



EagleSun™ Pool Heating



Alternate Energy Technologies, LLC
P.O. BOX 61326 · JACKSONVILLE, FL 32236
800.874.2190 · FX 904.781.1911 · info@aetsolar.com



EagleSun™ Pool Heating Benefits



Swim Longer

Installing a solar pool heating system will increase, sometimes even double, the amount of time your swimming pool can be comfortably used during the year.

Economical

When compared to heating your pool with other methods, solar heating can pay for itself in as little as 3 years.

Environmentally Safe

Solar Pool heaters use solar energy to provide a clean energy alternative to conventional heating sources that pollute the environment.

Maintenance Free

Once the panels are installed, you can relax in your warm pool without any additional maintenance or cost involved.

Quality

With up to 35% more polypropylene and UV stabilizers than any other manufacturer, EagleSun™ Pool Panels keep your pool heated longer and have a longer life expectancy.

Hurricane Tested

EagleSun™ panels can withstand hurricane force winds of 159.6 mph!

Guarantee

EagleSun™ Products are backed by a comprehensive 10 Year Limited Lifetime Warranty to ensure years of enjoyment.

| ESS Pool Panels

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EagleSun Pool Panel Features

**Most pool heating panels are designed to be repaired...
Eagle Sun Pool Panels are designed to last.**

The majority of solar pool heaters are designed with "individual" round flow tubes so that if a tube leaks it can easily be plugged. Some manufacturers even state in their warranty that a damaged system will be repaired if possible. In most cases a "repair" is nothing more than a plug. The problem with this is that a plugged panel is much less efficient or effective at heating your pool.

Another problem with the design of most solar pool heating systems is that the shape and thickness of the flow tube walls do not allow for prolonged expansion or contraction that occurs during seasonal temperature changes or extreme weather such as freezing.

This patented flat panel design is proven to be more efficient and more durable than other solar pool heaters. Here's why:

Absorb more heat

Eagle Sun Pool collectors are visibly thicker than any other pool heating collector because we use up to 35% more raw materials in our panels. This attracts more heat.

Reduce heat loss

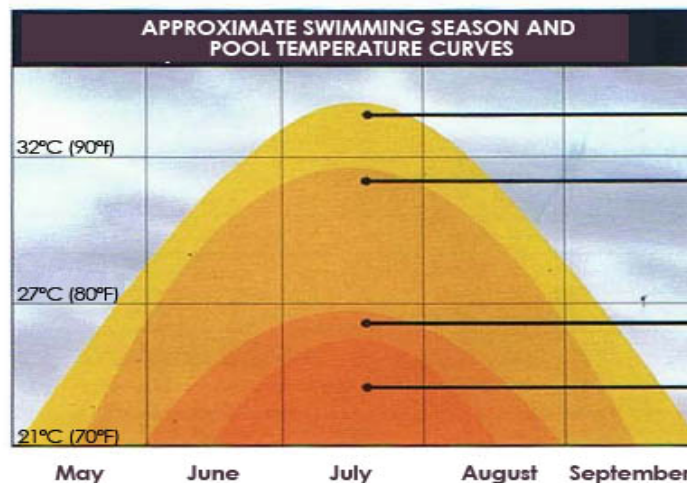
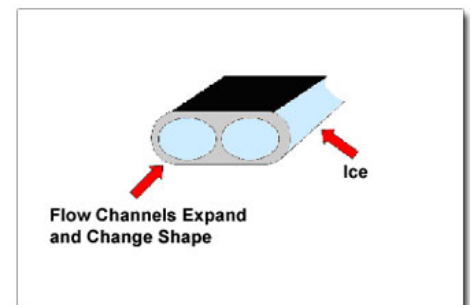
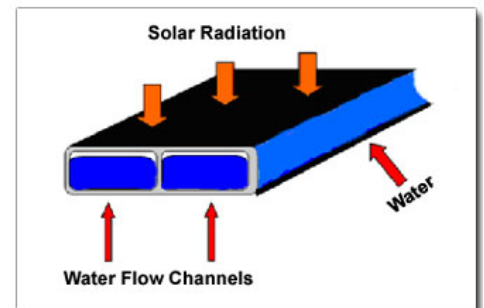
Eagle Sun flow tubes are connected so that they stay warm longer. Other panels can cool rapidly during windy conditions because the "individual" flow tubes aren't insulated by each other.

Last longer

The extra material in our panels allows for greater expansion and contraction, provides extra UV protection and prevents weak spots.

