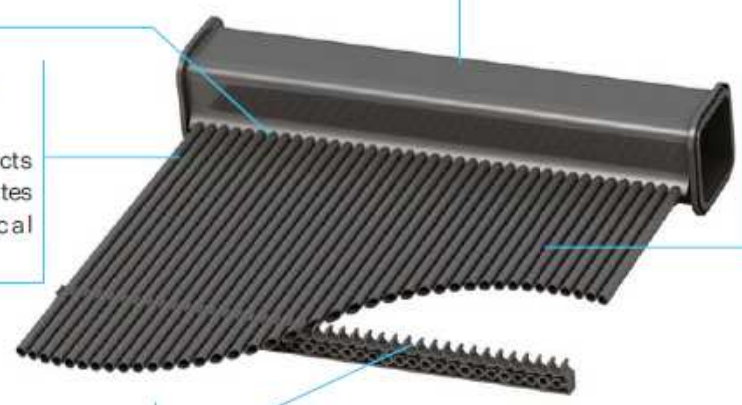
Sunstar Unique Features

Over-Molding Injection Technology
"One-of-a-kind" injection process that connects the riser tubes to the manifold header to create a panel which is literally a single piece of plastic.

Square Manifold Header
Unique square design that assures tight fastening & mounting of the panel on any roof type.

Innovative Engineering
A combination of special header and mounting features eliminates possible tile damage caused by the constant contraction & expansion of the materials, while preserving flow characteristics with minimum pressure drop.

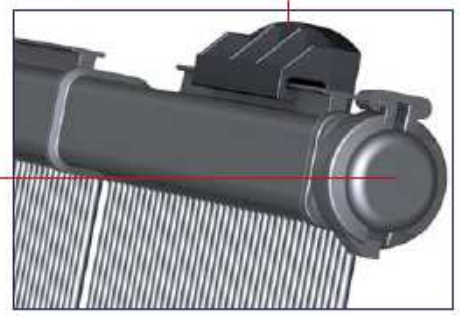


Individual Tube Design
Minimizes wind effects on the panel and creates extreme mechanical stability.

Specially Formulated Material
Tested in authorized labs, and proven to be stabilized against the effects of sustained UV radiation, extreme weather conditions and aging.

Sunstar Mounting Pad
Almost invisible when installed. Simple & fast assembly. Only one drill is needed. Assures minimum roof penetration.

Spacer Bars
Prevent distortion of the panel over time, and the abrasion of the riser tubes due to thermal expansion of the panel.



Modular Structure
Enables fast & firm connection between panels, to create any desired absorption area over any roof type.

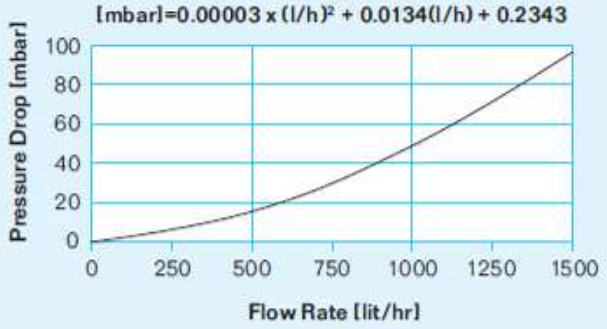
Parts & Fittings
All plastic made, for simple connection between panels and standard plumbing pipes.

Dimensions & Design Parameters

Collectors Type		STR-50 4'x12.5'	STR-40 4'x10.5'	STR-38 4'x10'	STR-30 4'x8'
P.M. Cat No.		127212	127211	127210	127208
Length	m	3.85	3.23	2.92	2.31
Width	m	1.2	1.2	1.2	1.2
Area	m^2	4.62	3.85	3.52	2.77
Weight "Dry"	Kg.	10.7	8.6	8.2	6.8
Volume Capacity	Lit.	14.4	11.7	11.4	9
Weight "Wet"	Kg.	25.1	20.3	19.6	13.9
No. of Spacers	#	12	10	9	7
Filled Area Weight	Kg. / m^2	5.4	5.3	5.3	5.7
Rec. Flow Rate	Lit. / hr	1200	900	900	720

Panel Pressure Drop Vs. Flow Rate

[mbar]=0.00003 x (l/h)² + 0.0134(l/h) + 0.2343



Potable Water & Foodstuffs Contact Certification
Polypropylene is certified for use with potable water, as specified in the German standard DVGW-W270, and for foodstuffs contact as specified in the Swiss standard KsV-817041 and the British standard SI2000-3162.

Chemical Resistance
The polypropylene material is highly durable against: Corrosion, Limescale, Chlorine, Bromine, Iodine, HCL, Salts & Sea water and other swimming pool disinfectors

F.S.E.C. Performance Rating & Daily Energy Output

Water Temperature	Model / Units	STR-50 4'x12.5'	STR-40 4'x10.5'	STR-38 4'x10'	STR-30 4'x8'
Cool 35°C (95°F)	kJ / day	48,600	41,000	37,000	29,400
	Btu / day	46,100	38,900	35,100	27,900
Medium 50°C (122°F)	kJ / day	17,400	14,700	13,300	10,500
	Btu / day	16,500	14,000	12,600	10,000

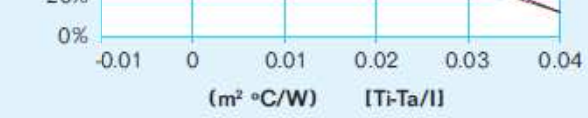
Collector Efficiency Graph & Equations
(Tested by F.S.E.C. according to ASHRAE standard 96-1989)

Black	Terracotta
$\eta = 0.828 - 18.52\ (Ti-Ta) / I$	$\eta = 0.727 - 15.59\ (Ti-Ta) / I$
Units of (Ti-Ta) / I are [m^2 C/Watt]	
$\eta = 0.828 - 3.26\ (Ti-Ta) / I$	$\eta = 0.727 - 2.75\ (Ti-Ta) / I$
Units of (Ti-Ta) / I are [hr / ft^2 F/BTU]	

Mechanical Stability

	°C	20	40	60
Water Temperature	°F	68	104	140
Maximum Recommended Operating Pressure	bar	8	6	4
	psi	120	90	60
Burst Pressure	bar	25	18	14
	psi	360	260	200

Sunstar Efficiency Graph



How Does the Solar Collector Work?

1. By means of the existing pool pump, pool water is directed via a controlled motorized valve to the solar collectors.
2. Pool water enters the solar collectors at the bottom and rises to the top through the individual tubes of the collector.
3. The solar energy heats the water as it flows through the collectors.
4. The heated water then returns to the pool, and the cycle is repeated until the pool has been sufficiently warmed by the sun.
5. The solar heating process is fully automatic, using temperature sensors and a differential controller.