

Solar power grid trough reflector

What is a trough shaped reflector?

For large-scale solar concentration, a trough-shaped reflector has proved more effective. If the trough is built with a parabolic cross-section, the reflector will bring the incident sunlight to focus at a line rather than at a single point, a line running along the length of the trough.

Are parabolic trough solar collectors reliable?

Parabolic trough solar collectors are also reliable and have a long lifespan. They are not as susceptible to weather damage as other types of solar collectors, such as photovoltaic panels.

Are symmetric and asymmetric corrugated tubes suitable for a parabolic trough solar collector?

Symmetric and asymmetric outward convex corrugated tubes were introduced by Wang et al., as the metal tube of tube receiver for a parabolic trough solar collector system (SCPTR and ACPTR) to increase the overall heat transfer performance (as shown in Fig. 9).

Is a forced convection heat transfer turbulent fluid flow in a parabolic trough solar collector?

A forced convection heat transfer turbulent fluid flow inside the tube receiver of a parabolic trough solar collector was numerically researched by Seyed et al., using CuO-water and Al₂O₃-water nanofluids as HTF.

Do coiled wire turbulators enhance heat transfer in a parabolic trough solar collector?

Their investigated results indicated that the heat transfer enhancements of a parabolic trough solar collector with tube receivers inserted with coiled wire turbulators were 2.28, 2.07, and 1.95 times higher compared to those of conventional smooth tube receiver for pitch distances of 15, 30, and 45 mm, respectively.

Which solar power systems use parabolic trough technology?

As of 2014, the largest solar thermal power systems using parabolic trough technology include the 354 MW SEGS plants in California, the 280 MW Solana Generating Station with molten salt heat storage, the 250 MW Genesis Solar Energy Project, the Spanish 200 MW Solaben Solar Power Station, and the Andasol 1 solar power station.

Overview Efficiency Design Enclosed trough Early commercial adoption Commercial plants See also Bibliography A parabolic trough collector (PTC) is a type of solar thermal collector that is straight in one dimension and curved as a parabola in the other two, lined with a polished metal mirror. The sunlight which enters the mirror parallel to its plane of symmetry is focused along the focal line, where objects are positioned that are intended to be heated. In a solar cooker, for example, food is placed at the foc...

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