260 x 180 x 100mm)
- Flex conduit and wiring harness, length: 35" (90cm)
- J-box 3 conduit holes: 3/4" (2) and 1 1/4" (28 and 45 mm)
- Wire size capacity of pump terminals in j-box: #6
- Weight, controller + junction box: 14.5 lbs (6.6 kg)
- Enclosures: gasket-sealed, weatherproof

SOLAR ARRAY: Size and weight can be estimated from the array watts (the last 3 digits of the system number).

- Approximate area in sq. feet = watts/10 (sq.m=watts/100).
- Approximate weight (including mounting rack) in lbs = watts x .3 (kg = watts x .14) Tracker option adds approximately 20% to the weight.

WETTED MATERIALS

304 and 316 stainless steel, brass (check valve only, 2% Pb), chromium, NBR rubber, natural rubber, polyurethane, POM.

TEMPERATURE LIMITS

- PUMP: Optimum water temp. is 46°F to 72°F (8°C to 22°C). Higher temp. may cause the pump to stop temporarily due to expansion of the rubber stator. Higher and lower temp. ranges are available by special order.
- CONTROLLER: Ambient air -22°F to 113°F (-30°C to 45°C).

ACCESSORIES

- FLOAT SWITCH for full-tank shutoff, Item #10320
- FLOAT SWITCH CABLE, 18 AWG, shielded, burial, UV for max. 2000 feet from controller to switch, Item #10326
- LOW WATER SENSOR WIRE, #16 AWG submersible, 1 conductor, type TFF. Two wires are required. Order 2X the length from controller to pump. Item #11421
- AC POWER PACK for 115/230VAC backup, Item #11930

HOW TO SELECT AN

ETAPUMP INTEGRATED SYSTEM™

REFER TO THE SIZING TABLE

Daily volume is calculated for worst-case conditions. Your results may be better.

VERTICAL LIFT = total dynamic head = the vertical distance from the draw-down level in the water source, to the pipe outlet or top of storage tank + pipe friction losses.

CLIMATE ZONE Three solar radiation zones are shown on the table, defined by *peak sun hours/day*. 7.5 is average for summer in central and western USA, and for most locations during dry summer weather.

PERFORMANCE RELATED TO WEATHER These systems are selected for optimum daily output in clear, dry weather. For improved performance in cloudy weather, select a system that produces about 50% more water than you require at 4.5 peak sun hours, or ask your supplier for advice. For satisfactory winter performance, it may be necessary to adjust the solar array tilt. This is an easy adjustment to perform, twice per year.

SOLAR TRACKING A solar tracker automatically aims the solar array at the sun throughout the day. In clear weather, tracking increases the daily water volume by about 40% in summer (15% in winter). This is shown on the sizing table, where you can select either *fixed* or *tracked* systems. The tracker's drive is non-mechanical (passive) and highly reliable, using only the flow of fluid against gravity. **Tracker Option must be specified with the original purchase.** For optimum performance during cloudy weather, or with frequent highly turbulent wind, a tracked system is not recommended.

DOUBLE SYSTEM Two pump systems can be installed in the same water source if the well casing is not less than 6" inside diameter. This doubles the daily water volume.

MANUFACTURER'S WARRANTY

4 YEARS for pump and controller when purchased as part of an ETAPUMP Integrated System™
Solar modules 20 or 25 YEARS

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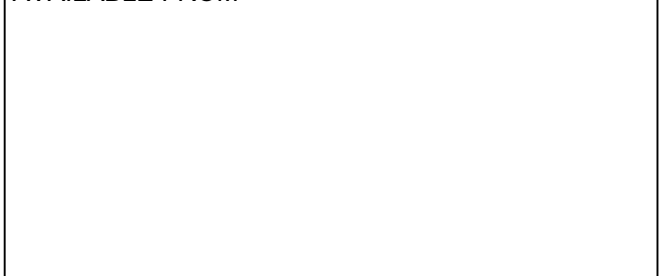
EXCLUSIVE IMPORTER, PARTS & SERVICE

