

Comparison Sheet Evacuated Heat Pipe Collectors Versus Flat-Plate Solar Panels

Evacuated Heat Pipe Tubes	Flat-plate Solar Panels
<p>The collector is hermetically sealed inside an evacuated glass tube, eliminating convection and conduction heat losses and isolating the collector from adverse ambient conditions. Therefore, no heat losses due to convection and conduction and no change of performance during the service life of the collector due to corrosion.</p>	<p>The collector is put in a casing with a glass shield to reduce heat losses. The air gap between absorber and cover pane allows heat losses to occur, especially during cold and windy days. Build up of condensation will in due course influence the collector greatly due to corrosion, reducing performance and durability.</p>
<p>Uses a heat-pipe for super efficient heat conduction. No water enters into the collector.</p>	<p>Circulates water inside insulated areas. Prone to leakage, corrosion and restriction of flow due to possible air lock.</p>
<p>The heat-pipe has a self-limitation of maximum working temperature through the physical properties of its special fluid (THS200 and THS250 models) resulting in safeguarding the system and system fluid (water and anti-freeze mixture).</p>	<p>Flat-plate collectors have no internal method of limiting heat build up and have to use outside tempering devices. When these safety or control devices fail the system and/or system-fluid can be destroyed.</p>
<p>Thermal diode operation principle. The heat pipe's thermal flows one way only; from the collector to the water and never in the reverse.</p>	<p>Flat-plates can actually rob the water of built up heat if the collector becomes colder than the water temperature.</p>
<p>Corrosion and freeze free; there is nothing within the evacuated tube to freeze and the hermetic sealing of each tube eliminates corrosion.</p>	<p>Flat-plate collectors contain water and unless well-protected can burst upon freezing. Corrosion can become a major problem reducing performance!</p>
<p>Easy installation and no maintenance. Lightweight individual collector tubes are assembled into the system at the point of installation. Each tube is an independently sealed unit requiring no maintenance.</p>	<p>Installation is difficult. Entire panels have to be hoisted onto the roof and installed. if one has a leak, the entire collector has to be shut down and removed.</p>
<p>Relatively insensitive to placement angle, allowing architectural and aesthetic freedom.</p>	<p>Requires accurate southern exposure and elevation placement.</p>