@te SOLAR

Concentrated solar thermal for process heat

Utilise the energy of the sun

to reduce fuel costs and increase profits

Laundry | Community Cooking | Dairy | Textile

Solar power is an inexhaustible, free source of energy, and India receives plentiful solar radiation. A.T.E. has developed an innovative Concentrated Solar Thermal system that can provide process heat for various industrial and commercial applications. A.T.E.'s unique approach to combine energy efficiency with renewable solar energy delivers the largest savings in carbon-intensive fuels, and directly influences the bottom-line.

A.T.E.'s solar thermal concentrator automatically follows the sun throughout its motion in the sky. It reflects and concentrates sunlight onto a "receiver" filled with water and mounted at the focal point of the concentrator, thereby generating steam. A.T.E. is empanelled as a manufacturer with the Ministry of New and Renewable Energy (MNRE), Government of India. MNRE's Regional Test Facility at the University of Pune has certified the performance of the A.T.E. solar concentrator.

User Benefits

- Customised to the application
- Attractive payback
- No special skills required for operation
- In-built safety features
- Low maintenance costs

General Data

Particulars	Value
Aperture area	25 m^2
Receiver aperture diameter	0.35 m
Focal length	4 m
Operating temperature range	50-180 °C
System weight	1800 kg
Maximum wind speed under tracking	10 m / s
Useful life of structure	20+ years
Receiver absorptivity	95%
Mirror reflectivity	90%

Thermal Performance

Particulars	Value
Rate of steam generation*	100 kg / day
Dryness fraction of steam	> 85%
Annual steam generation	24000-30000 kg / y
Rated thermal power **	13.75 kW

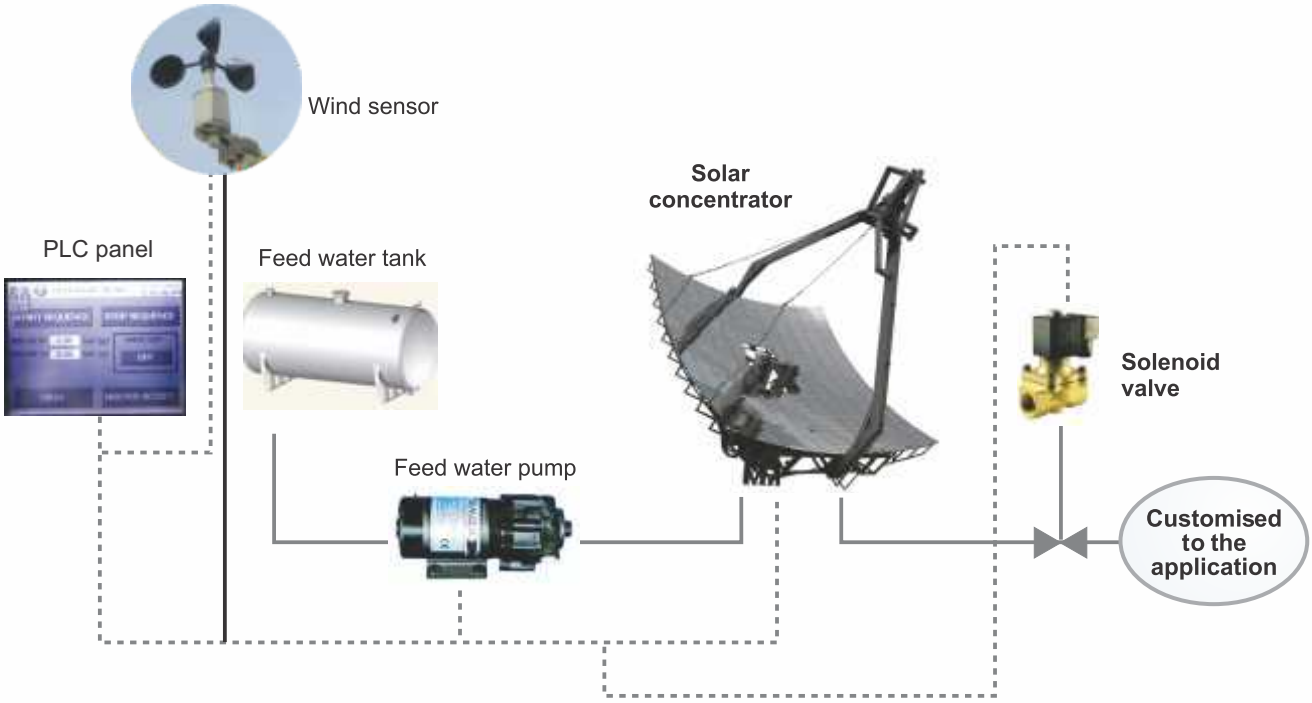
** Average rated conditions DNI (Direct Normal Irradiance) 5 kWh / m^2 / day*