*Dankoff Solar Products, Inc.
Solar pumping since 1983*



bp solar
Distributor

AVAILABLE FROM



ETAPUMP INTEGRATED SYSTEMS™
48V SOLAR-DIRECT (non-battery) *

SIZING TABLE

VERSION 3.1
Sept. 2003

| VERTICAL LIFT | 25 Feet 8m | | 50 Feet 15m | | 75 Feet 23m | | 100 Feet 30m | | 125 Feet 38m | | 150 Feet 46m | | 175 Feet 53m | | 200 Feet 61m | | 250 Feet 76m | |
|------------------------|---------------|---------|----------------|---------|----------------|---------|-----------------|---------|-----------------|---------|-----------------|---------|-----------------|---------|-----------------|---------|-----------------|---------|
| | Fixed | Tracked | Fixed | Tracked | Fixed | Tracked | Fixed | Tracked | Fixed | Tracked | Fixed | Tracked | Fixed | Tracked | Fixed | Tracked | Fixed | Tracked |
| GALLONS PER DAY | | | | | | | | | | | | | | | | | | |

SMALLER SYSTEMS to 165 ft. (50m) – Use the new ETAPUMP Mini™

| | | | | | | | | | | | | | | | | | | | |
|-------------------------|-----|--------------|------|---------------|------|----------------|------|---------------|------|---------------|------|---------------|------|---------------|------|---------------|------|---------------|-----|
| PEAK | 7.5 | 4530 | 6800 | 3470 | 5200 | 2400 | 3600 | 1680 | 1870 | 1390 | 1870 | 1120 | 1680 | 990 | 1480 | 800 | 1200 | 530 | 800 |
| SUN | 6.0 | 3470 | 5030 | 2480 | 3600 | 1710 | 2470 | 1410 | 1870 | 1070 | 1550 | 850 | 1240 | 690 | 1010 | 530 | 770 | 370 | 540 |
| hours/day | 4.5 | 2670 | 3600 | 1170 | 1580 | 1390 | 1870 | 990 | 1330 | 720 | 970 | 510 | 680 | 370 | 500 | 270 | 360 | 210 | 290 |
| SYSTEM # | | ETA-14-240 | | | | Use ETA-04-240 | | | | ETA-04-240 | | | | ETA-03H-240 | | | | | |
| GPM | | 9.8 | | 7.9 | | 6.6 | | 3.6 | | 3.1 | | 2.7 | | 2.6 | | 2.3 | | 1.5 | |
| Wire size / max. length | | #12 / 80 ft. | | #12 / 120 ft. | | #12 / 216 ft. | | #12 / 216 ft. | | #12 / 216 ft. | | #10 / 280 ft. | | #10 / 280 ft. | | #10 / 330 ft. | | #10 / 330 ft. | |

| | | | | | | | | | | | | | | | | | | | |
|-------------------------|-----|--------------|------|---------------|------|------------|------|-----------|------|------------|------|---------------|------|---------------|------|---------------|------|---------------|------|
| PEAK | 7.5 | 5870 | 8800 | 4270 | 6400 | 3200 | 4800 | 1840 | 1870 | 1650 | 1870 | 1520 | 1870 | 1310 | 1870 | 1120 | 1680 | 910 | 1360 |
| SUN | 6.0 | 4530 | 6570 | 3600 | 5220 | 2130 | 3090 | 1680 | 1870 | 1470 | 1870 | 1230 | 1780 | 1010 | 1470 | 770 | 1120 | 610 | 890 |
| hours/day | 4.5 | 3470 | 4680 | 2530 | 3420 | 1070 | 1440 | 1330 | 1800 | 990 | 1330 | 720 | 970 | 590 | 790 | 430 | 580 | 210 | 290 |
| SYSTEM # | | ETA-14-300 | | | | ETA-04-300 | | | | ETA-04-300 | | | | ETA-04-300 | | | | | |
| GPM | | 10.8 | | 9.8 | | 8.2 | | 3.6 | | 3.5 | | 3.4 | | 3.3 | | 2.8 | | 2.2 | |
| Wire size / max. length | | #12 / 80 ft. | | #10 / 150 ft. | | #12 / 240 | | #12 / 240 | | #12 / 240 | | #10 / 280 ft. | | #10 / 280 ft. | | #10 / 330 ft. | | #10 / 330 ft. | |

