

Answering the frequently asked questions

Solahart Is More Efficient With Solar Energy

The strategy of Solahart's design engineers is to constantly improve on the conversion of solar energy into heating water. Solar water heaters have been in use for over a century. Improvements in performance, both economically and environmentally, have come from the incorporation of sophisticated technologies, and better design engineering.

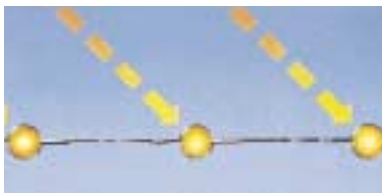
- *Smarter Absorber Design*
- *Smarter Absorber Technology*
- *Solahart's Black Chrome*

Smarter Absorber Design

As the solar water heater has evolved, the efficiency of turning solar energy into hot water has improved. The traditional design of a solar absorber panel has been a series of copper tubes interconnected with flat plate aluminum commonly referred to as the "fin and tube absorber". Solahart use this style of absorber in their 'L' series.

The water is heated primarily in the risers, and any heat absorbed by the fins has to travel sideways to be of any use. Solahart still make this style of absorber because they work well in hotter climates, but as the amount of solar energy diminishes in cooler climates, the design needs to be more efficient. Fin and tube absorbers are not suitable for hard water or frost prone areas.

To improve efficiency, Solahart's designers developed a new fully flooded absorber panel to allow more surface area to be exposed to the sun's radiation. Known as the "J" and "K", these multifold absorber panels are used in close circuit systems (Ref Fact File 001). They are more efficient because the risers are diamond shaped and more Hartgard® heat exchange fluid is exposed to the incoming radiation. Energy is more readily absorbed and Hartgard® flow is enhanced. The "L" models have six riser tubes per absorber, the "J" and "K" thirty five. A further advantage of the "J" and "K" absorbers is their resistance to frost and hard water when connected to a closed circuit system.



Standard fin and tube collector



Solahart's multi-flow collector

"As the solar water heater has evolved, the efficiency of turning solar energy into hot water has improved. Solahart have led the way with their innovation, and have an absorber panel suitable for any conditions."

