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2 axis fully automatic tracking system

Pre - assembled , tested unit
High quality low maintenance components.
Minimal installation time
Trouble free commissioning
Single source of supply

Accurate control and responsive under all solar light conditions.

Hot water* 3.9 m³/day @ 55 deg C Peak output (Depends on DNI of region)*
Maximum thermal output* 17.4 kWth
Maximum electrical output* 7.5 kWp(DC)
Operating voltage 130 VDC
Operating wind speeds 40KMPH
Permissible wind speeds 160KMPH
* = these values at 1 STC ie 1000 W/m², 25 deg C temp ,Air Mass 1.5

Applications

• Electricity would be grid synchronized and utilized for internal loads or can be with battery backup as per site conditions

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Solar Cogeneration System
Fully Packaged Combined Heat and Power (CHP) System

www.forbesmarshall.com
Forbes Marshall Pvt. Ltd.
(A Forbes Marshall and Auz Earth GmbH company)
A, 34 / 35 MIDC – B Block, Pimpri, Pune 411 018
Tel : 91 (0) 20-27442020  Fax : 91 (0) 20-27442040
Mumbai-Pune Road, Kasarwadi, Pune - 411 034. India.
Tel.: +91(0)20 39858555  Fax: +91(0)20 27147413  Email: forbessolar@forbesmarshall.com

Domestic:
Ahmedabad, Allahabad, Bangalore, Bhopal / Indore, Chandigarh, Chennai, Coimbatore, Delhi, Hyderabad, Jamshedpur, Kolkata, Mumbai, Madurai, Nagpur, New Delhi, Tirupur, Vadodara, Vaishali Nagar, Visakhapatnam
International Operations: info@forbesmarshall.com
India, Nepal, Sri Lanka, Thailand, Vietnam, Indonesia, Russia, France, Germany, Jordan, Trading partners across the globe.

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Forbes Marshall is a leader in the area of process efficiency and energy conservation for the process industry. We have sixty years of experience building steam engineering and control instrumentation solutions with focused investments in manufacturing and research and development. We deliver quality solutions in 18 countries. Forbes Marshall is unique in having extensive expertise in both steam and control instrumentation. This dual expertise has allowed us to engineer industry specific systems that focus on energy efficiency, environment and process efficiency for diverse sectors.

Our teams are peopled by some of the finest engineers in the land. These highly trained professionals have developed innovative solutions and saved millions of rupees in process costs for our clients. Our business practices and processes have combined into a singular philosophy of being trusted partners who provide innovative solutions. It’s a philosophy we are proud to live up to.

Forbes Marshall began sixty years ago as a company offering steam engineering solutions in association with Spirax Sarco of the UK. For decades, we have been designing, manufacturing and supplying steam engineering products and solutions to customers worldwide. Our experience in this area is the benchmark against which all others are compared.

Forbes Marshall has always played a part in reduction of thousands of tons of greenhouse gas (GHG) emissions. Forbes Solar, our newest joint venture with Azur Earth GmbH, Germany, a company with 40 years of experience in space flight heritage, aims at taking the vast, untapped solar energy to the industry in a climate friendly way.

Many years of Energy Conservation experience has taught us that renewable energy is the only way forward to sustain the ever increasing energy demands of our planet and we need to utilize its limitless energy lying untapped.

We all agree that energy conservation has great potential. In fact, energy conservation today is no longer an option; it is a must for survival, a much more powerful imperative. Ever increasing prices and fast depleting reserves of fossil fuels make it necessary to develop energy alternatives to meet growing energy demands. The Sun is an enormous source of energy. Hence, renewable energy derived from it has gained focus.

Solar energy in the past decade has been mainly used in the off grid rural areas. The National Solar Mission of India has proposed an installed base of 20,000 MW of solar power systems as part of the Indian national action plan on climate change by 2022 and the energy conservation act of 2001.

Forbes Solar Cogeneration System

Fully packaged solar combined heat and power (CHP) system

The Forbes Solar Cogeneration System (Patent pending) is a fully packaged solar combined heat and power system specially designed to give both electrical as well as thermal output from a single solar collector. This system consists of two parabolic dishes mounted on a common two-axes tracking system. The thermo-photovoltaic receiver consists of a very high efficiency (35%) triple junction Gallium Arsenide( GaAs).

Why Forbes Solar CHP system?

1. Free instantaneous heat and power in these times of exorbitant energy bills
2. High and effective concentration ratio -1000x - that focuses the entire solar radiation onto the heart of the system, which is the solar cell.
3. Safety interlocks in case of overheating of cells
4. 35 % more output than the conventional PV system for the same area.
5. Can be added as an auxiliary plant to the already connected grid for power and hot water
6. 20% lower land requirements, hence less space utilization in comparison with conventional PV’s
7. No usage of conventional fossils, thereby reducing carbon footprints - a small step towards saving the environment
8. Government subsidy: MNRE provides capital subsidy for solar installations in India.

Technology and Salient Features

- The system has a thermo - photovoltaic receiver which consists of triple junction GaAs (Gallium Arsenide), Concentrated Photovoltaic Cells (CPV) and a heat exchanger to cool these cells which in turn generates hot water.
- Hot water is generated while cooling CPV Cells. Up to 60 Deg C of hot water can be used for various process applications.
- CPV cells generate 7.5kWp (DC) of electrical output which can be directly used by AC / DC loads through an inverter. It can also be used to charge batteries which can then be reused during non-solar hours.
- This cogeneration system is ideally suitable for sites where space is a constraint.
- Specially protected glass reflectors for very long trouble free life without significant loss of reflectivity.
- Two axis, closed loop, precision sun tracking mechanism.
- Designed for 20 years of service.
- Built-in safety controls with emergency alarm system and user friendly console.
- Completely automatic operation requiring minimum operator intervention and maintenance.
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