| | | | | | | | | | | | | | | | | | | | |
|-------------------------|-----|--------------|-------|---------------|------|------|------|------------|------|------|------|---------------|------|------|------|---------------|------|------|------|
| PEAK | 7.5 | 6930 | 10400 | 4880 | 6930 | 3600 | 5400 | 2670 | 4000 | 1810 | 1870 | 1600 | 1870 | 1470 | 1870 | 1310 | 1870 | 1040 | 1560 |
| SUN | 6.0 | 6130 | 8890 | 4050 | 5880 | 2670 | 3870 | 1870 | 2710 | 1600 | 1870 | 1390 | 1870 | 1150 | 1660 | 960 | 1390 | 690 | 1010 |
| hours/day | 4.5 | 4530 | 6120 | 2990 | 4030 | 1470 | 1980 | 930 | 1260 | 1390 | 1870 | 1250 | 1690 | 800 | 1080 | 640 | 860 | 370 | 500 |
| SYSTEM # | | ETA-20-340 | | ETA-14-340 | | | | ETA-04-340 | | | | ETA-04-340 | | | | | | | |
| GPM | | 16.4 | | 10.6 | | 9.5 | | 7.9 | | 3.5 | | 3.4 | | 3.3 | | 2.9 | | 2.4 | |
| Wire size / max. length | | #12 / 80 ft. | | #10 / 150 ft. | | | | #12 / 240 | | | | #10 / 280 ft. | | | | #10 / 330 ft. | | | |

| | | | | | | | | | | | | | | | | | | | |
|-------------------------|-----|---------------|-------|------------|------|------------|------|--------------------------------|------|---------------|------|------------|------|------------|------|--------------------------------|------|------|------|
| PEAK | 7.5 | 8530 | 12800 | 6400 | 6930 | 5330 | 6930 | 4130 | 6200 | 2930 | 4400 | 2530 | 3200 | 2240 | 3200 | 1920 | 2880 | 1470 | 1870 |
| SUN | 6.0 | 7730 | 11210 | 5330 | 6930 | 4530 | 6570 | 3200 | 4640 | 2130 | 3090 | 1870 | 2710 | 1600 | 2320 | 1470 | 2130 | 1170 | 1700 |
| hours/day | 4.5 | 6130 | 8280 | 4000 | 5400 | 3200 | 4320 | 2030 | 2740 | 1550 | 2090 | 1200 | 1620 | 1070 | 1440 | 1070 | 1440 | 750 | 1010 |
| SYSTEM # | | ETA-20-480 | | ETA-14-480 | | | | Use ETA-07-480 with #10/240ft. | | | | ETA-07-480 | | | | Use ETA-04-480 with #10/280ft. | | | |
| GPM | | 16.4 | | 11.9 | | 11.1 | | 9.5 | | 7.4 | | 5.5 | | 5.0 | | 4.6 | | 3.4 | |
| Wire size / max. length | | #10 / 130 ft. | | | | #8/150 ft. | | | | #10 / 190 ft. | | | | #8/300 ft. | | | | | |

| | | | | | | | | | | | | | | | | | | | |
|-------------------------|-----|-------------|-------|---------------|-------|---------------|------|------|------|-----------------------------------|------|------|------|--------------|------|--------------|------|------|------|
| PEAK | 7.5 | 11730 | 17600 | 8000 | 12000 | 6400 | 6930 | 5200 | 6930 | 4270 | 6400 | 3470 | 5200 | 2930 | 4400 | 2430 | 3200 | 2030 | 3040 |
| SUN | 6.0 | 10130 | 14690 | 7200 | 10440 | 5600 | 6930 | 4270 | 6190 | 3200 | 4640 | 2670 | 3870 | 2400 | 3480 | 1950 | 2820 | 1600 | 2320 |
| hours/day | 4.5 | 6670 | 9000 | 5600 | 7560 | 4270 | 5760 | 2930 | 3960 | 2000 | 2700 | 1870 | 2520 | 1730 | 2340 | 1330 | 1800 | 1120 | 1510 |
| SYSTEM # | | ETA-75C-600 | | ETA-20-600 | | ETA-14-600 | | | | Use ETA-07-600 with #10 / 190 ft. | | | | ETA-07-600 | | | | | |
| GPM | | 23.8 | | 15.9 | | 11.9 | | 11.4 | | 9.5 | | 10.0 | | 7.7 | | 5.3 | | 5.2 | |
| Wire size / max. length | | #12 / 55ft | | #10 / 130 ft. | | #10 / 130 ft. | | | | #8 / 230 | | | | #8 / 193 ft. | | #8 / 276 ft. | | | |

