

How does a solar air conditioner work?

The Solar AC Solar Absorption Air Conditioning system is a system that utilizes the sun as a heat source to assist the energy needed to drive the cooling process of a typical air conditioning system which in turn reduces the electrical consumption required to run the compressor.

The Solar AC System is similar to a regular air conditioning system in that the refrigeration takes place by evaporating liquid with a very low boiling point. In both cases, when a liquid evaporates or boils, it takes some heat away with it, and can continue to do so either until the liquid is all boiled, or until everything has become so cold that the sub-zero boiling point has been reached. The difference between the two is how the gas is changed back into a liquid so that it may be used again. A regular air conditioning system uses a compressor to increase the pressure on the gas, forcing it to become a liquid again through the use of the condenser coil. The change of state of the refrigerant, starts to take place approximately 2/3rd's of the way down the condenser.

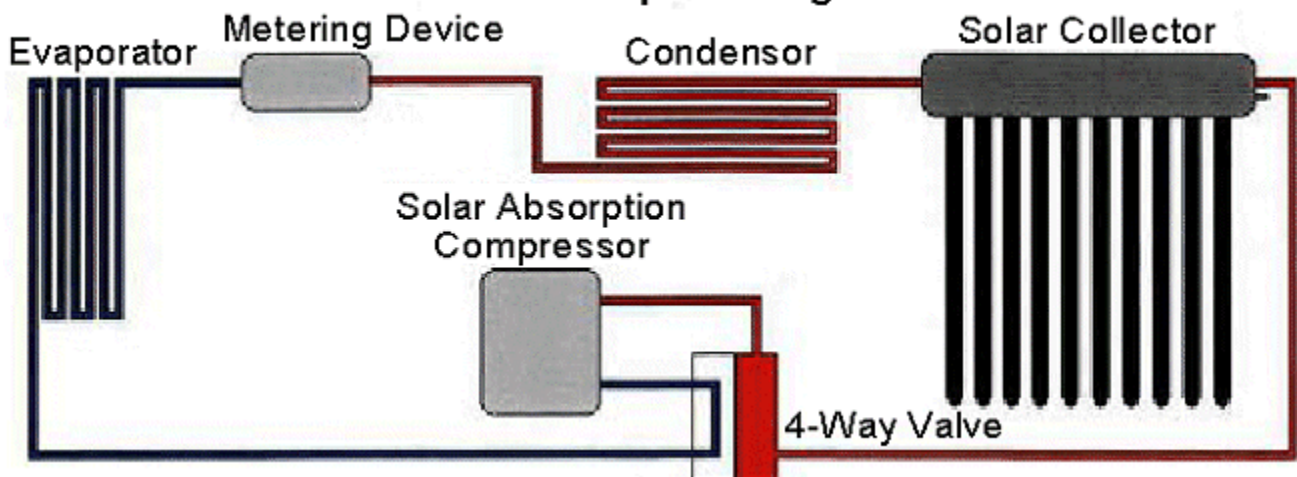
The Solar AC Solar Absorption Air Conditioning System uses a different method. It uses the solar heat from the sun to superheat the refrigerant which enables the refrigerant to begin changing state at the top 2/3rd's of the condenser coil. By using this method it reduces the superheat of compression required to achieve the cooling process in the conventional cooling systems as well as utilizing more of the condenser cooling face of the coil. The conventional air conditioning system is only able to change a portion of the gas into a liquid state so as when the refrigerant enters into the metering device it is a saturated vapor. The Solar AC process allows more of the refrigerant to change state back into a liquid faster as well as allowing the transformation of more liquid into the metering device.

PRINCIPLES

Solar AC Solar Absorption Air Conditioning uses the sun as a source of heat to provide the energy needed to drive the cooling process. This process is very efficient, since most of the condenser and evaporator coil face is being utilized.

The Solar AC Solar Absorption Air Conditioning system cools by evaporating liquid R407c. The Solar Absorption medium inside the Solar panel acts as a storage tank to maintain the required temperatures needed for the cooling process. With the Solar Absorption tank, the cooling process is maintained for approximately 96 hours without the need of the Sun's heat. The heated medium also acts as an absorbent to the refrigerant through the solar panel process. With this process, Solar AC maintains its energy required for the cooling of the controlled space.

Solar Absorption Diagram



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