Prevent freeze damage (covered under warranty)

Because water expands by approximately 9% when turning to ice, the strain put on a solar panel's flow channel can be devastating. Our pool heaters, however, are designed to withstand internal freezing better than any other panel on the market today. As the picture to the right illustrates, the 2 keys to our durability are the thickness of our panels and the shape of the flow channels.



Solar Heated Pool with Cover

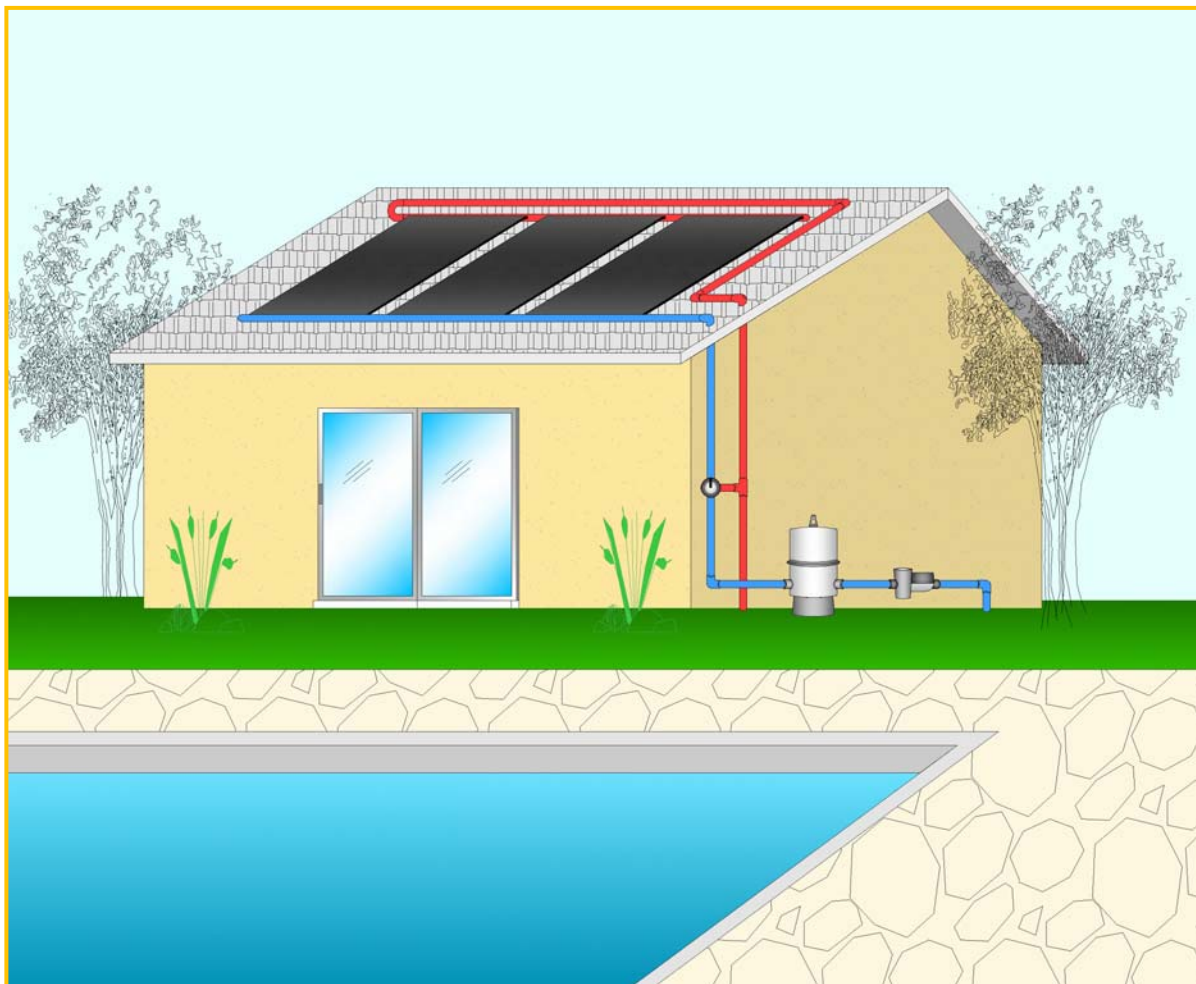
Solar Heated Pool without Cover

Unheated Pool with Cover

Unheated Pool without Cover

EagleSun™ Pool Heating System

1. Solar Collectors: Absorb the sun's heat efficiently and transfers the energy to the swimming pool water that is pumped through them
2. Manual Control: Turns the pool heating system on or off as required
3. Pump and Filter: Circulate clean water to the pool and collector when required.
4. Check Valve: Used to prevent back flow circulation in the solar collectors at night and allows for sustained drainage.
5. EPDM Collector Hoses: Join the solar collectors together and connect the supply and return piping to the collector array.
6. Long Mounting Straps: Used to secure the solar collectors to the roof.
7. Header Straps: Installed on the top header of the solar collectors only. Used to bear the weight of the collector.
8. Stainless Clips: Used to secure the mounting straps to the roof. Roof sealant is used to assure the integrity of the roof.



EagleSun™ Pool Panel & System Components

2.0" Header Solar Panel

Overall Length:

ES-48P	144"
ES-40P	120.25"
ES-32P	95.88"

Header Outside Diameter: 2.31"

Header Length: 50.75"



Panel Kit
(1 per panel)



Kit Includes	Qty
Rubber Hose	2
Hose Clamp	4
LAG Screw	5
Strap Clip	3
Pipe Strap	1

System Kit
(1 per system)



Kit Includes	Qty
Rubber Hose	2
Hose Clamp	4
LAG Screw	5
Strap Clip	3
Pipe Strap	1
Pipe-to-Panel Adapter	2
Grooved Plug	2

Vacuum Breaker Kit
(1 per system)



Kit Includes	Qty
Vacuum Breaker	1

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EagleSun™ Pool Panels

