

Oventrop flat plate solar
thermal collector

OV 3' x 7', 21 square foot model

OV 4' x 8', 32 square foot model

OV 4' x 10', 40 square foot model

1. General Specifications

1.01 Certifications

1) SRCC OG-100

SRCC OG-100 certification number:

OV 3' x 7' - 100-2009-023A

OV 4' x 8' - 100-2009-023B

OV 4' x 10' - 100-2009-023C



1.02 Warranty

1) 10 year full

2. General Solar Collectors

2.01 Manufacturers

1) The collector enclosures shall be of flat plate construction. The collectors will be made by Oventrop Corporation. The Oventrop flat plate collectors are manufactured in the United States of America.

a) Solar Collectors will be 3'0" wide and 7'2" long (21 square foot model),

b) Solar Collectors will be 4'0" wide and 8'2" long (32 square foot model),

or c) Solar Collectors will be 4'0" wide and 10'2" long (40 square foot model).

2.02 Operation

1) Flow rate: 0.5 to 1.8 GPM (recommended)

2) Maximum pressure operating capacity of 165 PSI

3) Design Life: 30 years

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OV 4' x 10', 40 square foot model

3. Flat Plate Specifications

3.01 Construction

- 1) Collector Frame and Battens: Type 6063-T6 extruded aluminum frame and battens.
- 2) Backsheet: Type 3105-H14, 0.019" stucco embossed aluminum sheet pop-riveted to aluminum frame.
- 3) Corner Bracket: Architectural aluminum angles inside with aircraft-grade pin grip rivets to insure high stability.
- 4) Insulation: Polyisocyanurate foam board insulation. Foil-faced, glass fiber-reinforced, rigid board Thermax sheathing (1-1/4" in the bed, 3/4" in the sidewalls).
- 5) Absorber Plate: Manufactured by Thermafin™ Manufacturing, a 100% copper absorber plate, high frequency forge welded to create a crystalline homogenous connection between the fin and riser tube.
- 6) Absorber Coating: Exclusively by Thermafin™ Manufacturing, Selective Crystal Clear Coating, absorptivity = 0.96, emissivity = 0.08.
- 7) Glazing: Low-Iron Tempered Glass exclusively using "High-T" tempered glass with a total solar energy transmission of 90%.
- 8) Gasket, Grommets: a UV durable EPDM, U-channel gasket with molded corners. Extruded Silicone Grommet, 1-1/8" Bore.
- 9) Fasteners: 5056 Aluminum Rivets secure the backsheet. Batten screws are 18-8 SS, 10-24 x 3/8", Hex head screws, black oxide coated.

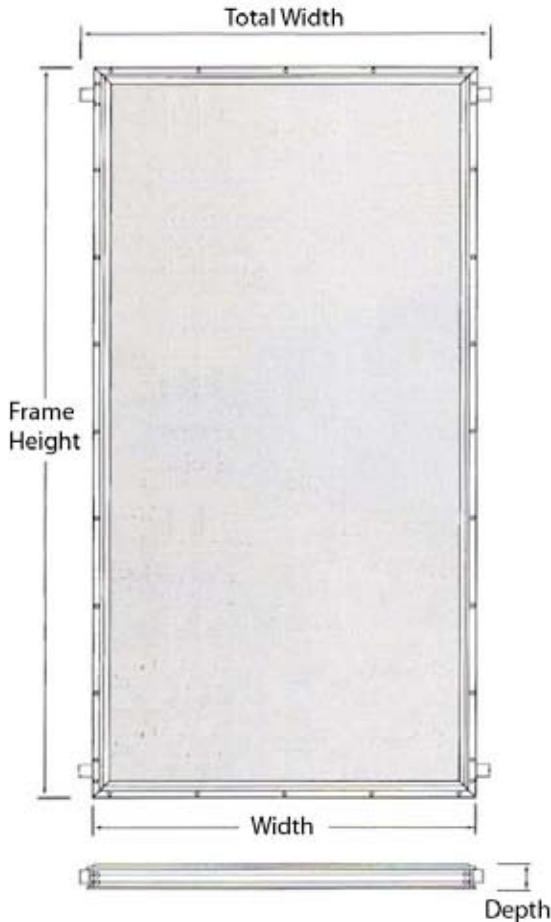
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OV 4' x 10', 40 square foot model

4. Dimensioned Product Drawing & Specifications



Glazing: Tempered, low iron glass. Iron oxide content is less than 1%.

Glazing Gasket: EPDM channel with molded corners.

Insulation: 1-1/4" and 3/4" foil-faced polyisocyanurate board insulation.

Frame Wall and Batten: 6063 T5 aluminum extrusion with an anodized bronze finish.

Backsheet: 0.019 stucco embossed aluminum sheet (bronze) pop-riveted to frame wall.

Absorber Plate: All copper fin and tube construction. High frequency forge-welded for permanent bond between tube and sheet. No soldered or crimped connections to fail from expansion or contraction. Thirty year warranty on fin-to-tube joint.

