

The Solar Energy Concentrator based on Stirling, CES-Stirling, harnesses solar energy through a circular paraboloid, which focuses sunlight onto a single point, the focus of the parabola. At this focal point, a thermal chamber delivers heat energy to the Stirling engine, which drives an alternator for the generation of 220/110 VAC electrical power.

The solar concentrator is permanently oriented towards the sun using an electronic system based on a solar tracking model and supported by physical sensors that detect the position of the sun.

The solar concentrator focuses sunlight directly into a thermal chamber, which is insulated to prevent radiation losses.

The hot zone of the Stirling engine is located inside the thermal chamber, effectively transferring energy to the Stirling engine. This electrical energy is obtained with low levels of CO₂ emissions during its manufacturing process, and since it uses common metals, its components are easily disposable at the end of their useful life.

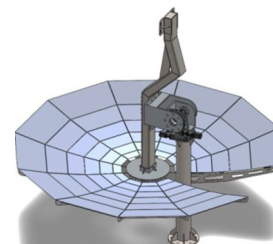
It is a sustainable, low-maintenance, cost-effective piece of equipment available for use in industries and communities.

SYSTEM CHARACTERISTICS FOR EACH SOLAR CONCENTRATOR

- Operates directly with solar heat.
- Operating Temperature: 400 - 550 [°C].
- Solar Concentrator Diameter: 3 - 10 [m].
- Electrical Voltage: 220/110 [VAC].
- Operating Frequency: 50 - 60 [Hz].
- Electrical Power: 1 - 10 [kWe].
- Piston Stroke Length: 30 [mm].
- Total Weight: Approximately 500 [kg].
- Installation: On a concrete foundation.
- Autonomous operation if required

APPLICATIONS

- Sustainable electrical power supply for homes.
- Sustainable electrical power supply for hotels and small businesses.
- Sustainable electrical power supply in rural areas.
- Solar electrical power farms for supplies exceeding 1 [MW].



SPECIFICATIONS CES-STIRLING	
Solar Concentrator	
Weight	416 Kg
Diameter	3 m
Maximum height	3,6 m
Horizontal position height	3 m
Focal distance	2 m
Focal point temperature	550°C @ 1000W/m2
Heat	3200 W @ 1000W/m2
Pieces (quantity)	1300
Engines	
Electrical Power Supply	24VDC
Maximum Azimuth rotation speed	~ 14 °/min
Maximum Elevation rotation speed	~ 7 °/min
Elevation torque	1300 Nm
Azimuthal torque	100 Nm
Turn module ratio	71/1
Stepper motor	200 steps
Cabinet (Monitoring and Control)	
Electrical Power Supply	220/110 VAC, 50-60 Hz
Control	PLC
HMI	Monitor de 10"
Touch	Resistivo
Stepper motor driver	5 A with overcurrent protection
Dimensions	40x30x20
Weight	8,5 kg