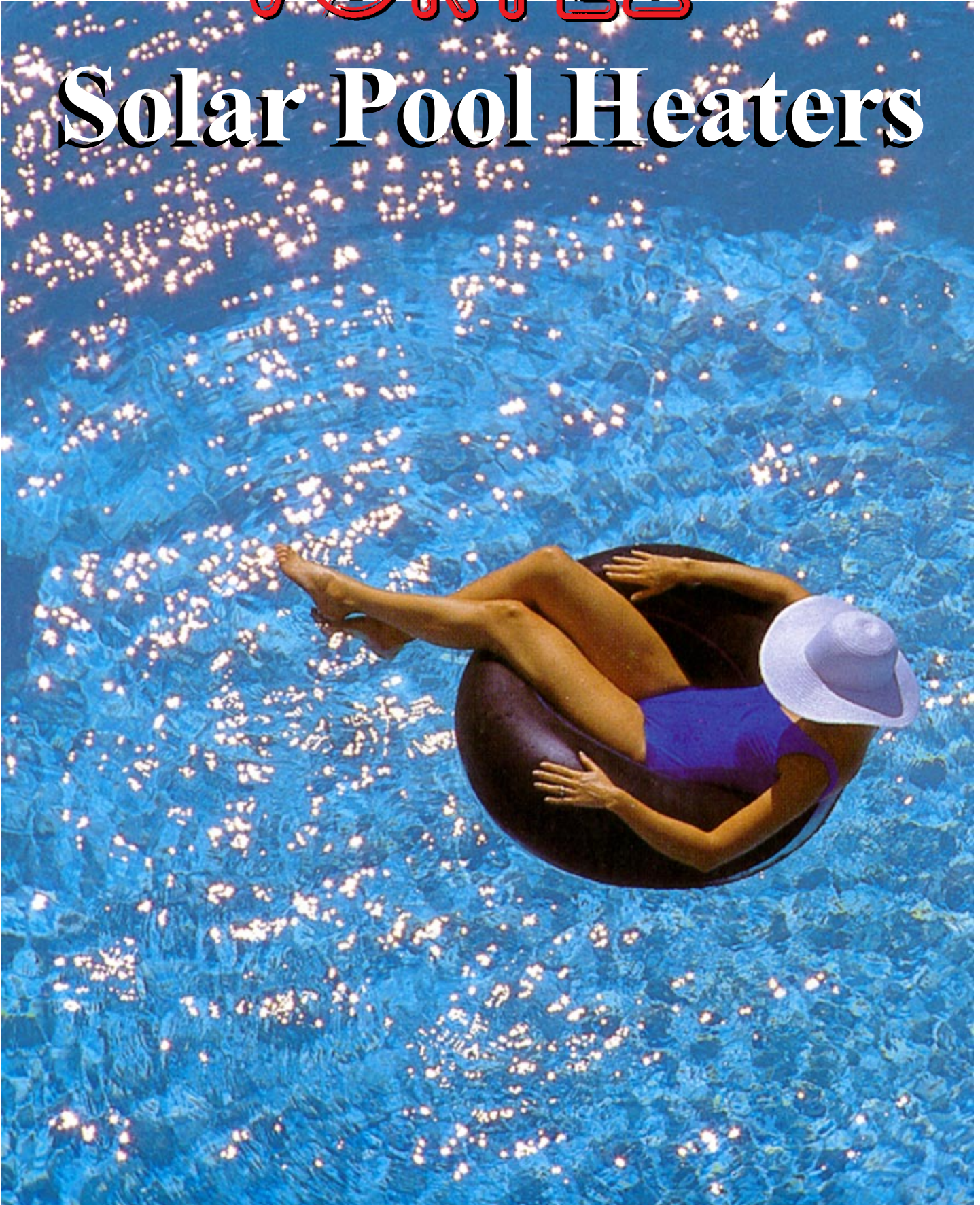


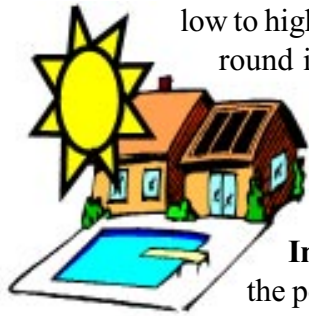
VORTEX™

Solar Pool Heaters



HOW WILL SOLAR PERFORM?