| | | | | | | | | | | | | | | | | | | | |
|-------------------------|-----|--------------|-------|------------|-------|--------------|------|------|------|--------------|------|------|------|--------------|------|------|------|------|------|
| PEAK | 7.5 | 14670 | 18670 | 10130 | 14670 | 6930 | 6930 | 5870 | 6930 | 5070 | 6930 | 4270 | 6400 | 3470 | 5200 | 2530 | 3200 | 2400 | 3200 |
| SUN | 6.0 | 12530 | 18670 | 8000 | 11600 | 6400 | 6930 | 5070 | 6930 | 4400 | 6380 | 3470 | 5030 | 2400 | 3480 | 2350 | 3200 | 2030 | 2940 |
| hours/day | 4.5 | 9070 | 12240 | 5330 | 7200 | 4800 | 6480 | 3730 | 5040 | 2930 | 3960 | 2050 | 2770 | 1200 | 1620 | 1680 | 2270 | 1410 | 1910 |
| SYSTEM # | | ETA-75C-720 | | ETA-20-720 | | ETA-14-720 | | | | ETA-07-720 | | | | | | | | | |
| GPM | | 29.1 | | 22.5 | | 15.1 | | 11.4 | | 10.6 | | 10.3 | | 10.0 | | 5.3 | | 5.2 | |
| Wire size / max. length | | #12 / 65 ft. | | #10 / 130 | | #8 / 230 ft. | | | | #8 / 207 ft. | | | | #8 / 303 ft. | | | | | |

| | | | | | | | | | | | | | | | | | | | |
|-------------------------|-----|-------------|-------|------------|-------|-----------|-------|------------|------|-----------|------|------------|------|--------------|------|------|------|--------------|------|
| PEAK | 7.5 | 16530 | 18670 | 12530 | 14670 | 8000 | 10670 | 7200 | 6930 | 5600 | 6930 | 5070 | 6930 | 4560 | 6840 | 2830 | 3200 | 2670 | 3200 |
| SUN | 6.0 | 14670 | 18670 | 10130 | 14670 | 7470 | 10830 | 6400 | 6930 | 5070 | 6930 | 4270 | 6190 | 3630 | 5260 | 2670 | 3200 | 2450 | 3200 |
| hours/day | 4.5 | 11470 | 15480 | 7200 | 9720 | 5870 | 7920 | 4800 | 6480 | 4050 | 5470 | 2670 | 3600 | 2130 | 2880 | 2050 | 2770 | 1870 | 2520 |
| SYSTEM # | | ETA-75C-900 | | ETA-20-900 | | | | ETA-14-900 | | | | ETA-07-900 | | | | | | | |
| GPM | | 29.1 | | 26.4 | | 15.1 | | 14.8 | | 10.8 | | 10.6 | | 10.3 | | 5.3 | | 5.2 | |
| Wire size / max. length | | #10 / 125 | | | | #10 / 174 | | | | #10 / 160 | | | | #8 / 207 ft. | | | | #8 / 317 ft. | |



Dankoff Solar Products, Inc.
Santa Fe, NM USA
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LIFT LIMITS

These systems are selected for optimum performance. To allow unexpected drawdown, each system can handle an additional 15% lift.

