



## 2012 Solar Pool Heating System Comparison (Heliocol HC-50 vs. Ecosun)

We are releasing this counterclaim piece in direct response to a recent (mostly non-factual) comparison sheet which was introduced via their online dealer meeting last month. The sheet was later emailed to Heliocol Dealers on Tuesday, February 21st. It should not come as a surprise to any of our Dealers the level of manipulation of truths and out-and-out false information their piece contained. Our intention in creating our counterclaim piece is simply to refute any false claims made by Heliocol regarding both UMA's Heliocol and Aquatherm's Ecosun products. The first two columns labeled "Claim" were reproduced from Heliocol's original comparison sheet, while the "Counterclaim" column is the truth/reality/whole story.

	Heliocol HC-50	Aquatherm Ecosun	
Warranty	Claim	Claim	Counterclaim
Panels	12 years*	10 years	12 years when installed by a Master Dealer
Parts	12 years*	Not covered	12 years when installed by a Master Dealer
Labor	12 years*	10 years	12 years when installed by a Master Dealer

**It is important to note Heliocol's warranty is not through the manufacturer; rather, it is offered by an import company in Altamonte Springs, FL. As an Ecosun Master Dealer, you have the option to utilize Aquatherm's 12-year Labor Warranty, however we do not force our Dealers to include it.**

Energy Production	Claim	Claim	Counterclaim
BTU Per sq. ft. Per Day	2,020*†	1,760**	Per Florida Solar Energy Center certification (Low Temperature): Ecosun: 1,010 BTUs / sq. ft.   Heliocol: 956 BTUs / sq. ft
Total BTU for 400 sq. ft System	808,000*†	704,000**	Per Florida Solar Energy Center certification (Low Temperature): Ecosun: 404,000   Heliocol: 382,400

\* Per SRCC: "Thermal performance tests [for Heliocol] were done indoors with a solar irradiance simulator."

\*\* Per SRCC: "Tests conducted outdoors."

† Heliocol test data is older than 12 years (1985), therefore invalid per SRCC guidelines; per email from SRCC there is newer test data that "will be released soon."

**Heliocol is citing SRCC Category-A, which is -9° F (for example: Pool Temp = 85°, Ambient Temp = 94°) on a 2,000 BTU day (equivalent to an average summer day in Arizona). Ask your customer - "do you see any reason to heat your pool on a 94° day?" Another way to explain it is "Heliocol provides heat when heat is needed the least." Next, testing for Heliocol was performed in 1985 (outdated by SRCC's current 12-year guideline) on an indoor solar simulator (no wind), while Ecosun test data was acquired through outdoor testing. In other words, Ecosun test data reflects real-world climate conditions - not those in a lab.**

Performance	Claim	Claim	Counterclaim
Working Pressure	90 psi*	35 psi	Ecosun: 50 psi** (tested to 100 psi)
Burst Pressure	270 psi*	85 psi	Ecosun: 145 psi** (@ 140 ° F)
Pressure Drop Per Foot	0.42*	1.60	Ecosun: 0.3 ft. hd @ Recommended Flow Rate** (5 gpm)

\* Unverifiable

\*\* Verified by NSF®

**Ecosun collectors and system connections have been tested to ANSI standards and all published pressures have been verified by NSF International, the leading independent test agency for water safety and toxicity. Having been the first manufacturer to seek NSF listing for unglazed solar thermal collectors, Aquatherm literally helped set the standard for others to meet. That being said, Heliocol's published pressure data (above with \*) has not been verified by NSF International. NSF has only verified pressures up to those listed in our "Counterclaim" column above.**

Aesthetics	Claim	Claim	Counterclaim
Colors Available	Black Gray Terracotta	Black	Gray & Terracotta: up to 30% performance loss  Gray and Terracotta do not contain carbon black, resulting in fading and further performance loss throughout the life of the collector.  Our polypropylene resin contains antioxidants and UV-inhibitors such as carbon black to prevent them from fading.
Seamless Panel Design	Yes. Patented panel clamps allow panels to be installed closer together, providing more energy on available roof space.	No. Gaps between panels reduce overall system efficiency by reducing the amount of panel coverage on available roof space.	Does not provide for necessary expansion and contraction between panels.  Heliocol's lower performance means installers have to fit as much square footage as possible on the roof to compensate.

**Though home owners with gray or terracotta roofs may be initially attracted to Heliocol's alternative panel colors, Heliocol Dealers generally end up installing the standard black panels (since gray and terracotta panels would require 30% more surface area to accomplish the performance of black). Gray and terracotta collectors also tend to fade over time, further reducing performance.**

