

## TENKIV SOLAR COLLECTOR



SUPPLIER:  
**Tenkiv, Inc.**  
 820 18th Street  
 Sacramento, CA 95811  
 www.tenkiv.com

BRAND: Tenkiv  
 MODEL: 0  
 COLLECTOR TYPE: Flat Plate

## COLLECTOR THERMAL PERFORMANCE RATING

## Kilowatt-hours (thermal) Per Panel Per Day

Climate ->	High Radiation (6.3 kWh/m <sup>2</sup> .day)	Medium Radiation (4.7 kWh/m <sup>2</sup> .day)	Low Radiation (3.1 kWh/m <sup>2</sup> .day)
Category (Ti-Ta)			
A (-5 °C)	10.5	7.8	5.2
B (5 °C)	10.3	7.7	5.0
C (20 °C)	10.2	7.6	4.7
D (50 °C)	9.5	7.3	4.1
E (80 °C)	9.0	6.6	3.5

A- Pool Heating (Warm Climate) B- Pool Heating (Cool Climate) C- Water Heating (Warm Climate)  
 D- Space & Water Heating (Cool Climate) E- Commercial Hot Water & Cooling

## COLLECTOR SPECIFICATIONS

Gross Area:	2.000 m <sup>2</sup>	Dry Weight:	50 kg
Net Aperture Area:	1.972 m <sup>2</sup>	Fluid Capacity:	3 L
Absorber Area:	1.972 m <sup>2</sup>	Test Pressure:	1103 kPa

## TECHNICAL INFORMATION

Tested in accordance with: ISO 9806:1994

ISO Efficiency Equation [NOTE: Based on gross area and (P) = Ti-Ta]

SI UNITS:	$\eta = 0.824 - 0.6121(P/G) - 0.0021(P^2/G)$	Y Intercept:	0.824	Slope:	-0.63 W/m <sup>2</sup> .°C
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Incident Angle Modifier								Test Fluid:	Water
θ	10	20	30	40	50	60	70	Test Mass Flow Rate:	0.000375 Kg/(s m <sup>2</sup> )

## REMARKS:

Due to substantial design differences from typical solar thermal collector categories, some ICC-SRCC categories such as pressure drop are ineffective at indicating collector behaviour.



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SOLAR COLLECTOR CONSTRUCTION DETAILS					
Gross Length:	2.000 m	Gross Width:	1.000 m	Gross Depth:	60.00 mm

COLLECTOR MATERIALS					
Outer Cover:	Glass sheet	Enclosure back:	Steel	Back Insulation:	Vacuum
Inner Cover:	None	Enclosure side:	Steel	Side Insulation:	Vacuum
Absorber Description:	All Tubes		Flow Pattern:	Parallel	
Riser Tube:	Steel		Fin:	Steel	
Absorber Coating:	Selective		Tube to fin connection:	N/A	

GLAZING	Outer Cover	Inner Cover
Material:	Glass Sheet	None
Surface Characteristics:	Textured	N/A
Thickness:	6.0 mm	N/A
Transmissivity:	High (equal to or greater than 90%)	N/A
Length:	2.0 m	N/A
Width:	1.0 m	N/A
Tube Glazing to Header Enclosure Seal:	Glass - Metal	

ABSORBER:	Absorber Coating:	Selective
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<b>Header Material:</b>	Copper	<b>Header OD:</b>	40 mm	<b>Header Wall:</b>	1.2 mm
<b>Riser Tube Material:</b>	Steel	<b>Riser Tube OD:</b>	10.0 mm	<b>Riser Tube Wall Thickness:</b>	1.2 mm
<b>Fin Material:</b>	N/A	<b>Fin Thickness:</b>	N/A		

<b>Flow Pattern:</b>	Parallel / Harp				
<b>Number of Riser Tubes:</b>	40	<b>Tube Spacing:</b>	25 mm	<b>Number of times each riser crosses the absorber:</b>	1
<b>Length of Flow Path:</b>	2 m	<b>Riser to Fin/Plate Bond:</b>	Laser Weld		

<b>INSULATION:</b>					
Location	Type	Thickness	Location	Type	Thickness
<b>Back – Top Layer:</b>	Vacuum	N/A	<b>Sides – Inner Layer:</b>	None	
<b>Back – Bottom Layer:</b>	None		<b>Sides – Outer Layer:</b>	None	
<b>Enclosure Fastening Methods:</b>	Rivets				

<b>Power Output per Collector(W) [ Ti-Ta, G = 1000 W/m<sup>2</sup> ]</b>				
0	10	30	50	70
1648	1610	1570	1510	1420

<b>PRESSURE DROP</b>	
Flow	$\Delta P$
ml/s	Pa
20	20
50	50
80	80