

The Original Innovator

in Solar Pool Heating ...and still the Best!

First...

Sun Tracking Tube and Web Design

Unique tube and web design maximizes heat gain earlier in the morning and later in the afternoon ...even on windy days.



First...

Stainless Steel Mounting Hardware

Marine grade stainless steel mounting hardware including the hold down straps. The strongest in the industry, designed to withstand hurricane force winds.

First...

Stabilized Polypropylene

Specially formulated to withstand extreme exposure to the sun, weather and pool chemicals.

First...

Multi-Plate Construction

Which allows for wind relief during extreme weather conditions as well as for thermal expansion and contraction.

First...

Thermally Welded Construction

For a seamless weld between the collector's body and header.

First...

1,000 BTU Rating

The first polypropylene collector to achieve a 1,000 BTU rating per square foot certified in third party testing.

First...

Lifetime Manufacturers Warranty

A warranty backed by over three decades of manufacturing experience.

Solar Industries pioneered the design and development of the original pool heating system over three decades ago. Today, we are the largest manufacturer of solar collectors in the USA. Every collector is constructed under strict quality control at the most modern facility of its kind. Experience counts most when you are considering the purchase of a solar pool heating system, and every Solar Industries system owner enjoys the benefits of over three decades in design, manufacturing and customer satisfaction. Solar Industries systems have proven their value on over 100,000 pools in every climate around the globe.

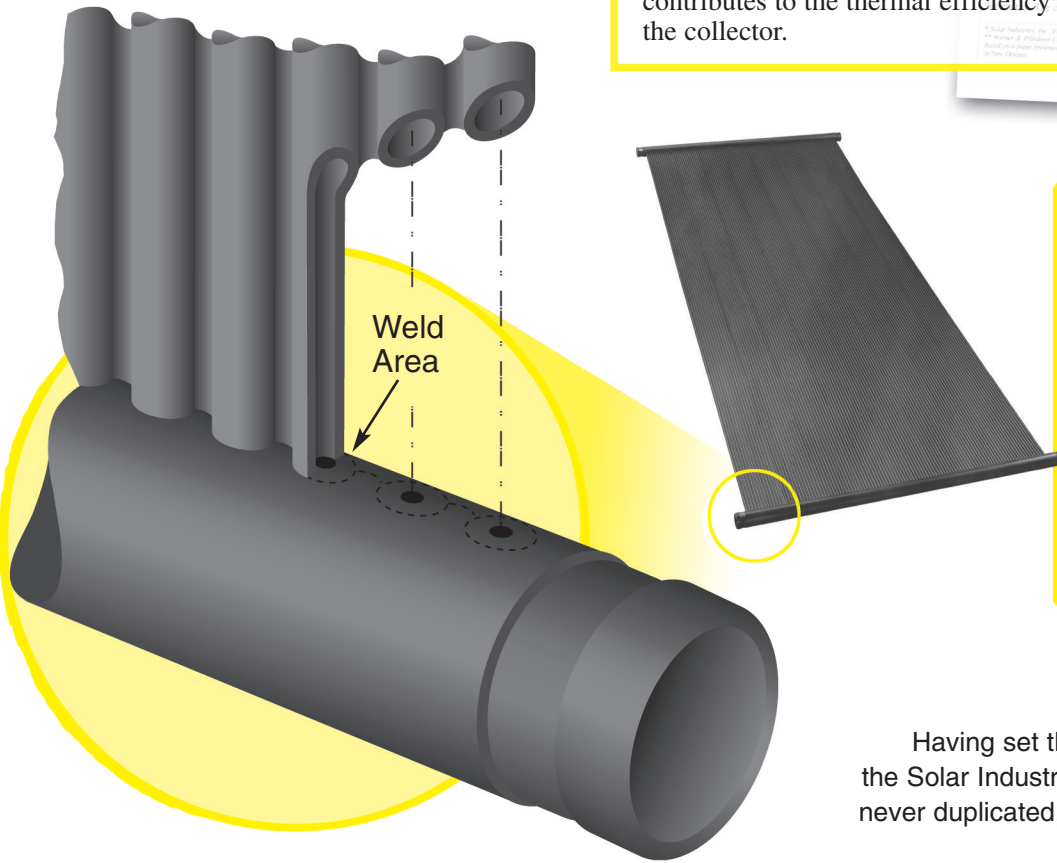
When you want the very best, demand the solar pool heating system that has become the standard for an entire industry.

The Solar Industries Collector was designed by a group of engineers at industrial giant, ITT in an effort to produce a cost effective, long lasting solar pool heating collector. The problem with most conventional solar pool heating collectors was expansion and contraction weakened the plastic resulting in a short life span. Solar Industries' unique design solved that problem by adding the web between the tubes that absorbed the expansion and contraction while maximizing solar radiation.

