

Turnkey Solar Thermal Solutions

Performance Guarantee

Lifetime AMC Support



Thermal Energy Storage

Efficient Land Usage

★ INDIA'S FIRST SOLAR BOILER COMPANY ★

www.cliquesolar.com

CLIQUE SOLAR

Clique Solar manufactures solar boilers (under the brand name ARUN[®]) to generate thermal energy in the form of steam, hot water or hot oil for use in diverse applications like industrial process heating, cooking and comfort cooling. It provides a one-stop turnkey solution from design, product development, installation, integration with the existing system, commissioning as well as life-long operations & maintenance of the system. Clique Solar is a channel partner of Ministry of New and Renewable Energy (MNRE). Its patented ARUN[®] technology has been developed with support from IIT Bombay.

ARUN[®] TECHNOLOGY

ARUN[®] technology is based on the principles of a magnifying glass (or a parabola) and a sunflower. It uses an ingenious, two dimensional, fresnelized mirror arrangement scheme to get a 3-D parabola effect. Like a sunflower, ARUN[®] automatically tracks the sun from sunrise to sunset on both East-West and North-South axes to intercept maximum sunlight throughout the year, irrespective of the installation location. ARUN[®] dish is mounted on a single column, thus occupying ground area of less than 3m x 3m. The lifespan of an ARUN[®] dish is greater than 25 years.

KEY FEATURES OF ARUN[®]

Performance Guarantee: Clique Solar gives written guarantee on the performance of ARUN[®] dish

Small Footprint Area & Retrofits: The small footprint area of ARUN[®] dish enables it to be mounted at locations which have space limitations. It can also be erected on rooftops of existing buildings

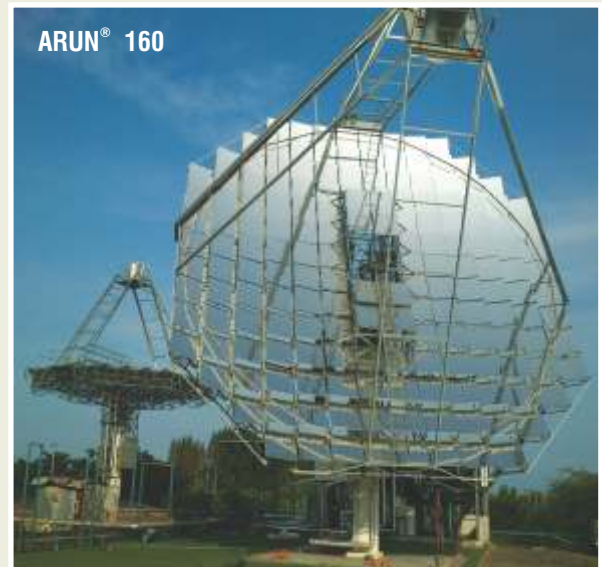
Non-Solar Hours Operations: ARUN[®] can be augmented with a heat energy storage facility for operation in non-solar hours.

Efficient & accurate delivery: ARUN[®] can accurately deliver upto 300°C (oil) and 20 bar (steam)

Government Subsidy: MNRE provides support by way of capital subsidy for every ARUN[®] installation

IBR Approval: ARUN[®] is the first IBR approved Solar Boiler in India

High Wind Bearing Capacity: ARUN[®] is designed to operate in wind speeds up to 10 m/s and it can survive in wind speeds up to 45 m/s

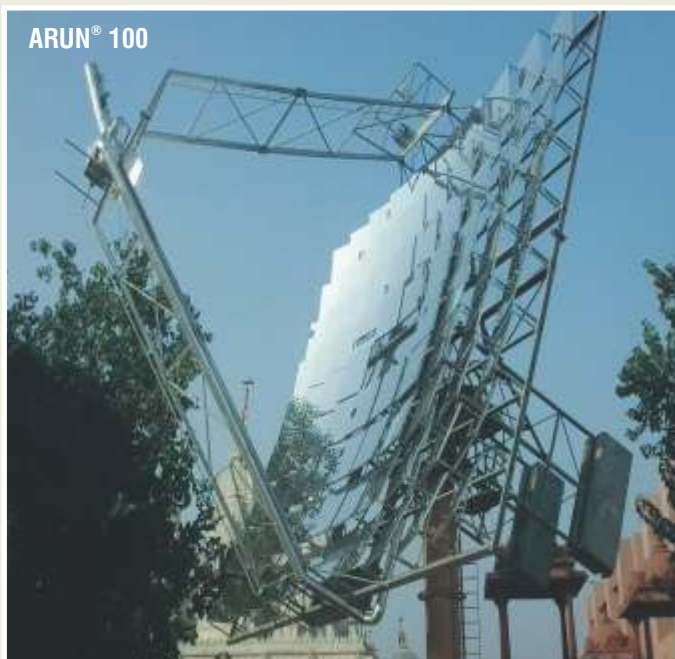


APPLICATIONS OF ARUN[®]

