

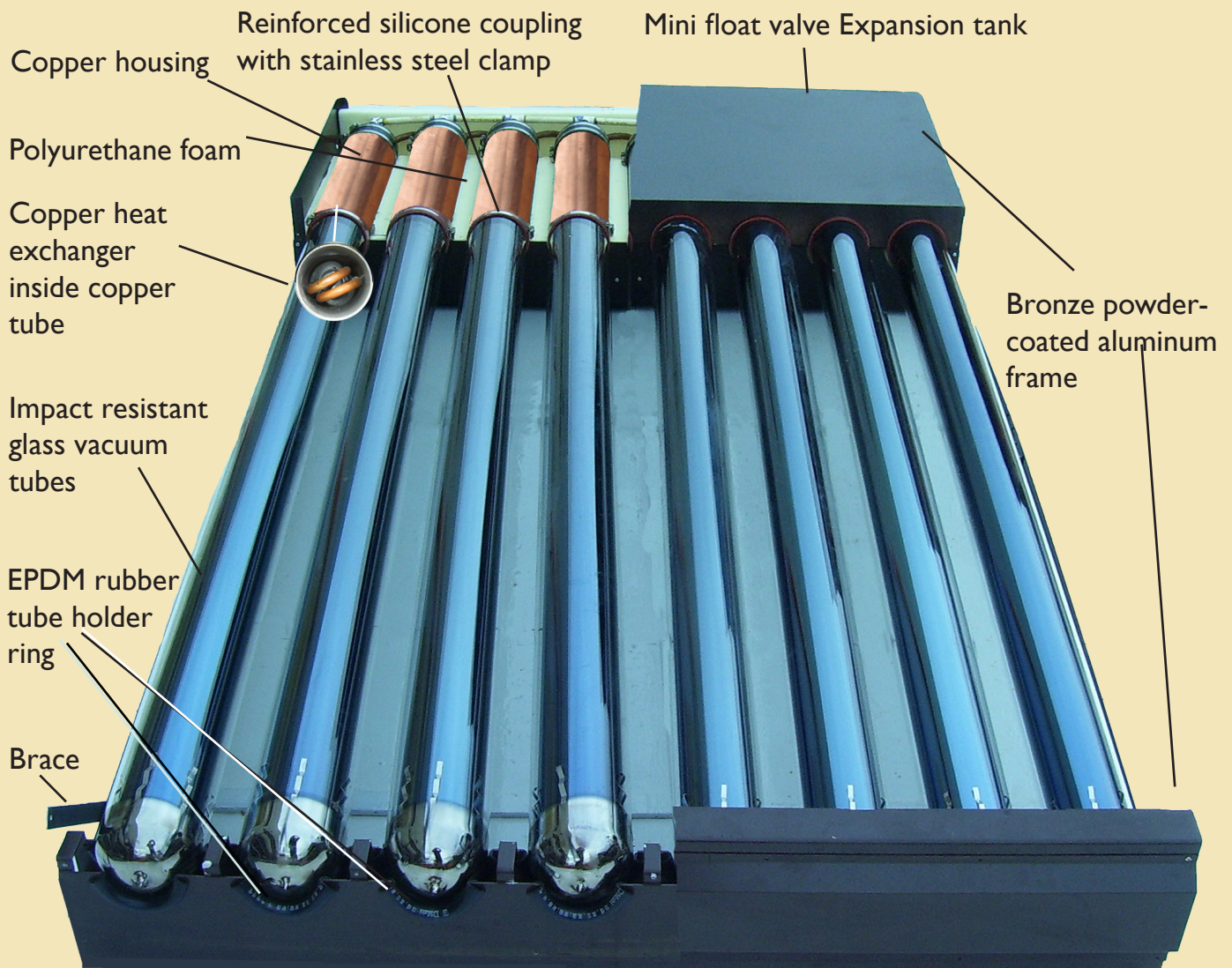
Blazing Tubes Integral Collector Storage System

A domestic solar water heating system with vacuum tubes

Blazing Tubes Model BT-40

Specification Sheet

Grand Solar Inc.
4882-4 Kilauea Ave
Honolulu, Hawai'i 96816 USA
Phone: (808) 737-3536
Fax: (808) 737-3536



