



A-Core Container

Solar Concentrating System



Overview

In CSP plants, mirrors reflect and concentrate sunlight onto a focused point or line where it is collected and converted into heat, which can be stored and used to produce electricity or deliver the heat to an industrial process whenever it is needed. What is a concentrating solar power system?

Concentrating solar power systems harness heat from sunlight to provide electricity for large power stations or for high-temperature industrial processes.

What is concentrated solar power (CSP)?

Concentrated Solar Power (CSP) systems refer to the use of mirrors or lenses to concentrate sunlight onto a small area, which then generates heat to produce electricity. Some key terms and concepts related to CSP systems include concentrated solar energy, solar thermal power, parabolic troughs, power tower systems, and solar dish/engine systems.

Where can I find information about concentrating solar-thermal power?

Learn more about concentrating solar-thermal power research in the Solar Energy Technologies Office, check out these solar energy information resources, and find out more about how solar works. Learn the basics of how concentrating solar-thermal power (CSP) works with these resources from the DOE Solar Energy Technologies Office.

What are the different types of concentrating solar power systems?

The two main types of concentrating solar power systems are: linear concentrator and power tower systems. Linear concentrator systems collect the sun's energy using long rectangular, curved (U-shaped) mirrors. The mirrors are tilted toward the sun, focusing sunlight on tubes (or receivers) that run the length of the mirrors.

What are the applications of concentrating solar-thermal power systems?

It can also be used in a variety of industrial applications, like water desalination, enhanced oil recovery, food processing, chemical production, and mineral processing. Concentrating solar-thermal power systems are generally used for utility-scale projects. These utility-scale CSP plants can be configured in different ways.

Can concentrating solar power system integrate photovoltaic and mid-temperature solar thermochemical processes?

A concentrating solar power system integrated photovoltaic and mid-temperature solar thermochemical processes. *Appl Energy*. 2020;262:11442. Chana W, Wang Z, Yang C, Yuan T, Tian R. Optimization of concentration performance at focal plane considering mirror refraction in parabolic trough concentrator. *Energy Source Part A*. 2022;44:3692-707.

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