Solar Pool Heaters are best for recreational pool use and are recommended for those who are comfortable with pool temperatures ranging from the



low to high 80's (°F). Solar works year round in southern climates such as Florida. In other climates the season is extended in addition to warming the water (see the **Solar**

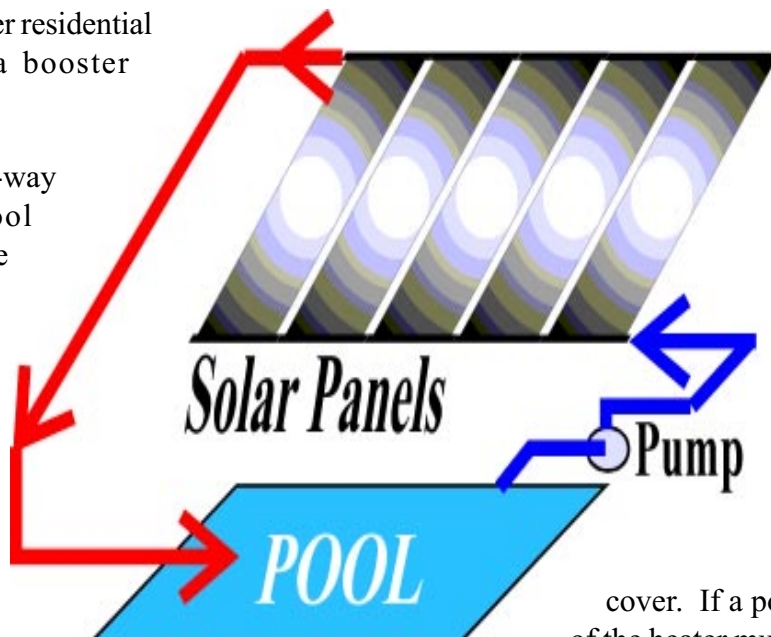
Insolation Chart to determine the potential swimming season in your area). There may be periods

during inclement weather that the pool is too cool to use; however, several sunny days will bring the pool back to a comfortable temperature. Proper sizing is critical for good performance. If you desire a particular temperature regardless of the outside weather conditions or you must swim for therapy, consider a **Heat Pump Pool Heater**. If you only use the pool occasionally, or are only heating a hot tub, also consider a **Gas Pool Heater**.

HOW DOES SOLAR WORK?

Solar Heaters utilize the sun's free heat. Your existing pool pump circulates the water through the heater, usually located on the roof, and warms the pool. The pump timer is set to operate during sunlight hours, usually 9am to 5pm. An Automatic Control and Valve are sometimes used to regulate temperature, usually in northern climates. Commercial pools and some larger residential pools may need a booster pump.

To the left is a cut-a-way view. Cooler pool water enters the bottom of the panel through a header where it is distributed into small tubes. The water is warmed as it travels up through the panel, and exits out the top header.



TYPES OF SOLAR POOL HEATERS

There are two basic types of solar pool heaters: panels and mat. Both types have Carbon Black in them to absorb solar energy and Inhibitors which act like a sunscreen to prevent deterioration. **Panels** are made of polypropylene plastic, come in rigid sizes, and are approximately 5 to 10% more efficient than Mat Systems. The major advantage to **Mat** Systems is that they can be tailored to fit odd size roofs (request information on Solaroll™ Mat for more details).

WHAT SIZE DO I NEED?

Generally you will need a system equal to 50 to 100% of the pool surface. Solar panels are available in 4'x8', 4'x10', 4'x12' and custom sizes. They are generally placed in a row on one or several roofs. A typical 7 4x12 panel system would require a space of 12.5 ft by 30.75 ft. To determine the size required for your pool, use the **Simplified Sizing Guide For Solar Pool Heaters**. Each pool & home is unique. The size of the heater is based on several factors, including: the size & shape of the pool; pool shading (i.e. trees, screen enclosure); geographic location; swimming season and pool temperature desired; windy conditions; and direction of the roof (south, east, west or flat). The size of the heater will determine the temperature, swimming season, and length of time to heat the pool. It is very important to properly size the heater for good performance.

Keep in mind that a Thermal Pool Cover is recommended for all heating systems. Heating a pool without a cover is like heating a house without a roof...the heat just goes right out the top. Without a pool cover, the cost of operating a Heat Pump or Gas Heater is doubled, and a Solar Heater's effectiveness is dramatically decreased. For convenience a roller may be added to ease placement and removal of the cover. If a pool cover is not be used, the size of the heater must be increased by up to 100%.



COST OF OPERATION

Solar is an alternative energy source, and has no cost of operation. The pool pump must run for the solar heater to function, and may increase your electric bill by \$10 to \$75 per year depending on your normal filtering time.

WHAT DO SYSTEMS LOOK LIKE?

System design varies slightly from house to house. They can be installed on most roof types or on ground mounted racks.

CAN I INSTALL IT MYSELF?

