

Trough solar power generation system mainly

How many solar trough power plants are there?

Since 2007, around 100 or more of commercial solar trough power plants have been built. The largest concentration of these is in Spain. Many of these installations are around 50 MW in generating capacity and a number include some form of energy storage.

What is a parabolic trough solar concentrator?

The traditional parabolic trough solar concentrator is widely used in the solar collection field, especially in a solar thermal power plant, because it has the most mature technology. Under the condition of accuracy tracking by a precise mechanism, it can achieve heat at a temperature higher than 400°C.

Are parabolic trough solar thermal electric technologies important?

The technology cases presented above show that a parabolic trough solar thermal electric technology 7 shows the relative impacts of the various cost system's levelized cost of energy. It is significant to require any significant technology development in technology areas if parabolic troughs are to be a significant market penetration.

Can a solar trough power plant operate 24 hours a day?

In principle a plant could be designed to operate 24 hours each day, but generally they are designed to be capable of supplying power during the main periods of grid demand rather than continuously. Since 2007, around 100 or more of commercial solar trough power plants have been built. The largest concentration of these is in Spain.

Can a parabolic trough power plant use a direct steam cycle?

Although most parabolic trough power plants use a synthetic oil as the heat transfer fluid, the efficiency of the plants could be increased by using a direct steam cycle. This would involve doing away with the heat transfer fluid and heating water to generate steam directly within the parabolic trough heat collection and transfer circuit.

How is solar irradiance reflected in a parabolic trough?

Solar irradiance falling on the parabolic trough is reflected and focused on an absorber tube. This tube contains a heat-absorbing, fluid-like molten salt mixture or synthetic oil. Heat exchangers are used to transfer the heat from the molten salt to the working fluid, converting it into steam and operating a steam turbine for power generation.

2.1 Parabolic-trough STPS. The concept of parabolic-trough solar thermal technology is to focus the solar beam on the solar collector and to heat the heat transfer oil or fluid up to 393°C then heat is converted into the ...



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