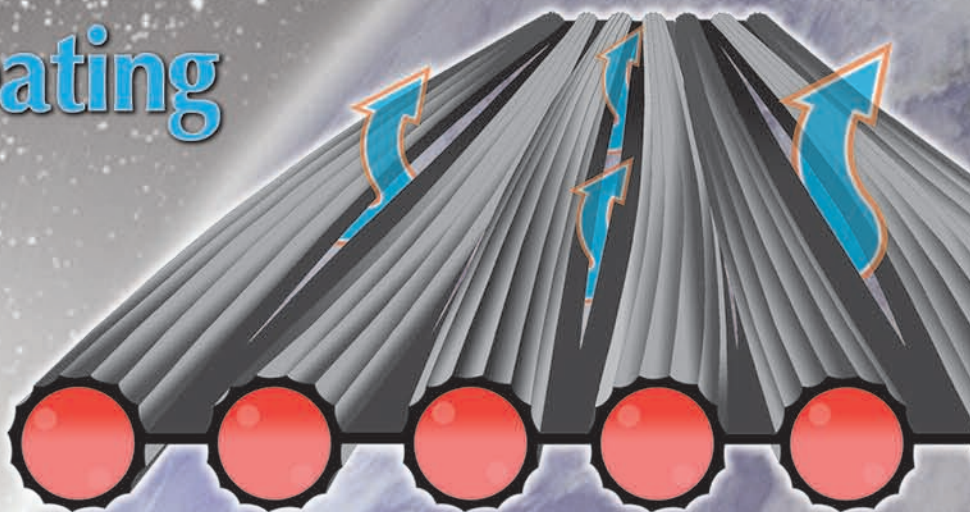


# Advanced Hybrid Solar Pool Heating Technology



**ECOSUN**®  
Solar Pool Heating Systems

With its patent pending vented web and unique fluted surface design, only the Ecosun Hybrid combines the strength and high performance of a full plate collector with the benefits of roof ventilation and reduced wind load.

Ecosun is available in either a low profile 1-1/2" manifold or a commercial grade heavy duty 2" manifold for today's high flow, high efficiency pool filtration systems.

## TECHNICAL DATA

### DIMENSIONS

	1-1/2" Series			2" Series		
	16104-12	16104-10	16104-8	16204-12	16204-10	16204-8
Model Number	16104-12	16104-10	16104-8	16204-12	16204-10	16204-8
Nominal Size ft.	4x12	4x10	4x8	4x12	4x10	4x8
Overall Collector Length-in	144.0	120.0	96.0	144.0	120.0	96.0
Collector Width-in	47.0	47.0	47.0	47.0	47.0	47.0
Manifold Length-in	50.5	50.5	50.5	50.5	50.5	50.5
Manifold O.D.-in	1.9	1.9	1.9	2.4	2.4	2.4
Manifold I.D.-in	1.5	1.5	1.5	2.0	2.0	2.0
Gross Collector Area-ft <sup>2</sup>	47.3	39.3	31.4	47.3	39.3	31.4
Net Collector Area-ft <sup>2</sup>	47.3	39.3	31.4	47.3	39.3	31.4

### WEIGHTS

	1-1/2" Series			2" Series		
	16104-12	16104-10	16104-8	16204-12	16204-10	16204-8
Dry-lbs	21.3	17.1	14.3	22.3	18.1	15.3
Wet-lbs	48.0	41.6	35.1	54.0	47.6	41.1
Wet lbs-ft <sup>2</sup>	1.0	1.0	1.1	1.1	1.2	1.3
Fluid Capacity-gal	3.2	2.9	2.5	3.8	3.5	3.1

### FLUID FLOW RATES

	1-1/2" Series			2" Series		
	16104-12	16104-10	16104-8	16204-12	16204-10	16204-8
Model Number	16104-12	16104-10	16104-8	16204-12	16204-10	16204-8
Maximum-GPM	10.0	10.0	10.00	10.0	10.0	10.0
Minimum-GPM	3.0	2.5	2.5	3.0	2.5	2.5
Recommended-GPM	5.0	4.0	3.25	5.0	4.0	3.25
Max. Collector with Single Feed @ Recommended Flow Rate	10	12	12	12	14	14

### PRESSURES

Pressure Drop:	0.14 ft head (0.06PSI) pressure loss @ recommended flow rate 0.09 ft head (0.04PSI) pressure loss @ minimum flow rate
Max. Fluid Pressure:	Greater than 85 PSI @ 80°F
Recommended Max Operating Pressure:	35 PSI @ 140°F

## Guide Specifications

Contractor to supply and install \_\_\_\_\_ collectors, nominal size (4x12, 4x10, 4x8) with overall frontal area of (47.3, 39.3, 31.4) square feet each. Collectors shall be fabricated from a propylene copolymer with stabilizer combination providing long term resistance to heat and light. The weight of collector when filled with water shall be no more than 1.3 pounds per square foot of frontal area. The collectors shall be capable of withstanding an internal static pressure of 85 psi at operating temperature and shall be resistant to corrosion, freezing, and internal scale accumulation.

Collectors shall be capable of thermal performances of at least 85% efficiency when inlet fluid temperature equals ambient temperature and be capable of collecting solar energy when the inlet fluid temperature exceeds the ambient temperature by 60°F with 250 BTU per square foot per hour.

Pressure head loss of a single panel must not exceed 0.14 feet water at recommended flow rate.

Collector shall be vented to allow for moisture ventilation of the mounting surface and wind relief during adverse weather conditions.

Collector mounting shall consist of 18-8 chromium-nickel stainless steel mounting hardware with a minimum of two continuous transverse straps having black polypropylene coating. Transverse straps shall be fastened with 18-8 chromium-nickel stainless steel clamps and brackets.