Industry/Process	Applications
Mass/Community Cooking	Steam or thermic oil based cooking at a mass level
Pharmaceutical Industry	Sterilization, Drying, Process and comfort cooling
Dairy industry	Milk pasteurization, Cleaning-in-place (CIP)
Hospitals & Hospitality Industry	Laundry, Bathing, Washing, Sterilization, Comfort cooling, Cooking
Automobile Industry	Cleaning and degreasing operations, paint drying
Food Processing Industry	Distillation, concentration of extracts, bio-mass dehydration, drying
Textile Industry	Mercerizing, drying, finishing
Chemical Processing Plants	Effluent treatment, galvanizing, solvent extraction, drying
Residential Housing complexes	Hot water for bathing, washing, comfort cooling using VAM
Paper & Pulp Industry	Kraft pulping, effluent treatment and bleaching
Any other industry having thermal energy requirement from 50°C up to 300°C	

PRODUCT SPECIFICATIONS

PARAMETERS	ARUN® 160	ARUN® 100	ARUN® 30
Aperture area	169 m ²	104 m ²	34 m ²
Footprint area	3m x 3m	3m x 3m	3m x 3m
Thermic medium	Steam, Hot Water, Hot oil, Hot air		
Delivery capacity	Up to 20 bar pressure Up to 300°C temperature	Up to 20 bar pressure Up to 300°C temperature	Up to 10 bar pressure Up to 180°C temperature
Weight	Moving weight: 13 tons Total weight: 18 tons	Moving weight : 9 tons Total Weight : 12 tons	Moving weight: 2.5 tons Total weight: 3 tons
Height	18.5 m from top to bottom	11.5 m from top to bottom	7.5 m from top to bottom
Effective saving of fuel (per annum)	16,000 – 20,000 liters of furnace oil equivalent	9,000 – 12,000 liters of furnace oil equivalent	2,500 – 3,000 liters of furnace oil equivalent



KEY OUTPUT FIGURES (PER DAY)

APPLICATION	ARUN® 160	ARUN® 100	ARUN® 30
Thermal Energy	5.5 lakh – 6 lakh kCal	3.5 lakh – 4 lakh kCal	80,000 – 100,000 kCal
Steam generation	900 - 1,000 kg	550 - 600 kg	120 - 150 kg
Hot water ($\Delta T = 30^\circ C$)	17,000 - 20,000 liters	11,000 - 12,500 liters	3,000 - 3,500 liters
Cooking	6,000 - 6,500 meals	3,700 - 4,000 meals	800 – 1,000 meals
Milk Pasteurization	20,000 - 25,000 liters	12,000 - 15,000 liters	3,300 - 4,000 liters
Laundry	450 - 500 kg	250 - 300 kg	65 - 75 kg

AWARDS & RECOGNITIONS



Winner of the 'Best Solar Thermal Technology Award' at Intersolar Europe 2013



ARUN® was amongst the Top 3 in the world at CSP Today, Spain 2012 Awards, 2012 in the "Best Technology Supplier" category



Winner of the "Best Solar Project in India" at Intersolar India 2012 for installation at NTPC (Greater Noida) – One of the largest solar cooling systems in the country

OUR CLIENTELE



Pressurised hot water for deraising at the paint shop



Steam for cooking with steam storage facility



ITC MAURYA
A LUXURY COLLECTION HOTEL

New Delhi

Steam for laundry, water heating & cooking



Steam for comfort cooling with storage



Pressurised hot water for comfort cooling



Steam for milk pasteurization with storage facility



Steam for community cooking



Steam for milk pasteurization & CIP

CONNECT WITH US

Postal Address:

Clique Developments Limited
149/BCD, First Floor, Government Industrial Estate,
Charkop, Kandivali (West),
Mumbai – 400067

Phone: +91 22 2860 9011 | Fax: +91 22 2860 9734

Website: www.cliquesolar.com | E-mail: info@cliquesolar.com

YouTube: www.youtube.com/CliqueSolarTV