

Title (en)
HEAT PUMP SYSTEM AND METHOD FOR HEATING A FLUID

Title (de)
WÄRMEPUMPENSYSTEM UND VERFAHREN ZUR ERWÄRMUNG EINES FLUIDS

Title (fr)
SYSTEME DE POMPE A CHALEUR ET PROCEDE DE CHAUFFAGE D'UN FLUIDE

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Application
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Abstract (en)

[origin: WO2006122367A1] This invention relates to a heat pump system and in particular to a heat pump system and method for heating a fluid. According to one aspect of the invention, there is provided a heat pump system for heating a fluid, said system including: an evaporator for extracting heat from a heat source to vaporise a refrigerant; a compressor fluidly connected to said evaporator for compressing said refrigerant vapour; a condenser fluidly connected to said compressor for transferring heat from said compressed refrigerant to said fluid; a main expansion device fluidly connecting said condenser to said evaporator for reducing the temperature of the refrigerant; means for diverting and reducing the temperature of a portion of said refrigerant from said condenser, and means for fluidly injecting said temperature reduced refrigerant portion into said compressor such that said temperature reduced refrigerant portion mixes with said refrigerant vapour at an intermediate pressure and induces at least quasi-two- stage compression of said refrigerant vapour and said refrigerant portion for discharge into said condenser. According to another aspect of the invention, there is provided a method for heating a fluid, said method including the steps of: extracting heat from a heat source to vaporise a refrigerant; compressing said refrigerant vapour to increase its temperature; transferring heat from said compressed refrigerant vapour to said fluid; diverting and reducing the temperature of a portion of said refrigerant after said transferring step; reducing the temperature of said refrigerant; introducing said temperature reduced refrigerant portion during said compressing step such that said temperature reduced refrigerant portion mixes with said refrigerant vapour at an intermediate pressure and induces at least quasi-two- stage compression of said refrigerant vapour and said refrigerant portion, and discharging said compressed refrigerant to transfer heat to said fluid in said transferring step.

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