

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 ² .day) | Medium Radiation (4.7 kWh/m ² .day) | Low Radiation (3.1 kWh/m ² .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 ² | Dry Weight: | 50 kg |
| Net Aperture Area: | 1.972 m ² | Fluid Capacity: | 3 L |
| Absorber Area: | 1.972 m ² | 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 ² .°C |
|-----------|--|--------------|-------|--------|----------------------------|

| | | | | | | | | | |
|-------------------------|----|----|----|----|----|----|----|----------------------|---------------------------------|
| Incident Angle Modifier | | | | | | | | Test Fluid: | Water |
| θ | 10 | 20 | 30 | 40 | 50 | 60 | 70 | Test Mass Flow Rate: | 0.000375 Kg/(s m ²) |

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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| | | | | | |
|-----------------------------|--------|-----------------------|---------|-----------------------------------|--------|
| Header Material: | Copper | Header OD: | 40 mm | Header Wall: | 1.2 mm |
| Riser Tube Material: | Steel | Riser Tube OD: | 10.0 mm | Riser Tube Wall Thickness: | 1.2 mm |
| Fin Material: | N/A | Fin Thickness: | N/A | | |

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

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

| Power Output per Collector(W) [Ti-Ta, G = 1000 W/m²] | | | | |
|--|------|------|------|------|
| 0 | 10 | 30 | 50 | 70 |
| 1648 | 1610 | 1570 | 1510 | 1420 |

| PRESSURE DROP | |
|----------------------|------------|
| Flow | ΔP |
| ml/s | Pa |
| 20 | 20 |
| 50 | 50 |
| 80 | 80 |