Smarter Absorber Technology

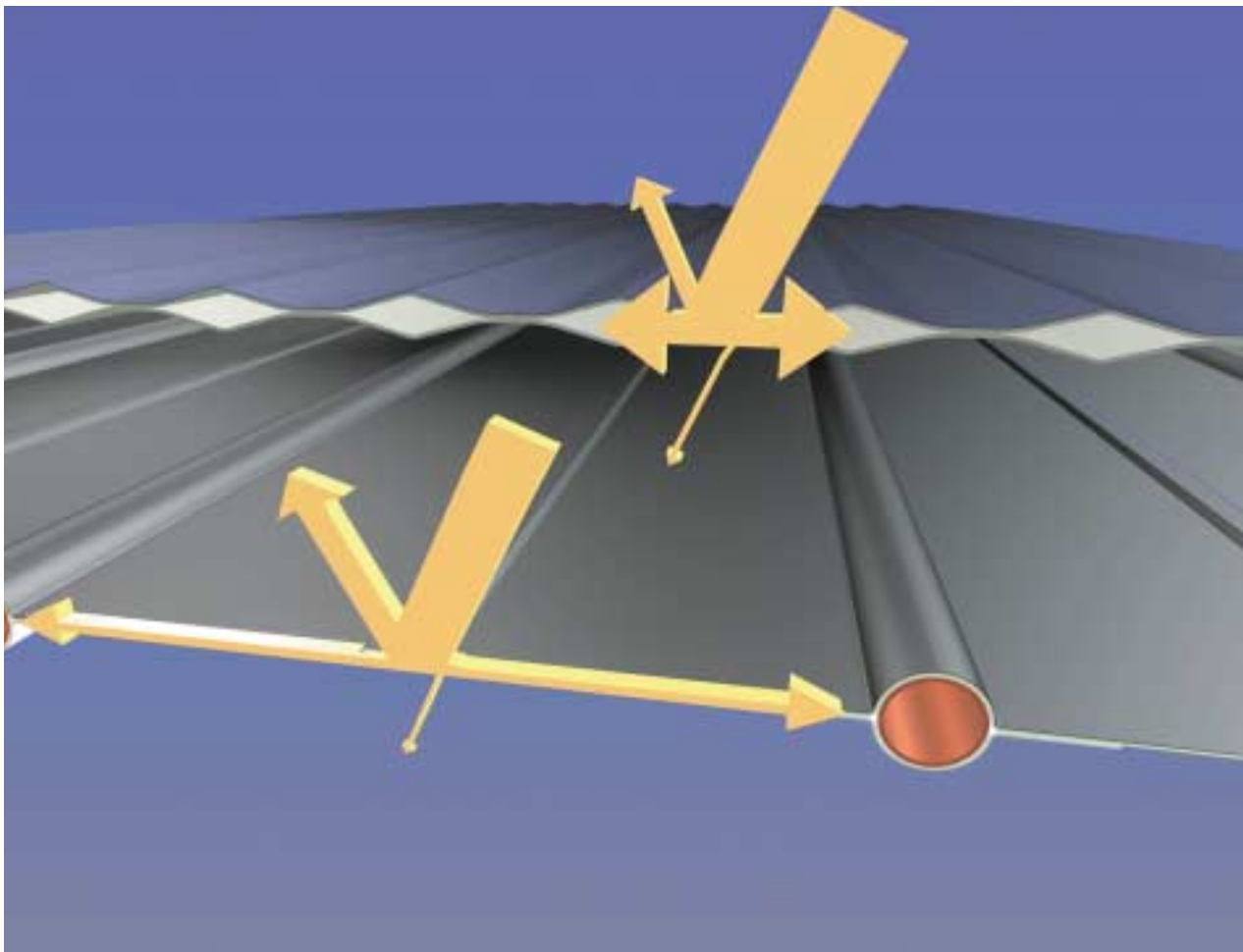
If you place a black object in the sun, it gets hot. Heat has been absorbed, and water can be heated using this simple phenomena. The fact that the object also feels hot to the touch means that some heat is being lost.

Solahart employ two ways of finishing solar absorbers, enabling two different efficiencies to be offered according to customer needs. A black polyester powder coat and a Black Chrome (Chromonyx®) plated finish. The choice of finish is determined by climate, water quality and water usage.

All Solahart absorber panels have a special “low iron” glass cover. This glass ensures that there is maximum transmission of solar radiation through the glass and minimum reflection.

Heat losses can be further minimised by the usage of materials known as “selective surfaces”. Black Chrome plate is an example. It is hard to see the difference between black powder coat and Black Chrome, but the Black Chrome surfaces are more efficient because less heat is being re-radiated.