*** FOR BATTERY SYSTEMS**
24V and 48V
request additional data sheet

HOW DAILY WATER VOLUME IS CALCULATED

Daily volume is calculated by integrating real flow vs. realistic solar (PV) output through the day. (peak sun hours/day = kWh/sq.m./day)

Calculations are for WORST-CASE CONDITIONS. PV output is degraded 28% for heat (cell temp. 60°C), dust, and manufacturer's lowest guaranteed output. Cable losses are included at maximum allowable length. The solar array is fixed at tilt angle = latitude of the location. For central USA, seasonal adjustment of the tilt angle increases daily volume by about 8% summer, 5% winter. Flow rates may vary +/- 10%.

Specifications are subject to change. Please use the newest version.

METRIC WIRE
 nearest larger
 equivalent
 AWG sq. mm

| | |
|-----|----|
| #18 | 1 |
| #12 | 4 |
| #10 | 6 |
| #8 | 10 |
| #6 | 16 |

M O R E
W A T E R

METRIC CONVERSION: 1 cubic meter = 264 gallons
 1 gpm = 3.79 lpm = .063 lps

| 300 Feet 91m | | 350 Feet 107m | | 400 Feet 122m | | 450 Feet 137m | | 500 Feet 152m | | 550 Feet 167m | | 600 Feet 183m | | 650 Feet 200m | | 750 Feet 230m | | VERTICAL LIFT |
|-----------------|---------|------------------|---------|------------------|---------|------------------|---------|------------------|---------|------------------|---------|------------------|---------|------------------|---------|------------------|---------|------------------|
| Fixed | Tracked | Fixed | Tracked | Fixed | Tracked | Fixed | Tracked | Fixed | Tracked | Fixed | Tracked | Fixed | Tracked | Fixed | Tracked | Fixed | Tracked | |

GALLONS PER DAY

| | | | | | | | | | | | | | | | | | | | | |
|---------------|------|--------------|------|--------------|------|--------------|------|--------------|------|--------------|------|--------------|------|--------------|------|-----|------|-------------------------|--------------------------|-------------------|
| 480 | 720 | 400 | 600 | | | | | | | | | | | | | | | | PEAK SUN hours/day | 7.5 6.0 4.5 |
| ETA-03H-240 | | | | | | | | | | | | | | | | | | SYSTEM # | | |
| 1.4 | | 1.3 | | | | | | | | | | | | | | | | GPM | | |
| #10 / 330 ft. | | #8 / 370 ft. | | | | | | | | | | | | | | | | Wire size / max. length | | |
| 690 | 1040 | 590 | 880 | 530 | 800 | 450 | 680 | 400 | 600 | | | | | | | | | | PEAK SUN hours/day | 7.5 6.0 4.5 |
| ETA-03H-300 | | | | | | | | | | | | | | | | | | SYSTEM # | | |
| 1.7 | | 1.6 | | 1.4 | | 1.3 | | 1.2 | | | | | | | | | | GPM | | |
| #10 / 330 ft. | | | | #8 / 500 ft. | | | | | | | | | | | | | | Wire size / max. length | | |
| 800 | 1040 | 670 | 1000 | 640 | 960 | 590 | 880 | 510 | 760 | | | | | | | | | | PEAK SUN hours/day | 7.5 6.0 4.5 |
| ETA-03H-340 | | | | | | | | | | | | | | | | | | SYSTEM # | | |
| 2.0 | | 1.8 | | 1.8 | | 1.7 | | 1.5 | | | | | | | | | | GPM | | |
| #10 / 330 ft. | | | | | | #8 / 550 ft. | | | | | | | | | | | | Wire size / max. length | | |
| 1330 | 1810 | 1170 | 1760 | 1010 | 1520 | 880 | 1040 | 800 | 1040 | 720 | 1040 | 640 | 960 | 560 | 840 | 430 | 640 | | PEAK SUN hours/day | 7.5 6.0 4.5 |
| ETA-04H-480 | | | | | | | | | | | | | | | | | | SYSTEM # | | |
| 3.0 | | 2.9 | | 2.5 | | 1.9 | | 1.8 | | 1.8 | | 1.4 | | 1.3 | | 1.2 | | GPM | | |
| #8 / 330 ft. | | #6 / 420 ft. | | | | #8 / 850 ft. | | | | | | #6 / 700 ft. | | | | | | Wire size / max. length | | |
| 1600 | 1810 | 1390 | 1810 | 1200 | 1800 | 1070 | 1600 | 930 | 1040 | 850 | 1040 | 800 | 1040 | 720 | 1040 | 610 | 920 | | PEAK SUN hours/day | 7.5 6.0 4.5 |
| ETA-04H-600 | | | | | | | | | | | | | | | | | | SYSTEM # | | |
| 3.4 | | 3.3 | | 3.3 | | 3.2 | | 1.9 | | 1.8 | | 1.8 | | 1.8 | | 1.7 | | GPM | | |
| #6 / 545 ft. | | | | | | #6 / 490 ft. | | #8 / 500 ft. | | | | #8 / 650 ft. | | #8 / 750 ft. | | | | Wire size / max. length | | |
| 2030 | 3040 | 1630 | 1810 | 1520 | 1810 | 1390 | 1810 | 1250 | 1810 | 990 | 1040 | 880 | 1040 | 830 | 1040 | 750 | 1040 | | PEAK SUN hours/day | 7.5 6.0 4.5 |
| ETA-07-720 | | | | | | | | | | | | | | | | | | SYSTEM # | | |
| 5.0 | | 3.3 | | 3.2 | | 3.2 | | 3.1 | | 1.8 | | 1.8 | | 1.8 | | 1.7 | | GPM | | |
| #8 / 303 ft. | | #6 / 545 ft. | | | | #6 / 490 ft. | | #8 / 500 ft. | | #8 / 650 ft. | | #8 / 750 ft. | | | | | | Wire size / max. length | | |
| 2450 | 3200 | 1760 | 1810 | 1630 | 1810 | 1550 | 1810 | 1440 | 1810 | 1010 | 1040 | 960 | 1040 | 930 | 1040 | 850 | 1040 | | PEAK SUN hours/day | 7.5 6.0 4.5 |
| ETA-07-900 | | | | | | | | | | | | | | | | | | SYSTEM # | | |
| 5.0 | | 3.3 | | 3.2 | | 3.2 | | 3.1 | | 1.8 | | 1.8 | | 1.8 | | 1.7 | | GPM | | |
| #8 / 317 ft. | | #6 / 565 ft. | | | | #6 / 545 ft. | | #8 / 500 ft. | | #8 / 650 ft. | | #8 / 750 ft. | | | | | | Wire size / max. length | | |