Roof Protection	Claim	Claim	Counterclaim
Individual Tube Design	Yes. Allows expansion and contraction, eliminates cracks and leaks, lets roof breathe and keeps it clean and dry.	No. Monolithic design decreases wind resistance, can crack and leak due to thermal expansion and traps roof moisture.	Individual tube design results in 286 individual connections per 4-foot-wide collector.  Ecosun's thermally-welded header design consists of two continuous welds per collector.  Monolithic means "solid" sheet (FAFCO, Techno-Solis). All Aquatherm collectors have a multi-plate construction, which allows for wind-load and moisture relief.
Strapless Installation	Yes. Patented, strapless mounting system.	No. Straps are required to secure the panel to the roof.	In higher wind-load areas, local code requires Heliocol be installed with straps.
Minimize Roof Penetrations	Yes. Strapless mounting significantly minimizes roof penetrations.	No. Strap installation requires a significant number of roof penetrations.	Each Heliocol collector requires: 4 plastic Gator Clamps (2 penetrations per clamp) <b>= 8 penetrations per collector</b>  Each Ecosun collector requires: 1 stainless-steel header bracket (2 penetrations per bracket) and 2 SS strap hold-down brackets (1 penetration per bracket) <b>= 4 penetrations per collector</b>
Wind Resistant	Yes. Individual tube design prevents "lift", increasing wind resistance.	No. Monolithic design lifts like a sail or wing in high winds.	Ecosun's patented venting process makes it the highest-rated vented collector (FSEC), and prevents the collector from lifting in high winds.
Prevent Moisture Build-Up	Yes. Open design allows proper evaporation of rain, making it the best panel for flat roofs.	No. Monolithic design prevents rapid moisture evaporation, causing potential roof rot over time.	Debris can collect between Heliocol's tubes, damaging the roof; requires regular cleaning.  All Aquatherm collectors have a multi-plate construction, which allows for wind-load and moisture relief.

**Though Heliocol likes to say their overmolded design creates a "one-piece unibody construction," the truth is every single individual tube is a potential leak path at the header-to-tube connection. Ecosun's thermally welded header-to-plate connection results in two continuous welds. Per Aquatherm's installation manual, transverse polypropylene-coated stainless steel straps are to be installed across each row of collectors (and secured at each point between collectors) in conjunction with one outlet-header bracket per collector, and a final outlet-header bracket and strap bracket set terminating each row. This results in FEWER penetrations PER COLLECTOR, since Heliocol requires 4 "gator clamps" per collector at 2 penetrations each clamp.**

Connections	Claim	Claim	Counterclaim
Panel Connection	Plastic panel clamps, which never rust or leak. Clamps expand and contract with temperature changes, maintaining a sealed connection.	Radiator-type hoses (which can deteriorate over time, leaving stains on your roof). And metal clamps which require periodic service to tighten against leakage.	<p>Plastic panel clamps are sealed with o-rings, which can dry out and need to be replaced.</p> <p>Aquatherm's stainless-steel &amp; dual-durometer connections are engineered specifically for solar pool heating applications and eliminate the need to periodically tighten clamps.</p>
Roof Connection	Gator clamps which reduce roof penetrations, allow for natural expansion and contraction of the panels and are designed to mount to roof trusses only for a more secure connection.	Anchor straps, which require more roof penetrations, can also damage panels and roof surface over time as they do not allow for thermal expansion. Not all connections are on trusses, requiring chip board reinforcements in attic.	<p>Plastic Gator Clamps can become brittle in the sun, and can crack and break over time.</p> <p>Aquatherm's optional structural aluminum header clamps are available for high-wind or steep roof applications and can be located anywhere along the header (including over trusses).</p>
Maintenance-Free	Yes, with no hoses and no metal clamps, the system is truly maintenance-free.	Regular roof-top system maintenance required to tighten each clamp and check each hose connection.	<p>Leaves and other debris can collect between Heliocol's individual tubes, potentially damaging the roof unless regularly cleaned.</p> <p>Aquatherm's stainless-steel &amp; dual-durometer connections are engineered specifically for solar pool heating applications and eliminate the need to continually tighten clamps.</p>

**Heliocol is referring to other competitors when speaking of "radiator-type hoses." Explain to prospective customers the Ecosun system uses a specialized system of mounting hardware and connections designed *specifically* for solar pool heating applications. Aquatherm panel connections have been tested and verified to NSF-50 safety, durability, and toxicity standards. As Richard Good has often pointed out - "Heliocol is a product designed and manufactured in the desert (Israel) that is meant to be used in desert climates." When leaves, pine needles, and other organic debris become trapped in the individual tube design, the home owner ends up with "a forest growing on their roof" unless regular maintenance/cleaning is performed.**

Safety Certifications	Claim	Claim	Counterclaim
ISO 9001 for Quality Management	1999	2011	Neither product has ISO certification (only a company can be certified).  ISO 9001:2008 received by: Magen Eco Energy (Israeli mfr of Heliocol) - <b>1/2010</b> Aquatherm Industries, Inc. - <b>7/2011</b>
ISO 14001 for Environmental Protection	2008	No	ISO 14001 recognizes energy conservation efforts within the manufacturing facility (Magen Eco Energy in Israel)
NSF 50 for Safety & Reliability for Pool, Spa, and Recreational Water Facility Use	2011	2011	Ecosun has been an NSF-50 listed product since <b>2010</b> , when Aquatherm Industries became the first manufacturer of NSF-listed solar pool heaters.  Aquatherm remains the only U.S. manufacturer with NSF-50.
NSF 61 (Raw Materials) for Safety in Drinking Water Components	2009	No	Magen Eco Energy received an NSF-61 listing on its raw materials in 2011. The Heliocol product is not, in fact, NSF-61 listed.  NSF-50 testing criteria is specifically for commercial pool safety, durability, and toxicity, and is far more thorough than NSF-61 test criteria (which is meaningless in regards to commercial pool water).
SRCC OG-100 for Safety, Durability and Performance of Solar Collectors	Yes	Yes	Heliocol test data on file with SRCC is from 1985. SRCC guidelines state test data must be less than 12 years old, making current SRCC OG-100 out of date/invalid.

**There are inaccuracies in most of the dates Heliocol has provided for their testing certifications (see actual dates/years in bold above). Heliocol also continues to claim their product is ISO registered, which is false since ISO standards can not be applied to a product, only a manufacturer or company.**