Absorber Coating:

Absorptivity: 0.94 - 0.96


Emissivity: 0.09 - 0.12

Working Pressure: 165 psi

Flow Rate: 0.5 to 1.8 gpm recommended

Warranty: 10 years

Model (Part Number)	3' x 7' (540 03 07)	4' x 8' (540 04 08)	4' x 10' (540 04 10)
Gross Collector Area	21.5 sqft	32.7 sqft	40.7 sqft
Area of Glazing	18.9 sqft	29.5 sqft	36.9 sqft
Absorber Area	18.8 sqft	29.4 sqft	36.8 sqft
Frame Height	86 inches	98 inches	122 inches
Frame Width	36 inches	48 inches	48 inches
Frame Depth	3-1/8 inches	3-1/8 inches	3-1/8 inches
Total Width	38 inches	50 inches	50 inches
Weight	76 lbs.	116 lbs.	151 lbs.
Fluid Capacity	0.70 gallons	1.04 gallons	1.21 gallons
Glazing Thickness	1/8 inch	1/8 inch	5/32 inch

SOLAR COLLECTOR CERTIFICATION AND RATING  SRCC OG-100	CERTIFIED SOLAR COLLECTOR SUPPLIER: Oventrop Corporation 29 Knipes Road East Granby, CT 06026 USA MODEL: 540 03 07 COLLECTOR TYPE: Glazed Flat-Plate CERTIFICATION#: 2009023A
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COLLECTOR THERMAL PERFORMANCE RATING

Megajoules Per Panel Per Day				Thousands of BTU Per Panel Per Day			
CATEGORY (Ti-Ta)	CLEAR DAY	MILDLY CLOUDY	CLOUDY DAY	CATEGORY (Ti-Ta)	CLEAR DAY	MILDLY CLOUDY	CLOUDY DAY
A (-5 °C)	29.6	22.4	15.2	A (-9 °F)	28.1	21.2	14.4
B (5 °C)	26.9	19.7	12.5	B (9 °F)	25.5	18.6	11.8
C (20 °C)	22.6	15.5	8.4	C (36 °F)	21.4	14.7	8.0
D (50 °C)	13.5	7.2	1.6	D (90 °F)	12.8	6.8	1.5
E (80 °C)	5.3	0.8	0.0	E (144 °F)	5.0	0.7	0.0

A- Pool Heating (Warm Climate) B- Pool Heating (Cool Climate) C- Water Heating (Warm Climate) D- Water Heating (Cool Climate) E- Air Conditioning

Original Certification Date: 06-JUL-09

COLLECTOR SPECIFICATIONS

Gross Area:	1.997 m ²	21.50 ft ²	Net Aperature Area:	1.76 m ²	18.95 ft ²
Dry Weight:	37.2 kg	82. lb	Fluid Capacity:	3.2 liter	0.8 gal
Test Pressure:	1103. KPa	160. psg			

COLLECTOR MATERIALS

Frame:	Anodized Aluminum
Cover (Outer):	Low Iron Tempered Glass
Cover (Inner):	None

Pressure Drop

Flow		ΔP	
ml/s	gpm	Pa	in H ₂ O


Absorber Material:	Tube - Copper / Plate - Copper Fin	Insulation Side:	Polyisocyanurate
Absorber Coating:	Selective Coating	Insulation Back:	Polyisocyanurate

TECHNICAL INFORMATION

Efficiency Equation [NOTE: Based on gross area and (P)=Ti-Taj]				Y INTERCEPT	SLOPE
S I UNITS:	$\eta = 0.691$	$-3.39600 (P)/I$	$-0.01968 (P)^2/I$	0.706	-4.910 W/m².°C
I P UNITS:	$\eta = 0.691$	$-0.59821 (P)/I$	$-0.00193 (P)^2/I$	0.706	-0.865 Btu/hr.ft².°F
Incident Angle Modifier [(S)=1/cosθ - 1, 0°<θ≤60°]				Model Tested:	2002001A
Kα = 1	-0.194 (S)	-0.006 (S) ²		Test Fluid:	Water
Kα = 1	-0.20 (S)	Linear Fit		Test Flow Rate:	38.8 ml/s 0.61 gpm

REMARKS:

c/o FSEC ♦ 1679 Clearlake Road ♦ Cocoa, FL 32922 ♦ (321) 638-1537 ♦ Fax (321) 638-1010

SOLAR COLLECTOR CERTIFICATION AND RATING  SRCC OG-100	CERTIFIED SOLAR COLLECTOR SUPPLIER: Oventrop Corporation 29 Knipes Road East Granby, CT 06026 USA MODEL: 540-04-08 COLLECTOR TYPE: Glazed Flat-Plate CERTIFICATION#: 2009023B
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COLLECTOR THERMAL PERFORMANCE RATING

