



MNES, GOI approved Mfrs. of :  
 ISI marked Solar Flat Plate Collectors  
 Solar Water Heating Systems and other  
 Solar Systems

ESTD. 1990

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 CST No. 12012/5.1.90

CML/9168689



IS : 12933

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# Surya Shakti

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## Surya Shakti's Solar Water Heating Systems

w.e.f. : 01.06.09

### INTRODUCTION

Surya Shakti established in 1990 owned is an Original Equipment Manufacturer of Solar Systems. In just 19 years Surya Shakti has earned reputation, recognition and popularity as one of the leading manufacturer of Solar Systems approved by Ministry of New & Renewable Energy, Govt. of India. Surya Shakti is manufacturing these products with utmost accuracy and there is nothing but this perfection of products that upholds its name among its clients in different parts of the country.

Surya Shakti is the oldest manufacturing company of Chandigarh with ISI marked Solar Flat Plate Collectors. Soft loan is available @ 2% to 5% interest from various banks like Punjab & Sind Bank, Canara Bank, Syndicate Bank, Punjab National Bank, Union Bank of India, Canara Bank, etc.

Surya Shakti's user's list includes various VIPs, Govt. agencies like JAKEDA, Govt. of J&K, DST Chandigarh Administration HAREDA, Indian Oil Corporation, Private Individual users, Industries, Military & Paramilitary Forces, etc.

Surya Shakti's Solar Water heating Systems involve one time initial investment with no recurring expences on conventional fuels (like electricity, coal, LPG, oil, firewood etc. which are getting costlier day by day). Besides other benefits these systems yield you a cost payback with in 2 years including 80% depreciation in the first year. Govt. subsidies and incentives are available on Surya Shakti Systems as per Govt. policies announced from time to time.

Surya Shakti's Water Heating System utilise Solar Energy which is safe, environment friendly, available free and is in abundance in our country. This system requires no maintenance & consumes no conventional fuels.



### Surya Shakti's Other Products

- Solar Air Heating Collectors & Drying Systems
- Solar Space Heating Systems
- Soar Timber Seasoning Kilns
- Solar Desalination Systems (Solar Stills)
- Solar Lanterns, Emergency Lights
- Solar Street Lighting Systems, Security Lighting Systems
- Solar Domestic Lighting Systems
- Solar Battery Chargers, Solar Invertors / UPS
- Solar Swimming Pool Heating Systems
- Solar Cookers, etc.
- Solar PV Wind Hybrid Systems

### Utility & Applications of Solar Hot Water

#### COMMERCIAL SECTOR

- ◆ Hotels
- ◆ Hospitals
- ◆ Clinics
- ◆ Guest Houses
- ◆ Lodges
- ◆ Tourist Bungalows
- ◆ Canteens
- ◆ Mess
- ◆ Hotels Etc.

#### INDUSTRIAL SECTOR

- ◆ Boiler Feed Water
- ◆ Space Heating
- ◆ Leather Tanning
- ◆ Food Processing
- ◆ Paper
- ◆ Dyieng
- ◆ Painting
- ◆ Heating of High Density Oil
- ◆ Components Washing
- ◆ Electroplating
- ◆ Textile
- ◆ Chemical
- ◆ Engineering
- ◆ Pharmaceutical
- ◆ Sugar Industry
- ◆ Dairy Industry etc.


#### DOMESTIC & DEFENCE SECTOR

- ◆ Bathing
- ◆ Cleaning
- ◆ Washing of Clothes
- ◆ Cooking
- ◆ Religious Places
- ◆ Langars
- ◆ Barracks etc.

**"Help to reduce pollution, utilise free available source of energy, promote environment friendly technology in Personal & National Interest."**

