



Solar Heat for Vapour Absorption Air conditioning

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ABSTRACT: Thermal Energy or Heat absorbed from the Sun Rays using Solar Thermal Energy Concentrator devices are proposed to be used for Vapour Absorption Type of Airconditioning Systems.

Keywords: Vapour absorption, Air conditioning, solar concentrators, Refrigerant, Expansion Valve, Pressure, Temperature, Cooling.

INTRODUCTION

Reduced overall Cost, Energy Efficient and Environmentally Friendly are the advantages of this current proposal of Solar thermal energy driven Vapour Absorption type of Air Conditioning Systems.

Solar Thermal Energy or Heat from Solar Rays can be collected using Parabolic Dish Concentrators with Tracking system or a Trough type linear solar concentrator is proposed to be utilised in Vapour Absorption type of Air conditioning which is a revived concept utilised for cooling purposes.

Revived Vapour Absorption Air conditioning:

The concept of Vapour absorption Air conditioning is revived and reconsidered with current development and use of Parabolic and Trough type Solar Thermal Energy Concentrators applied for this purpose of cooling. At the focal position of the concentrator the refrigerant is allowed to stay or pass through, can receive the heat from the incident solar rays focussed. The refrigerant can become vapour and a rise in pressure can make it to flow through an expansion valve and subsequent drop in pressure and temperature.

Vapour Absorption Air Conditioning for Office and House Cooling:

Whenever and Where ever the Sun shine is hot, Vapour absorption air conditioning system can effectively cool say rooms and offices.

Parabolic dish type and linear trough type solar thermal energy concentrator with sun rays focussing and tracking system added for focussing the concentrators towards sun rays can be used for air conditioning purpose.

Vapour Absorption System:

Conventional Vapour Absorption Refrigeration and Air conditioning systems worked by thermal energy or heat as input either from a Gas Burner or by using Flame Torch.

In this work the required thermal energy or heat is received and absorbed from incident solar rays using conventional concentrators is transferred to the refrigerant which gets vaporised and pressurised.

Due to addition of heat, the Refrigerant temperature and pressure increases inside the hollow pipe.

The refrigerant inside the pipe is allowed to expand through a bleeding or expansion valve and gets condensed due to the drop in Pressure and Temperature of the refrigerant gets dropped drastically.

Now by blowing ambient air using a fan over the multiple arrays of tubes with fins into which the condensed and cool refrigerant is made to pass through. There by chillness or cooling is transferred to the surrounding.

The concepts of vapour absorption system now will become energy efficient, cost effective and environment friendly.

Initial Investment Justified and Profitable:

Vapour absorption type air conditioning concept can be revived and can be used with the Solar energy collectors or absorbers. Heat is directly transferred to the refrigerant for expansion and vaporisation.

There are no need of compressors and no need of motors in this concept of Air conditioning.

Increased Sun Shine means Increased Cooling:

Directly related to sun shine, the efficiency of vapour absorption system of air conditioning can work accordingly.

CONCLUSION

Solar thermal heat can be absorbed using thermal ray receivers in the form of Parabolic single or multiple dishes or long linear parabolic troughs mounted on the Terres of the house, office buildings can give cooling by the vapour absorption type of air conditioning system.

Vapour absorption system of cooling revived once again from the fundamentals, can be used with its advantages. As there are no vapour compressors and drive motors involved, Lower electricity cost is the advantage.

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