

# Beyond Sealing Solutions: Air Inlet Unit for Solar Energy Turbine

gevasol  
**Ping**

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■ Solar turbines

## Designing and manufacturing an air intake assembly for a solar energy turbine.

- Luminescent Power asked Ettem Engineering to provide an air intake assembly for a turbine that converts heat to work. (<https://luminescentpower.com>).
- Spun by hot air and water, the turbine will generate 1MW of electricity.
- Solar energy will heat the air.

### The challenge

- The seal rotates at high speed against air at a temperature of 550°C
- Pressure of 40 atmospheres

### The solution

- Cooling the gaskets using cold water.
- Converting the heat to work: The heat that's been transferred to the cooling water preheats the air at the beginning of the process.
- Preserving energy: The heat energy diverted by the cooling system is not wasted.

More features: The system includes bearings and washing and cooling circuits for water and oil.

### Specifications

- Corrosive saltwater environment
- Air temperature at entry point: 550° C
- Air pressure at entry point: 40 atmospheres
- Rotation speed: 3,000 rpm
- Dynamic balance of the rotating assembly.
- The design considers the system's maintenance plans. The entire air intake assembly will be replaced in the field when needed; then sent for repair at the workshop.
- Heat exchange circuit: oil→air and water→air

### Contact us:

972-4-981-7754  
ettemeng@ettem.com

**ettem**  
ENGINEERING  
ettem.com