When the Solar Industries Pool Heating Collector was first introduced in 1976, it quickly caught the attention of both the solar and plastics industries.

Modern Plastics, the leading industry trade publication heralded the collector's design and manufacturing process as a "new concept" in the use of polypropylene for such an application. The design was so unique that it received the first patent ever awarded for a "Tube and Web" polypropylene solar collector.

The use of a web rather than direct connections between the tubular sections reduces the stress imposed on the tube, preventing premature stress failure. The size, shape and spacing of the tubes contributes to the thermal efficiency of the collector.



Modern Plastics High-efficiency solar collector system

Cost-effectiveness can be increased by identifying applications in which the necessary collector system need be less complex and less expensive. One such application is a solar system for heating swimming pools, in which the collector consists of extruded ethylene/propylene copolymer with carbon-black filler

An outdoor pool is used only when the ambient air temperature is relatively close to that of the pool water. Seldom is it 30° F. cooler than the desired temperature of the pool. Under these conditions, radiation, convection, and conduction losses from the solar panel are minimized and the open absorber plate collector is equal to or higher in operating efficiency than a conventional covered collector operating to heat a swimming pool.

A study of the basic principles involved in the collection and utilization of solar energy led to development of an entirely new concept in extruded plastic collector systems since July, 1976. An

extruded plastic collector was designed in such a way that it could be used for a fully water-welded system, and provide the advantage of inherently greater durability. A header size of 1 1/2 in. nominal iron pipe diameter was chosen for use in the collector, with the outside diameter wall was specified, since the selected factors in series was through live-resistant synthetic elastomer hoses secured with worm-gear type stainless-steel clamps. The heavy-wall tubing with a tapered section near the end provided the needed properties of strength and resistance to leakage.

Extruding the profile
In studying extrusion problems, in manufacturing the collector, it was determined that an extrusion measuring approximately 6 in. wide was practical, as-

lector is shown in Fig. 1. A single absorber plate incorporates 104 separate extruded tubular sections approximately 2.25 in. in inside diameter, with a wall thickness of approximately 0.030 in. These tubes are connected with a curved web which is located below the center line. The use of a web rather than direct connections between the tubular sections reduces the stress imposed on the tube, preventing premature stress failure. The size, shape, and spacing of the tubes contributes to the thermal efficiency of the collector.

As shown in Fig. 1, radiation falling on the web section and on the sides of the tubes, with increasing angles of incident radiation, is reflected and emitted to adjacent tube sections. This reduces the amount of energy that would otherwise be lost through radiation to the lower atmosphere. Furthermore, the shape of the tube presents a constant section to direct solar radiation with increasing incident angles through much which is presented to diffuse solar radiation adds to the total amount of energy that is absorbed by the tubes. Diffuse radiation amounts to between 10% and 100% of total available radiation on any given day.

Tests have confirmed that these physical characteristics offset the advantages that can be cited for a fully water-welded system, and provide the advantage of inherently greater durability. A header size of 1 1/2 in. nominal iron pipe diameter was chosen for use in the collector, with the outside diameter wall was specified, since the selected factors in series was through live-resistant synthetic elastomer hoses secured with worm-gear type stainless-steel clamps. The heavy-wall tubing with a tapered section near the end provided the needed properties of strength and resistance to leakage.

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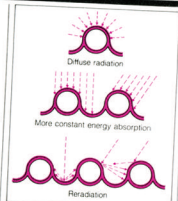


Fig. 1: Radiation patterns on extruded solar collector.

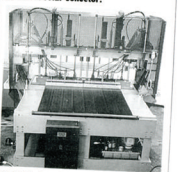


Fig. 2: Heat-welding machine.

ing state-of-the-art methods. Furthermore, it was desirable to limit the width of individual plate sections so as to permit release of fabrication stresses while the product is in service. Extruded plastic solar collectors of one-piece plate design buckle as the fabrication stresses are released, causing hollows to form; these depressions have a tendency to become stained and unightly after a few months. By limiting the extrusion width bond between the individual extrusions, they adjust and lie flat as the stresses are released, solving the problem.

The bond between the plate and the header must provide a totally leakproof seal between 104 individual tubular water passages and the surface of the header, while allowing the heat-transfer fluid to flow unimpeded from the tubular plate section through drilled holes in the header wall. Furthermore, it must be mechanically strong and the bonding process must not significantly reduce the resistance of the material to degradation by exposure to the elements.

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Having set the industry standard for over thirty years, the Solar Industries Collector is the most imitated, though never duplicated, solar pool heating collector in the world.

First in Innovative Design • **First** in Manufacturing Experience • **First** in Customer Satisfaction

Solar Industries
Solar Pool Heating Systems



www.solarindustries.com

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