Blazing Tubes Model BT-40

Innovative solar technology - efficient and durable - Solar Rating & Certification Corp. approved





GRAND SOLAR, INC.
 4882-4 Kilauea Ave.
 Honolulu, Hawaii 96816 USA
 V:(808) 737-3536 / F:(808)737-3536



Blazing Tubes
 BT-40-TL
 SRCC OG-300
 Cert 300# 2010015A
 Total Panel Area:
 3.4 Sq-m / 37.1 Sq-ft
 Solar Tank Volume:
 142 Vol(L) / 37.5Vol(Gal)



	Blazing Tubes Model Nr.*	Fluid Capacity	Dry weight	Net weight	Width	Length	Depth	Gross Area	Net Aperture	Rated internal Working Pressure at 200°F / 93°C in PSIG	Inlet and outlet pipe
US	BT-40	38 gal	208 lb	524 lb	53 1/2"	97"	9 3/4"	36 sq ft	24 sq ft	125 psi	1/2"
Metric	BT-40	142 l	90.4kg	238 kg	136 cm	246 cm	25 cm	3.35m ²	2.23 m ²	125 psi	127mm

THERMAL PERFORMANCE RATINGS

Model*	Clear Day 2000 Btu/ft ² /Day	Mildly Cloudy Day 1500 Btu/ft ² /Day	Cloudy Day 1000 Btu/ft ² /Day
BT-40	31,000	21,564	16,122

* For systems where two BT-40 units are required or preferred the model number is BT-80. All the above specifications values will be double for the BT-80.

ENGINEERING SPECIFICATIONS

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

The solar water heating system shall be of the integral collector storage (ICS) type, and shall require no pumps, controls, or parasitic energy consumption for its normal operation. The ICS unit shall be the Grand Solar Blazing Tubes Model BT-40 and BT-80. The Blazing Tubes units are certified by the SRCC under System Standard OG-300.

General

The dimensions of the Blazing Tubes model BT-40 shall be 97 inches (246 cm) in length, 53 1/2 inches (136 cm) in width, and 9 3/4 inches (250 mm) in depth. The BT-40 is rated at a normal capacity of 38 U.S. gallons (142 liters). The frame and housing are powder-coated aluminum of dark bronze color. The vacuum tubes are double-wall borosilicate glass, 4 7/8" (124 mm) OD with double getter system and triple-target selective coating.

Heat Exchanger

Each vacuum tube connects with a copper housing, by means of the reinforced silicone coupling with a stainless steel clamp. Each copper housing contains 7 liner feet (2.14m) of type L, nominal 1/2" (127 mm) soft copper tubing. Each copper tube's copper heat exchanger connects in series with the others, providing a total 56 ft. (17 m) in length per unit. Two unit systems (BT-80) should be plumbed in parallel.

Glass Vacuum Tubes

Each vacuum tube is 6 ft. (1.82 m) in length and filled with non-pressurized water. A selective coating with an absorptivity of 92.5% and emissivity of 6.5%, turns direct

and diffuse sunlight into hot water. The vacuum quality is $p_3 \leq X10^{-3}$ PA, which allows for the tubes to act as efficient thermal batteries for long durations. The glass tubes are impact resistant and have a double getter to extend the vacuum life to an expected 25 years.

Housing and frame

The dark bronze powder-coated aluminum frame and housing is assembled with aluminum rivets and stainless steel fasteners. The interior of the housing is insulated with polyurethane foam, top, bottom and sides. Grommets and tube holder rings are manufactured of EPDM rubber.

Float valve and expansion tank

Each system is equipped with a nominal 4" (10 cm) tank, which provides two important functions. A brass mini float valve inside the tank keeps the non-pressurized water inhabiting the tube assemblies topped off. Open to the atmosphere, the tank also provides space for the thermally expanding hot water within the tubes. This design also disallows any pressure to build up from steam production.

Available from:

Due to Grand Solar's policy of continuous product improvement, specifications are subject to change without notice. (May 2011)