



PRODUCT SHEET SOLAR SUN RINGS™

Solar Sun Rings®

The Solar Sun Ring™ is a passive solar swimming pool heating device made from two sheets of U.V. resistant vinyl. The upper clear layer holds insulating air & focuses sunlight on the blue coloured lower layer.

The blue layer absorbs about 50% of the sunlight & converts it to heat. The balance of the sunlight is allowed to pass through for deep water heating.

Included in Delivery:

- ✓ Solar Sun Ring®
- ✓ Instruction & Warranty

Material & Specification:

- ✓ Ultra violet resistant PVC
- ✓ HF welding
- ✓ Diameter: 152 cm





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The New Kid on the Block

In the solar heating world there were two established choices, the bubble pack blanket & solar panels. Now there is a third choice, Solar Sun Rings™. All solar uses the same sunlight but each approach uses it in different ways.

Let's look at how they stack up to each other.

1. The bubble pack blanket is made from polyethylene an opaque plastic. They generate almost no heat & what heat they do generate is surface heat. The general recommendation is to cut the blanket to precisely fit the swimming pool to get the maximum heat. This causes mustard algae due to lack of direct sunlight & alkalinity due to the inability of the decomposition products of the pool chemicals to escape into the atmosphere. The bubble pack blanket is inexpensive & inefficient.

2. Solar panels derive their heat by absorbing the sun's energy. The panels are normally placed in an area that will receive maximum sunlight. The collector is generally unsightly. Solar Panels generate heat at about 1000 BTUs per square foot at the discharge from the collector. The panels require a pump to be operated at peak hours to circulate the water. Over the course of a full day about 30% of the heat put into the pool is lost by evaporation & advection. This gives a heat benefit to the swimming pool of about 700 BTUs per square foot of collector. Solar Panels are efficient but very expensive & require additional energy to work.



3. Solar Sun Rings™ are rated at 21,000 BTUs for each ring per day. At about 19.6 square feet per Solar Sun Ring™ that is a daily heat benefit to the swimming pool of about 1070 BTUs per square foot of collector. This is accomplished by a combined high efficiency utilization of the sun's energy & insulating entrapped air in the device itself. This heat output is also accomplished without the daily cost of operating a pump. If we look at the numbers, Solar Sun Rings™ exceed solar panels performance by 30% per square foot & cost about 1/20th the price. Installation & removal take only minutes by one person & add festive colours to your pool. The design & recommended use of Solar Sun Rings™ eliminates the mustard algae & alkalinity of the blanket. It is not necessary to operate a pump at peak hours to get the heat into your pool. Solar Sun Rings™ are the most efficient solar collectors, generate the greatest heat benefit to a pool per square foot, require no additional energy & are inexpensive.

4. Solar Sun Rings™ also includes a version with "Water Anchors". These anchors are a series of pockets on the reverse side of the solar ring which fill with water when the ring is placed on the surface of the swimming pool. These help to keep the ring on the surface of the water when there are strong winds blowing across your pool. The Solar Sun Ring™ with anchor is recommended for use on pools that are in areas where there are frequent strong winds.



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**Solar Sun Rings
Test Results**

Solar Sun Rings and the Solar Spa Cover were tested under actual conditions for a full year from June 2005 through June 2006 at the National Pool Industry Research Center. This facility is located on the campus of the California Polytechnic University, San Luis Obispo. The facility consists of 12 identical swimming pools each 10 feet by 20 feet each having a capacity of 7,900 gallons. The swimming pools are 3 feet deep in the shallow end and 6 feet deep in the deep end. In addition there are 4 spas, 8 feet across, 2 being circular and 2 being semi-circular. These spas have a depth of 18 inches to the seat and a center depth of 3 feet. The circular spas hold 800 gallons and the semi-circular spas hold 400 gallons. This unique facility is under the control of the Civil & Environmental Engineering Department of the University. All data was collected by Charles Virden II, Project Engineer and interpreted by Nirupam Pal PhD. Professor and Associate Director of the Research Center.

Summary of the Testing

Energy output of Solar Sun Rings:

It was established early in the testing that each Solar Sun Ring proved a daily heat input to the test pools of 21,000 BTUs. This amount of heat from one Solar Sun Ring will raise 2,525 gallons of water 1 degree Fahrenheit or 5,520 liters of water 1 degree centigrade.

Water Savings with Solar Sun Rings:

The testing was done with an actual coverage of 67% that resulted in a water savings of 64.3%.

Chemical Savings with Solar Sun Rings:

The test data confirmed at 67% coverage Solar Sun Rings reduced chlorine loss by up to 50% and the free calcium and alkalinity increased up to 37% compared to a pool without any cover over a period of 10 days

Energy Saved with the Solar Spa Cover:

The test spas at the University are maintained at 102 degrees Fahrenheit. They are 8 feet in diameter and three feet deep with a capacity of 800 gallons. Throughout the entire year of testing the reduction in natural gas consumed by the spa covered by the Solar Spa Cover was 87% when compared to the uncovered spa. This savings varied from close to 100% during the summer to 74% during the winter. However when the spa was continuously covered the alkalinity and free calcium increased. If the cover was not removed to allow direct sunlight into the spa mustard algae formed.

Water and Chemical Savings with the Solar Spa Cover:

Both water and chemical savings with the Solar Spa Cover paralleled the results of the Solar Sun Rings. The savings of water and chemicals are proportional to the percentage of the surface covered.

Nirupam Pal
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