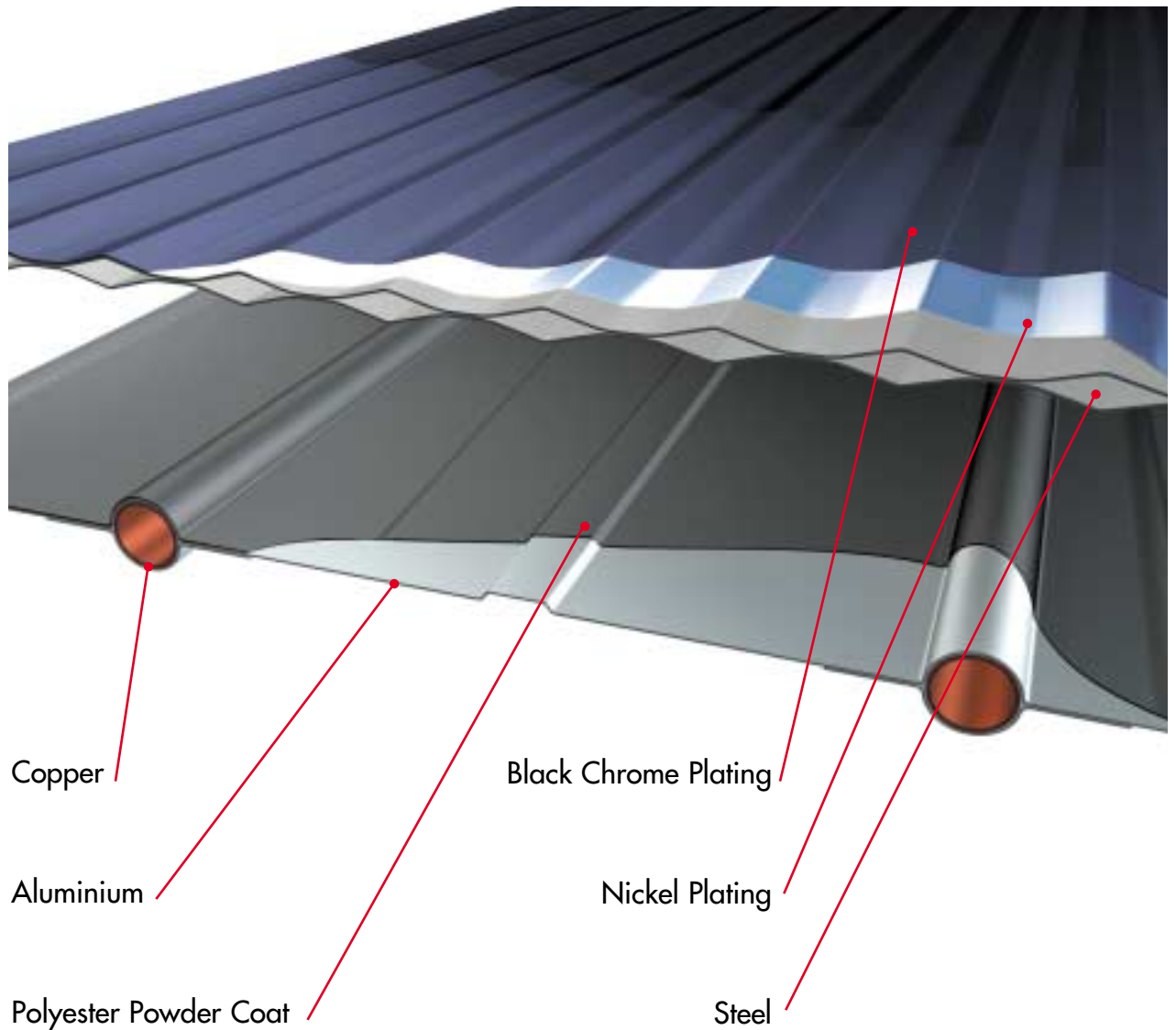
Further efficiencies are achieved by side and rear insulation to prevent heat loss.



Heat loss comparison between Black Chrome and black painted surface.

Solahart's Black Chrome

Solahart uses two electroplating processes. The steel absorber panel is plated with nickel, and then with chrome, much like any other standard metal plating process. The nickel plating provides a corrosion proof finish after which a Black Chrome surface is electroplated to the surface for high efficiency energy absorption. The electroplated Black Chrome is superior to other selective coatings which are typically based on stick - on films.



Solahart's exclusive multiflow absorber design compared to standard fin and tube absorber design.



"Solahart use fully automated processes for manufacturing absorber panels"



"The Black Chrome Absorber - Solahart use a universally accepted method for absorber finishes - electroplating"

For more information contact Solahart Customer Service or visit our Website.
Solahart World Corporate Headquarters, 112 Pilbara Street, Welshpool, Western Australia 6106.
Telephone (08) 9458 6211. Facsimile: (08) 9351 8034. International Telephone: +618 9458 6211. International Facsimile: +618 9351 8034.
Email: solahart@solahart.com.au Internet: <http://www.solahart.com.au>. Solahart Industries Pty Ltd. A Johan Company ACN 064 945 848