## TECHNICAL SPECIFICATIONS OF SURYA SHAKTI'S COLLECTORS

ISI marked (conforms to IS 12933) Under Licence No. CM/L 9168689

COMPONENTS	SPECIFICATIONS	BENEFITS	COMPONENTS	SPECIFICATIONS	BENEFITS
<b>Collector Box</b>			vii) <b>Assembly Testing</b>	Hydraulic	Tested at 10 Kg/cm <sup>2</sup> static pressure thus no chance of leakage
i) Area	2.3 sq.m.	Biggest Size unbreakable airtight body made of non-corrosive, non-ferrous material (size 'A')	a) Working pressure	5Kg/cm <sup>2</sup>	Non-corrosive Non-ferrous materials is used
ii) Length X Breadth X Height	186cm X 124cm X 11cm		b) Static pressure	10Kg/cm <sup>2</sup>	
iii) Weight	48 ± 1 Kg.				
<b>Absorber</b>			<b>COLLECTOR BOX Material</b>	<b>Aluminium</b>	
i) Area	2.16 sq.m.	Best Heat Transfer & non corrosive	a) Extruded Al. Channel	100mm X 25mm X 1.5mm	Min. Heat losses as very good quality insulation material is used
ii) Material	Copper		b) Extruded Al. Angle	25mm X 25mm X 1.5mm	
iii) Thickness of Sheet	0.20		c) Bottom sheet	0.71mm	
iv) <b>Risers</b>			<b>COLLECTOR BOX INSULATION</b>		
a) Material	Copper	CM/L 9168689  IS 12933	i) <b>Back Insulation</b>	<b>Rockwool</b> (conforms to IS:3346)	Use Toughened Glass having no long mark mfd. on imported biggest horizontal tempering plant of India, capable of withstanding high temp, variations.
b) Dia	12.7mm (±0.5mm)		a) Thickness	50mm	
c) Thickness	0.56mm (IS 2501)		b) Density	48 Kg/cum	
d) Number	10 No		c) K. Valve	0.029 W/mK	
iv) <b>Header</b>			d) R. Valve	1.67m <sup>0</sup> C/W	
a) Material	Copper		e) Foil Thick	0.015mm	
b) Dia	25.4mm (±0.5mm)		ii) <b>Side Insulation &amp; Thickness</b>	Rockwool, 25mm thick	
c) Thickness	0.71mm		<b>FRONT GLAZING</b>	<b>4mm toughened glass</b>	Strong
d) Projection outside	40mm (±0.5mm)		Transmissivity	85%	
v) Space between riser tubes	120mm		<b>HEADER FLANGES</b>		Leak Proof
vi) <b>Coating</b>			i) Material	Brass	
a) Material	Black Chrome	Best for high temp. Black Chrome selective coating done on imported Canadian plant to get best performance efficiency with a life of more than 15 years.	ii) Dia	65mm	
b) Absorptivity	0.94		iii) Thickness	4mm	
c) Emmissivity	0.12		<b>GASKETS, GROMMETS &amp; SEAL</b>	Neoprene, EPDM, Silicon	

### Capacities of Surya Shakti Water Heating Systems

Available in different sizes of 100 litres per day (LPO) at 60° C to 1,00,000 litres per day (LPD) at 85° C for plains, Deserts, High Altitude areas, with Epoxy coated M.S. or stainless steel hot water storage tank. Available in Thermosyphen as well as Forced Flow mode with different designs & configurations.

### Super Deluxe Model of Surya Shakti's Solar Water Heating Systems with Heat Exchanger, Sacrificial Anode & Electrical Back-up

Special Systems with heat exchanger i.e. Double loop is developed and provided to prevent scale formation or freezing of water at the locations where is salty or ambient temperature goes Sub-Zero. SWHS with Electrical Back-up are also available to meet the hot water requirement in case of cloudy weather of when hot water requirement is more than the designed capacity of the system.

COMPONENTS	
BASIC	OPTIONAL
Deluxe Model of Surya Shakti make Thermosyphon type Solar Water Heating System consists of :	
1. Surya Shakti's Flat Plate Collector (ISI Marked) The Biggest 'A' size to get highest temp.	1. Over Head Cold Water Tank with Stand.
2. Double Walled Insulated Hot Water Storage Tank (Epoxy Coated MS/SS 304)	2. System with colours choice.
3. Piping in between the system.	3. Thermosyphon/Forced Flow Type System.
4. Collector & Hot Water Tank Stands.	4. Pump & Solenoid Valve.
5. Temp. Guaze & other controls.	5. DTC/FTC.
6. Magnetizer/Sacrificial Anode (optional).	6. Flat roof/Ground/Inclined roof mounted structure.
7. Heat Exchanger with Feeder Tank having Thermic Fluid/Anti-freeze solution (Optional).	



**Surya Shakti Water Heating System**

### SPECIAL FEATURES OF SURYA SHAKTI'S COLLECTORS

(As compared to the Collectors being manufactured by others.)

- Largest/maximum size, unbreakable airtight body of non-corrosive, non-ferrous material capable of withstanding high temperature variations.
- Use toughened glass having no long mark mfd. in foreign collaboration on biggest horizontal tempering plant of India.
- Collectors tested at 10kg/cm<sup>2</sup> static pressure to provide leakage free service.
- Black Chrome selective coating of international standards is done to avail best results for more than 10 years.
- Modular type construction conforming to ISI : 12933 can heat fluids upto 90° C
- Collectors being manufactured under stringent quality checks under supervision of high-tech Engineers Qualifying 10 types of tests in R&D centres and test labs prior to ISI marking.
- Multipurpose usage of collectors.

**Note : Please feel free to contact us to have any further information or clarification and to have site specific custom built/designed system for you.**