INSTRUCTIONS

- Find the LIFT required, and read the column below it.
- Find the DAILY VOLUME you require.
 at 7.5 peak sun hrs/day – gal/day
 at 6.0 peak sun hrs/day – gal/day
 at 4.5 peak sun hrs/day – gal/day
 (7.5 = moderately dry summer weather)
 For more water, look down the column.
- Order this SYSTEM NUMBER
 For a "Tracked" array, add "Tracking Option"
- Use the PEAK FLOW RATE for pipe sizing.
- Pump wire size / max. length (see below)

MORE WATER

WIRE SIZES

PUMP CABLE, EXAMPLE: #6 = AWG (American Wire Gauge) / 565 ft. = maximum allowable length (controller to pump) for that wire size.
 VARIATIONS
 GREATER LENGTH: for each 150% increase, the next larger wire size is required.
 SHORTER LENGTH: for each 33% decrease, the next smaller wire is allowed.

ARRAY TO CONTROLLER if <20 ft. (3m): #10 minimum
 CONTROLLER TO LOW-WATER PROBE: #18 min. 2-conductor
 CONTROLLER TO FLOAT SWITCH: #18 min. 2-conductor

| FIXED SOLAR ARRAY MOUNTING POLE SIZE | |
|--------------------------------------|-----------------------|
| ETA system # last 3 digits | Schedule 40 pipe size |
| 240-600 | 4" |
| 720,900 | 6" |
| FOR TRACKED ARRAY PLEASE INQUIRE | |

| PUMP OUTLET PIPE SIZE | |
|-----------------------|------------|
| SYSTEM # | NPT inches |
| ETA-75C | 1 1/4" |
| ETA-14,20 all others | 1" |