Technical Information

		2.0" Header		
	Size Part #	4 x 12 ES-48P	4 x 10 ES-40P	4 x 8 ES-32P
DIMENSIONS	Units			
Overall Length	<i>In</i>	144	120.25	95.88
Absorber Width	<i>In</i>	47.63	47.63	47.63
Header Length	<i>In</i>	50.75	50.75	50.75
Header OD	<i>In</i>	2.31	2.31	2.31
Header ID	<i>In</i>	1.89	1.89	1.89
Gross Area	<i>Sq ft</i>	47.725	39.87	31.809
Net Area	<i>Sq ft</i>	47.625	39.77	31.709
Number of Flow Channels		104	104	104
Nominal Hole Size	<i>In</i>	0.156	0.156	0.156
WEIGHT				
Dry	<i>Lbs</i>	30	25	20
Wet	<i>Lbs</i>	64.4	55.5	46.6
Wet Dispersed	<i>Lbs/sq ft</i>	1.31	1.35	1.41
Fluid Capacity	<i>Gal</i>	4.13	3.66	3.19
FLOW RATES				
Max	<i>Gpm</i>	10	10	10
Min	<i>Gpm</i>	3	2.5	2.5
Recommended	<i>Gpm</i>	4.95	4.95	4.95
Max # panels in parallel	<i>Panels</i>	10	12	14
PRESSURE				
Drop	<i>Psi</i>	0.15	0.15	0.15
Max test	<i>Psi</i>	80	80	80
Max operating range	<i>Psi</i>	+/- 10	+/- 10	+/- 10
Max operating spike	<i>Psi</i>	35	35	35
PERFORMANCE				
FSEC Certification	<i>BTU/day</i>	45600	38100	30400
Wind Load	<i>mph</i>	150	150	150

Pool System Sizing Calculations

Follow these steps to determine how many solar panels a pool may need.

1. **Determine the size of the pool.**
2. **Determine the direction that the roof is facing.**

The relationship between the direction of the roof and the size of the system is as follows

1. South (preferred direction) – System should represent 85% of the pool area.
 2. West - System should represent 95 - 100% of the pool area.
 3. East - System should represent 100 - 105% of the pool area.
4. **Decide which size panels you want.**

Panels are available in 4 x 8, 4 x 10, and 4 x 12. Divide by 32, 40, or 48 respectively to determine the number of panels needed. The average system size is 7 panels, and the most popular size is 1.5" header 4' x 12'.

Example:

- Homeowner has 16' x 32' pool with a south facing roof and wants to use 4' x 10' panels:
- *Pool Size* : $16' \times 32' = 512'$ pool area.
- *Required Solar Area*: $512' \times .85 = 435.2'$
- $4 \times 10 = 40$ sq ft per panel.
- $435.2' / 40' = 10.88$ or 11 panels needed.