Solar Heaters can be installed easily by most anyone. It requires only simple hand tools and a drill. The typical installation takes from 1 to 2 days. Refer to the **Installation Manual** for complete details.

ENERGY RATING & EFFICIENCY

Solar panels are rated by FSEC (Florida Solar Energy Center) in BTU's per SqFt. The higher the BTU, the more heat output. The average output is 900 to 1000 BTU's. This only equates to a 3 to 7% difference between brands. The best method to determine the value is to divide the total cost by the total SqFt of panel. The lower the cost per SqFt, the better the value.

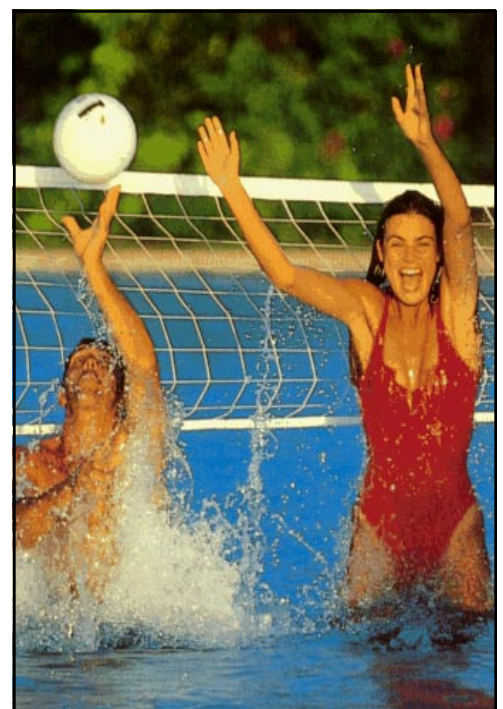
LONGEVITY AND MAINTENANCE

A quality Solar Heater will typically last 10 to 20 years. They are very low maintenance.

BRAND COMPARISON

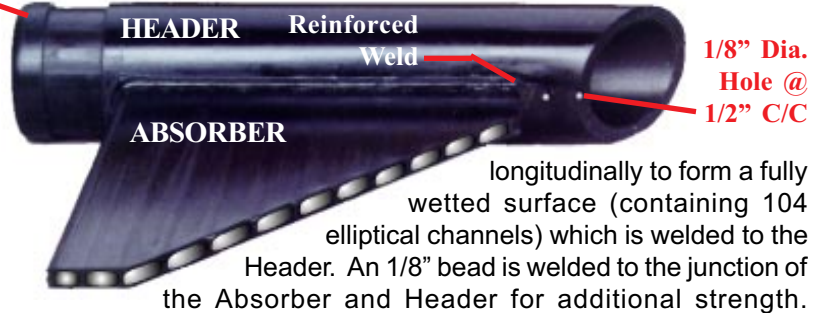
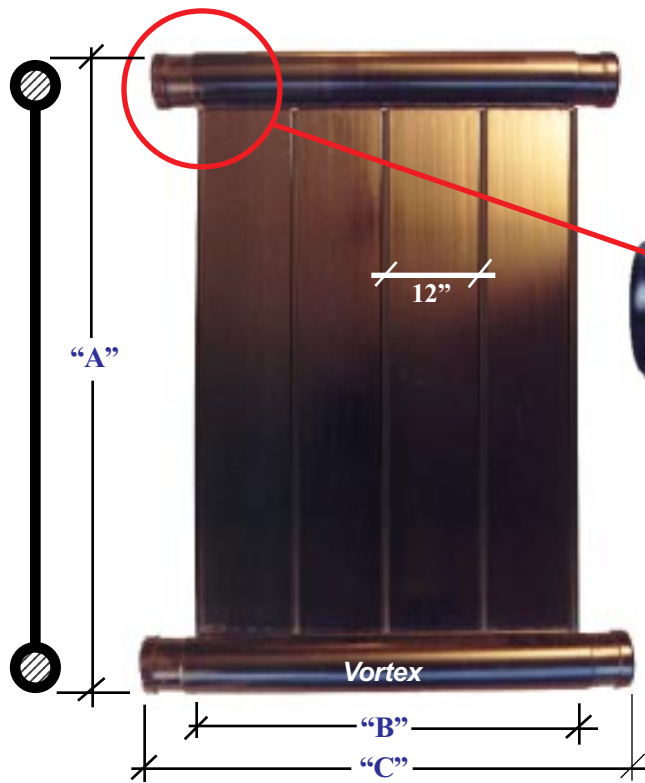
Solar Pool Collectors are so similar in performance and function that the BTU rating *should not* be used to compare one product to another. If you have the same size and number of collector panels on any given pool, they will perform almost identically, relative to heating the pool. Collectors should only be compared to each other on the basis of:

1. Weight or material content: The **Vortex™** panels are 25-40% heavier than the industry average. This makes them more durable and gives them the greatest life expectancy.
2. Panel Flow rate and Pressure: **Vortex™** has high flow & low pressure.
3. Replacement versus Repair type warranty. Most warranties call for the repair or replacement of a defective collector panel at the option of the dealer or manufacturer. The **Vortex™** has a full ten year replacement warranty including labor and freeze protection. Repair warranties can be for longer time periods such as 12-15 years, but replacement is always the best option.



