



Flat Plate Solar System

Solar Thermal Flat Plate collectors are some of the oldest proven technology available on the market today.

A flat-plate collector consists of an absorber, a transparent cover, a frame, and insulation. Usually a low iron safety glass is used as a transparent cover as it lets through a great amount of the radiation from the sun. Simultaneously, only very little of the heat emitted by the absorber escapes the cover (greenhouse effect). In addition, the transparent cover prevents wind from cooling the absorber. Together with the frame, the cover protects the absorber from adverse weather conditions.

The insulation on the back of the absorber and on the side walls lessens the heat loss through conduction. Insulation on better quality panels are usually mineral fiber insulating materials like glass wool or rock wool.



The absorber

The heart of a solar collector is the absorber, which is usually composed of several narrow metal strips. The carrier fluid (usually water or glycol) for heat transfer flows through a heat-carrying pipe, which is connected to the absorber strip. Absorbers are typically made of copper or aluminum. Absorbers are usually black, as dark surfaces absorb the solar radiation better. The level of absorption indicates the amount of solar radiation being absorbed - that means not being reflected. As the absorber warms up to a temperature higher than the ambient temperature, it gives off a part of the accumulated solar energy in form of long-wave heat rays. The ratio of absorbed energy to emitted heat is indicated by the degree of emission. Using specially formulated absorber coatings and a high level of thermal insulation is fundamental to the efficiency of the solar panel.

For more information on ITS flat plate collectors please download our flat plate collector data sheet. Thank you for your interest in solar products.