EagleSun Pool Panel Warranty

10 Year Limited Lifetime Warranty Including Internal Freeze Protection

Alternate Energy Technology, LLC. (AET) the 'Warrantor' warrants the EagleSun solar pool panels manufactured by it the 'Panel', to be free from defects in material and workmanship from the date of purchase by owner the 'Consumer', subject to the following limitations, terms, and conditions.

1. Duration of the Warranty

- 1.1. First Period: Ten (10) Years Warranty.
- 1.2. Second Period: Lifetime Limited Warranty.

2. Warrantors Obligations

- 2.1. During the First Period (10 Years), the Warrantor shall be required to exchange a defective Panel due solely to faulty materials or workmanship.
- 2.2. During the Second Period, the Warrantor shall be required, under this Limited Lifetime Warranty, to replace a defective Panel due solely to faulty materials or workmanship the cost of such replacement will be 50% of the published Panel List Price, in effect at the time of discovery, to be assumed by the Consumer.

3. Installation Conditions

- 3.1. The Panel must be installed in accordance with The EagleSun Installation Manual. Local installation regulation shall provide the base standards by which the installation is performed. Installation standards Include but are not limited to:
 - 3.1.1. The Panel must be fully drained when they are not in use.
 - 3.1.2. The Panel must not rest on any sharp objects.
 - 3.1.3. The Panel must not be anchored at both the top and bottom header.
 - 3.1.4. The Panel must be supplied with filtered water.
 - 3.1.5. The Panel has to be Installed and serviced exclusively by an AET/EagleSun Authorized Dealer.

4. Transferability of Warranty

- 4.1. This warranty is solely for the benefit of the original Consumer and is therefore not transferable. If at any time, the Panel is resold or has changed ownership; the Warranty shall be null and void.
- 4.2. You have the option to apply directly with AET for a Transferability Addendum to this warranty. The cost of this Transferability Addendum is 50% of the current list price of a Panel per Panel sold and installed (as per the original sales contract and Warranty Card). This application and payment must be returned in to AET within 90 days of the change in original ownership. We reserve the right to refuse any application.

5. Exclusion of Coverage

- 5.1. This Warranty extends only to damages resulting from defects In materials and workmanship. It does not extend to damage caused by Consumer neglect, misuse, abuse, accidents, storms, abnormal weather conditions, freight, Improper Installation, or by any other fortuitous event caused by any other means whatsoever being out of Warrantor's direct control.
- 5.2. This Warranty does not cover any cost of labor in its execution. Any labor incurred in the execution of this Warranty is the sole responsibility of the Consumer.
- 5.3. Warrantor shall not be liable for any direct or indirect damages resulting from the Panel or Defective Panel, and or its installation.
- 5.4. No Warranties are, or have been made by Warrantor with respect to the Panel other than those expressly Included in this Warranty.

6. Extent of Warrantor's Liability

- 6.1. Warrantor's liability under this Warranty can never exceed the cost of the Panel purchased directly from AET by its wholesaler or dealer.

7. Responsibility of the Consumer

- 7.1. The enclosed Warranty Card must be fully completed by Consumer and returned to Warrantor within (30) days from the date of purchase by Consumer.
- 7.2. If, at any time during the period covered by this Warranty, Consumer discovers a Panel to be defective, notice of such faulty conditions shall be given by Consumer to Warrantor in writing within (30) days of discovery of such faulty condition.
- 7.3. The Consumer is responsible for the good working condition of the system. If you find that your system IS not in good working condition, contact your AET Authorized Dealer immediately
- 7.4. The Consumer is responsible for the good working condition of the system. If you find your system is not in good working condition, contact your AET Authorized Dealer immediately.

8. Shipping Costs and Authorization

- 8.1. Prior to returning any defective Panel to the Warrantor, written authorization must be received from the Warrantor. If authorization instructions are not followed, this Warranty shall become null and void.
- 8.2. The Consumer IS responsible for any freight involved in returning to the Warrantor's Plant, any defective Panel for exchange under this Warranty.
- 8.3. Upon approval of the warranty claim, the Warrantor will make available a Replacement Panel for the Consumer.
 - 8.3.1. The Consumer can opt to pick up the Replacement Panel from the Warrantor's Plant.
 - 8.3.2. The Consumer can opt for the Warrantor to ship the Replacement Panel to the Consumer, at the Consumer sole expense.

Local legislation may extend Legal Rights beyond the ones included in this Warranty.

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