Water connections shall be made with hose sections extruded from EPDM (ethylene-propylene-diene-terpolymer) 70 durometer minimum hardness. Hose clamps shall be all stainless worm gear type with 18-8 chromium-nickel stainless band.

The collectors shall meet or exceed the minimum standards established by the Florida Solar Energy Center, other applicable nationally recognized standards, and shall be manufactured in the U.S.A..

## Thermal Performance

Thermal Performance Equation -  $n = 85.8 - 3.42$

Incident Angle Modifier -  $K_{qr} = 1.0 - 0.03$

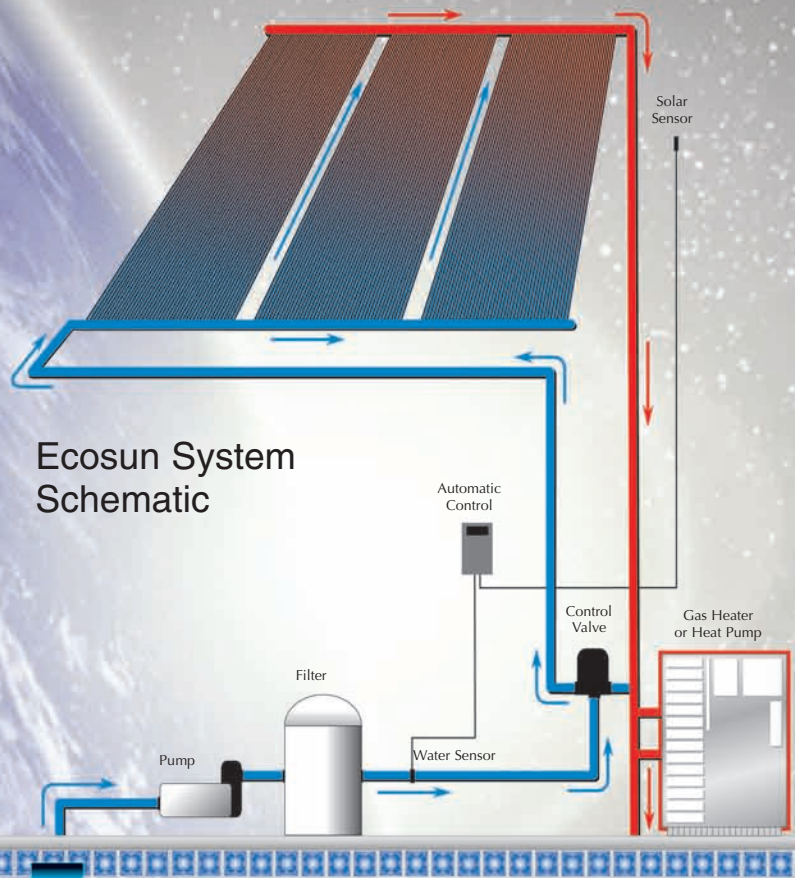
(Rated in accordance with ASHRAE standard 96-80)

Florida Solar Energy Ctr Certification  
 4x10 - 39,800 (BTU's per std day)  
 4x12 - 47,700 (BTU's per std day)      4x8 - 31,800 (BTU's per std day)

### CERTIFICATIONS, APPROVALS & TESTING

The Ecosun Solar Pool Heating System meets or exceeds the criteria for approvals from the following accredited independent laboratories and approval agencies:

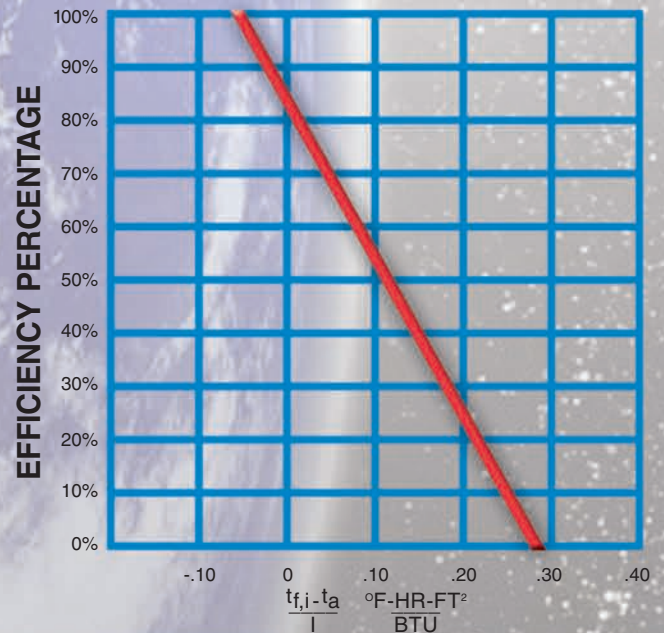
- International Association of Plumbing and Mechanical Officials (IAPMO)
- NSF
- Florida Solar Energy Center
- Dade County
- City of Los Angeles
- DOE- Bright Way Program



## Pressure Drop in Head/Feet with Multiple Ecosun Series Collectors

Collectors	25 GPM	30 GPM	40 GPM	50 GPM	60 GPM	70 GPM
8 Collectors	0.6	0.9	1.6	/	/	/
10 Collectors	/	1.3	1.8	3.1	/	/
12 Collectors	/	/	2.4	3.3	4.5	/
<hr/>						
8 Collectors	0.3	0.5	1.0	/	/	/
10 Collectors	/	0.6	1.1	1.6	/	/
12 Collectors	/	/	1.3	1.8	2.5	/
14 Collectors	/	/	/	1.8	2.6	3.0

## Instantaneous Efficiency of Ecosun Series Collectors



Your "Partners in Quality" Representative is:

