

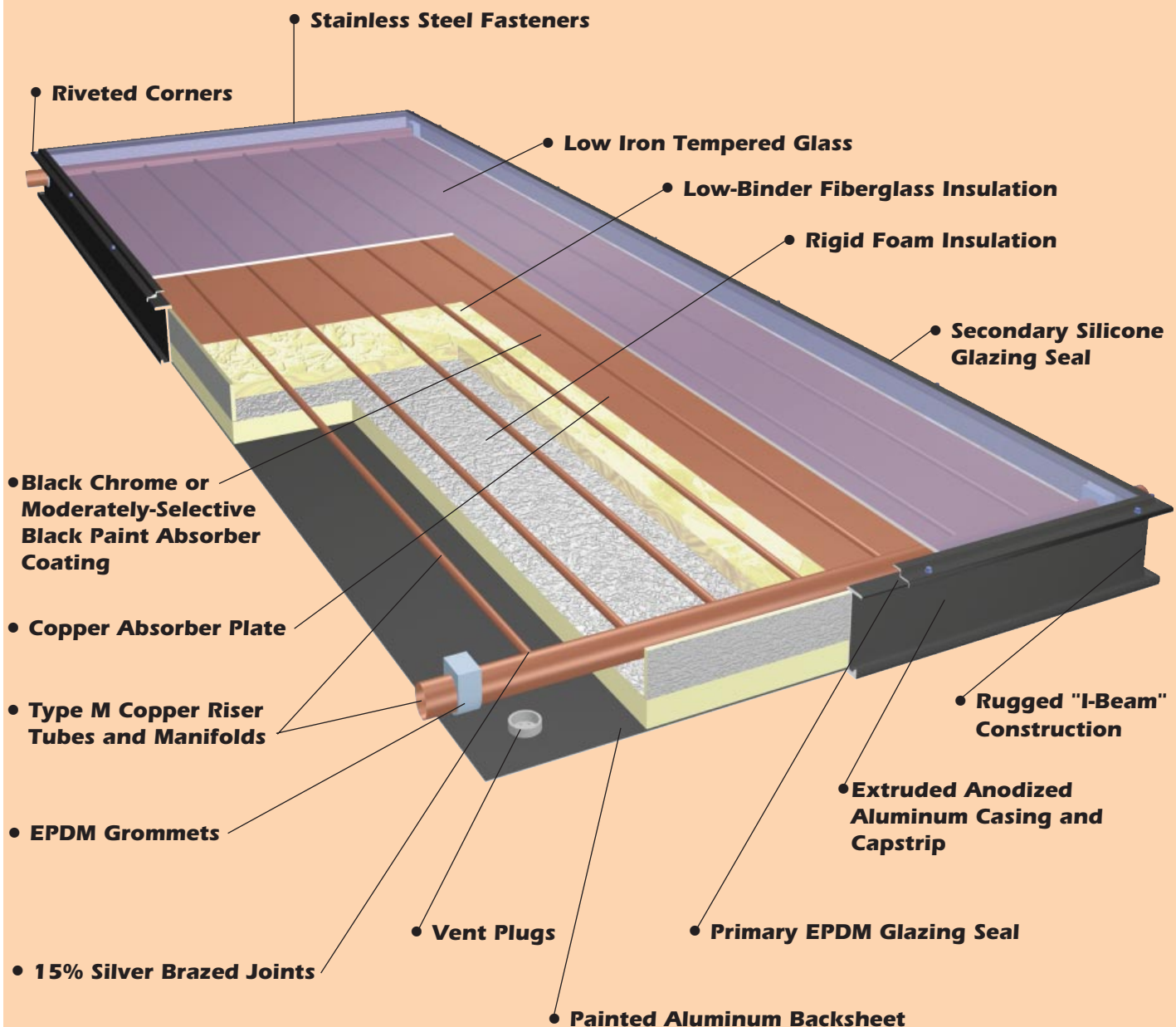


SUN EARTH INC.

THE IMPERIAL SERIES

GLAZED "I-BEAM" FLAT PLATE SOLAR COLLECTORS
Models IP and IC SPECIFICATION SHEET

THE QUALITY LEADER IN SOLAR WATER HEATING TECHNOLOGY



PROTECTING OUR ENVIRONMENT—SINCE 1978

SunEarth INC. IMPERIAL SERIES SPECIFICATIONS

SunEarth Model No.	Width Inches	Length Inches	Depth Inches	Gross Area Sq Ft	Net Aperture Sq Ft	Dry Weight Lbs.	Fluid Capacity U.S. Gallons	Design Flow Rate GPM	Pressure Drop at Design Flow Rate	Max. Flow Rate GPM	Maximum Operating Press PSIG	Std. Header Width, Inches	Std. Header Diameter, Inches Nominal	Header, Center to Center, Inches
IC/IP24	36 1/4	98 1/8	3 1/4	24.61	21.88	98	0.78	0.62	.017	12	160	39 3/4	1	93 5/8
IC/IP32	48 1/4	98 1/8	3 1/4	32.79	29.81	119	1.00	0.83	.018	12	160	51 3/8	1	93 5/8
IC/IP40	48 1/4	122 1/8	3 1/4	40.81	37.33	157	1.20	1.04	.020	12	160	51 3/8	1	115 5/8