General Description

Vortex is made in Florida, USA. It is a Commercial Grade panel with 25% more material content than the industry standard, resulting in increased durability and longevity. The Header and Absorber are made from Co-polymer (polypropylene and polyethylene) virgin black plastic containing a proprietary ultraviolet (UV) stabilizer with an "In-House" continuous extrusion process using vacuum forming. The Absorber is comprised of four extruded strips heat sealed



longitudinally to form a fully wetted surface (containing 104 elliptical channels) which is welded to the Header. An 1/8" bead is welded to the junction of the Absorber and Header for additional strength. Independent laboratory testing terminated at 1000 psi with no rupture. The Header incorporates a "Subaqueous Diffuser Manifold" with one hole per channel for improved flow distribution and turbulence. The panels are connected via EPDM (ethylene-propylene-diene-monomer) Expansion Hoses with Stainless Steel gear clamps. Attachment to the roof/structure is with polypropylene 5/8" strap and all Stainless Steel hardware.

Technical Data

THERMAL PERFORMANCE RATING*

	U.S.	/	Metric	U.S.	/	Metric	U.S.	/	Metric
MODEL NO.	VT48	/	VT48	VT40	/	VT40	VT32	/	VT32
PANEL OUTPUT* (Btu/day / Kj/day)	45,600	/	48,100	38,100	/	40,181	30,400	/	32,060
SQ. FT. OUTPUT* (Btu/ft ² / Kj/m ²)	958	/	10,858	958	/	10,858	958	/	10,858
EFFICIENCY (Btu/ft ² /(1600 Btu/ft ² Avg))			60%			60%			60%

DIMENSIONS

		U.S.	/	Metric	U.S.	/	Metric	U.S.	/	Metric
NOMINAL SIZE (ft / m)		4x12	/	1.22x3.66	4x10	/	1.22x3.05	4x8	/	
1.22x2.44										
COLLECTOR LENGTH (in / cm)	"A"	144	/	365.8	120.25	/	305.4	95.575	/	242.8
ABSORBER WIDTH (in / cm)	"B"	47.50	/	120.7	47.50	/	120.7	47.50	/	120.7
HEADER LENGTH (in / cm)	"C"	50.75	/	128.9	50.75	/	128.9	50.75	/	128.9
HEADER O.D. (in / cm)		1.90	/	4.83	1.90	/	4.83	1.90	/	4.83
HEADER I.D. (in / cm)		1.48	/	3.76	1.48	/	3.76	1.48	/	3.76
GROSS COLLECTOR AREA (ft ² / m ²)		47.64	/	4.43	39.79	/	3.62	31.65	/	2.88

WEIGHT

	U.S.	/	Metric	U.S.	/	Metric	U.S.	/	Metric
DRY (lbs / kg)	30	/	13.6	25	/	11.3	20	/	9.1
WET (lbs / kg)	64.3	/	29.1	55.4	/	25.1	45.4	/	20.6
WET (lbs/ft ² / kgs/m ²)	1.35	/	6.74	1.39	/	6.95	1.46	/	7.18
FLUID CAPACITY (gal / l)	4.12	/	15.57	3.64	/	13.76	3.18	/	12.02

FLOW - Parallel Forced Circulation

	U.S.	/	Metric	U.S.	/	Metric	U.S.	/	Metric
MAX. (gpm / mlps)	10	/	633	10	/	633	10	/	633
MIN. (gpm / mlps)	3.0	/	190	2.5	/	158	2.5	/	158
RECOMMENDED (gpm / mlps)	4-5	/	253-316	4-5	/	253-316	4-5	/	253-316

PRESSURE (All Models)

	U.S.	/	Metric
PRESSURE DROP (psi / kPa)	0.15	/	1.03
MAX. FLUID PRESSURE (psi / kPa)	90	/	620
MAX. OPERATING at 140°F (psi / kPa)	35	/	241

OPTICAL PERFORMANCE (All Models)

SOLAR RADIATION ABSORPTIVITY	95%
INFRARED RADIATION EMISSIVITY	92%

Authorized Dealer:

*Devired from the Florida Solar Energy Center (FSEC)