Megajoules Per Panel Per Day				Thousands of BTU Per Panel Per Day			
CATEGORY (Ti-Ta)	CLEAR DAY	MILDLY CLOUDY	CLOUDY DAY	CATEGORY (Ti-Ta)	CLEAR DAY	MILDLY CLOUDY	CLOUDY DAY
A (-5 °C)	45.0	34.0	23.0	A (-9 °F)	42.6	32.2	21.8
B (5 °C)	40.9	29.9	19.0	B (9 °F)	38.8	28.3	18.0
C (20 °C)	34.3	23.5	12.8	C (36 °F)	32.5	22.3	12.1
D (50 °C)	20.6	10.9	2.4	D (90 °F)	19.5	10.3	2.3
E (80 °C)	8.0	1.1	0.0	E (144 °F)	7.6	1.1	0.0

A- Pool Heating (Warm Climate) B- Pool Heating (Cool Climate) C- Water Heating (Warm Climate) D- Water Heating (Cool Climate) E- Air Conditioning

Original Certification Date: 06-JUL-09

COLLECTOR SPECIFICATIONS

Gross Area:	3.035 m ²	32.67 ft ²	Net Aperature Area:	2.75 m ²	29.60 ft ²
Dry Weight:	60.3 kg	133. lb	Fluid Capacity:	4.9 liter	1.3 gal
Test Pressure:	1103. KPa	160. psg			

COLLECTOR MATERIALS

Frame:	Anodized Aluminum
Cover (Outer):	Low Iron Tempered Glass
Cover (Inner):	None

Pressure Drop

Flow		ΔP	
ml/s	gpm	Pa	in H ₂ O


Absorber Material:	Tube - Copper / Plate - Copper Fin	Insulation Side:	Polyisocyanurate
Absorber Coating:	Selective Coating	Insulation Back:	Polyisocyanurate

TECHNICAL INFORMATION

Efficiency Equation [NOTE: Based on gross area and (P)=Ti-Taj]				Y INTERCEPT	SLOPE
S I UNITS:	$\eta = 0.691$	$-3.39600 (P)/I$	$-0.01968 (P)^2/I$	0.706	-4.910 W/m².°C
I P UNITS:	$\eta = 0.691$	$-0.59821 (P)/I$	$-0.00193 (P)^2/I$	0.706	-0.865 Btu/hr.ft².°F
Incident Angle Modifier [(S)=1/cosθ - 1, 0°<θ≤60°]				Model Tested:	2002001A
Kα = 1	-0.194 (S)	-0.006 (S) ²		Test Fluid:	Water
Kα = 1	-0.20 (S)	Linear Fit		Test Flow Rate:	38.8 ml/s 0.61 gpm

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SOLAR COLLECTOR CERTIFICATION AND RATING  SRCC OG-100	CERTIFIED SOLAR COLLECTOR SUPPLIER: Oventrop Corporation 29 Knipes Road East Granby, CT 06026 USA MODEL: 540 04 10 COLLECTOR TYPE: Glazed Flat-Plate CERTIFICATION#: 2009023C
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COLLECTOR THERMAL PERFORMANCE RATING

Megajoules Per Panel Per Day				Thousands of BTU Per Panel Per Day			
CATEGORY (Ti-Ta)	CLEAR DAY	MILDLY CLOUDY	CLOUDY DAY	CATEGORY (Ti-Ta)	CLEAR DAY	MILDLY CLOUDY	CLOUDY DAY
A (-5 °C)	58.1	43.8	29.7	A (-9 °F)	55.0	41.6	28.2
B (5 °C)	52.8	38.6	24.5	B (9 °F)	50.0	36.6	23.2
C (20 °C)	44.2	30.3	16.5	C (36 °F)	41.9	28.7	15.7
D (50 °C)	26.5	14.1	3.1	D (90 °F)	25.2	13.3	2.9
E (80 °C)	10.3	1.5	0.0	E (144 °F)	9.8	1.4	0.0

A- Pool Heating (Warm Climate) B- Pool Heating (Cool Climate) C- Water Heating (Warm Climate) D- Water Heating (Cool Climate) E- Air Conditioning

Original Certification Date: 06-JUL-09

COLLECTOR SPECIFICATIONS

Gross Area:	3.916 m ²	42.15 ft ²	Net Aperature Area:	3.58 m ²	38.53 ft ²
Dry Weight:	72.1 kg	159. lb	Fluid Capacity:	6.1 liter	1.6 gal
Test Pressure:	1103. KPa	160. psg			

COLLECTOR MATERIALS

Frame:	Anodized Aluminum
Cover (Outer):	Low Iron Tempered Glass
Cover (Inner):	None

Pressure Drop

Flow		ΔP	
ml/s	gpm	Pa	in H ₂ O

Absorber Material:	Tube - Copper / Plate - Copper Fin	Insulation Side:	Polyisocyanurate
Absorber Coating:	Selective Coating	Insulation Back:	Polyisocyanurate

TECHNICAL INFORMATION

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