MODEL IC

THERMAL PERFORMANCE RATINGS*

MODEL IP

Inch-Pound Units			
Btu/ft ² /Day			
Category (Ti-Ta)	CLEAR DAY	MILDLY CLOUDY DAY	CLOUDY DAY
Ti = inlet fluid temp Ta = ambient air temp	2000 Btu/ft ² /Day	1500 Btu/ft ² /Day	1000 Btu/ft ² /Day
A(-9°F)	1,332	1,005	680
B(9°F)	1,218	890	565
C(36°F)	1,040	720	402
D(90°F)	699	405	127
E(144°F)	390	137	-

Inch-Pound Units			
Btu/ft ² /Day			
Category (Ti-Ta)	CLEAR DAY	MILDLY CLOUDY DAY	CLOUDY DAY
Ti = inlet fluid temp Ta = ambient air temp	2000 Btu/ft ² /Day	1500 Btu/ft ² /Day	1000 Btu/ft ² /Day
A(-9°F)	1,284	971	659
B(9°F)	1,169	854	542
C(36°F)	984	677	372
D(90°F)	619	343	89
E(144°F)	280	62	-

A-Pool Heating (Warm Climate) B-Pool Heating C-Water Heating (Warm Climate) D-Water Heating (Cool Climate) E-Air Conditioning/Industrial Process Heat. Thermal performance is obtained by multiplying the collector output for the appropriate application and insolation level by the total gross collector area. *Collector ratings are derived from the Solar Rating & Certification Corp (SRCC) Document RM-1 and Standard OG-100.

ENGINEERING SPECIFICATIONS

(Performance specifications subject to testing error of +/- 3%)

The following shall be the specifications for the solar collectors. Collectors shall be SunEarth Imperial model _____, and shall be of the glazed liquid flat plate type. Collectors shall be tested in conformance with ASHRAE 93-1986, and SRCC 100-81. The collectors also shall be certified by the SRCC and the Florida Solar Energy Center (FSEC).

GENERAL

The dimensions of the collector shall be _____ inches in length, _____ inches in width and 3 1/4 inches in depth. The collector casing shall be an anodized aluminum extrusion (alloy 6063 T5), minimum thickness 1/8 inch, with an architectural dark bronze finish. The casing shall have notched framewalls for ease of plate removal and reinstallation. Machine nut and bolt fasteners shall be stainless steel (18-8 10/32). Mounting hardware shall attach to collector frame wall and require no penetration of the casing. The collector shall be wind load tested to 180 mph (84 psf). The backsheet shall be painted textured aluminum not less than .014 inch thickness. A 1 inch vent plug shall be installed in each of the four corners of the backsheet to minimize condensation.

GLAZING

The collector glazing shall be one sheet of low iron tempered glass, with a minimum of 1/8 inch thickness (5/32 inch on IP/IC 40), and a minimum transmissivity of 91 percent (89 on IP/IC 40). The glazing shall be thermally isolated from the casing by a continuous EPDM gasket. There shall be a continuous silicone seal between the glass and casing capstrip to minimize moisture from entering the casing.

INSULATION

The insulation shall be foil-faced polyisocyanurate foam sheathing board of a minimum 1 inch thickness, siliconed in place to the aluminum backsheet. *Specifications subject to change without notice.*

sheet, covered by low-binder fiberglass of a minimum 1 inch thickness, providing thermal isolation of the foam from the absorber plate. Total thermal resistance shall be a minimum of R-12. The sides and ends of the collector shall be insulated with a minimum of 1/2 inch foil-faced polyisocyanurate foam sheathing board.

ABSORBER PLATE AND PIPING

The absorber shall consist of a roll-formed copper plate of no less than .008 inch thickness. Risers shall be a minimum of 1/2 inch O.D. Type M copper tubing on no more than 4 1/2 inch centers continuously soldered to the plate utilizing a non-corrosive solder paste with a melting point of 460°F. The risers shall be brazed to 1 1/8 inch O.D. Type M copper manifolds utilizing a copper phosphorous brazing alloy with no less than 15 percent silver content, and conforming to the American Welding Society's BCuP-5 classification. EPDM grommets shall isolate the manifold from the aluminum casing. The absorber plate shall be designed for 160 psig maximum operating pressure.

ABSORBER COATING AND PERFORMANCE CURVE

A) Black Chrome (IC Series): The absorber coating shall be black chrome on nickel with a minimum absorptivity of 95 percent and a maximum emissivity of 12 percent. The instantaneous efficiency of the collector shall be a minimum Y-intercept of 0.714 and a slope of no less than -0.7271 (BTU/ft²-hr)/F.

B) Moderately Selective Black Paint (IP Series): The absorber coating shall be a moderately-selective black paint with a minimum absorptivity of 94 percent and a maximum emissivity of 56 percent. The instantaneous efficiency of the collector shall have a minimum Y-intercept of 0.682 and a slope of no less than -0.7995 (BTU/ft²-hr)/F.

MANUFACTURED BY:



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AVAILABLE FROM:



IS 9401