*** Rated conditions at DNI 1000 W / m^2*

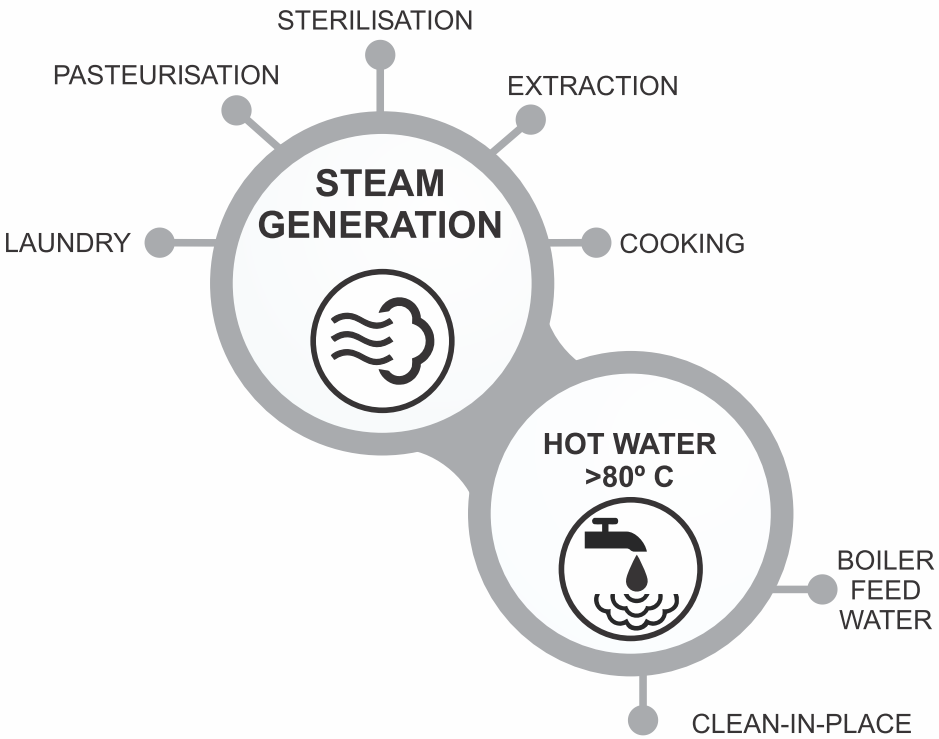
A.T.E. is a value-driven and socially conscious organisation that has served the nation's needs for 75 years. A.T.E. firmly believes that sustainable development is possible only when corporates get involved in sustainable business practices. Through this passion and commitment, A.T.E. has invested in and developed technologies and products such as energy-efficient cooling solutions, effluent treatment, machine-to-machine solutions, and solar concentrators. These products enable our customers to meet their business and sustainability goals. A.T.E. also monitors the environmental impact of its operations; its average carbon footprint in the year FY 2014-15 was 1939 kgCO_2e / employee / year.

Fully Automated Moving-Focus Paraboloid Concentrator Technology

Concentrated Solar Thermal Scheme



Applications



partnering
people & the planet

Our Successes

“A.T.E. Solar's steam-based cooking solution not only eliminated our need of firewood, but also reduced cooking time and drudgery. The cooking staff now work in a clean environment and go home early to spend to spend quality time with their families.”

Principal, Nareshwadi School, GVET, Dahanu, Maharashtra

“Buying large quantities of diesel for our factory operations was a huge drain on our income, and slowly drove down the laundry's profits. ...Fuel cost is now under control, thanks to usage of A.T.E. Solar's thermal concentrator solution.”

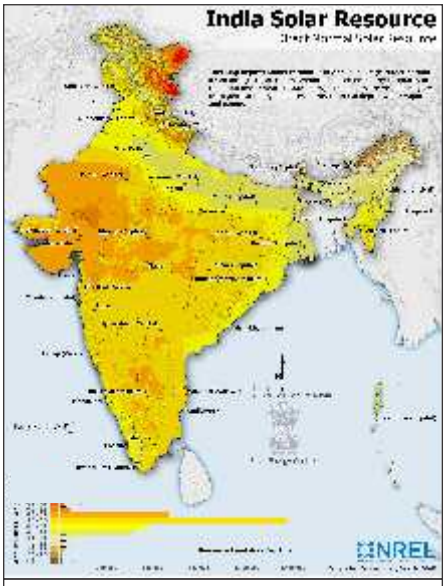
Owner, Lakaki Dry Cleaners and Art Dryers, Margao, Goa

“A.T.E. Solar's concentrator has helped improve my laundry's profitability by more than Rs. 25,000 per month.”

Owner, Snow White Drycleaners, Parbhani, Maharashtra

Solar Radiation In India

- Maximum solar radiation intensity is ~1000 W / m^2 and varies during the day
- Over 90% of India receives more than 5 kWh / m^2 / day
- Significant areas receive more than 5.6 kWh / m^2 / day



Source: http://mnre.gov.in/
Ministry of New and Renewable Energy, Government of India

About Solar Concentrator Technology

A solar concentrator operates on the principle of reflection of solar radiation by highly polished surfaces (or mirrors) arranged in a parabolic shape on the focal point, thus increasing the intensity of solar radiation by several hundred times.

Solar concentrators may be classified as point-focus (dish-type) or line-focus (trough-type), based on reflector geometry. A point-focus concentrator tracks the sun across the sky like a sunflower. The accuracy of the reflector shape and the accuracy of tracking the sun determines the maximum thermal performance of the concentrator.

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