

Title (en)

STEAM HEAT PUMP AND LOW-PRESSURE STEAM ENTHALPY SUPPLEMENTING AND PRESSURIZING UTILIZATION METHOD

Title (de)

DAMPFWÄRMEPUMPE UND NIEDERDRUCKDAMPFENTHALPIE-ERGÄNZENDES UND UNTER DRUCK SETZENDES NUTZUNGSVERFAHREN

Title (fr)

POMPE À CHALEUR À VAPEUR ET PROCÉDÉ DE SUPPLÉMENTATION D'ENTHALPIE DE VAPEUR À BASSE PRESSION ET D'UTILISATION DE MISE SOUS PRESSION

Publication

EP 3546826 A1 20191002 (EN)

Application

EP 17878307 A 20171124

Priority

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Abstract (en)

The invention discloses an efficient vapor heat pump (VHP) and a method for utilizing low pressure vapor through enthalpy supplement and pressure boost, comprising the following steps: the low pressure vapor is heated into superheated vapor for enthalpy supplement; when a material is heated on a material heater, the pressure boosted and quantity increased saturated vapor will be condensed and sharply shrink in volume to generate a strong suction force so that the superheated vapor is sucked for spraying liquid boost pressure(SLBP), so as to utilize the pressure boosted and quantity increased saturated vapor; further, an artificial tornado is generated from vapor in relevant equipment by reference to the formation theory of tornado in nature and the strong suction force thereof, so as to enhance the suction force and improve thermal efficiency and compression ratio. The vapor heat pump, especially the tornado vapor heat pump(TVHP), has the advantages of high efficiency, low energy consumption, low cost and environmental protection due to small enthalpy difference between low pressure vapor and pressure boosted and quantity increased saturated vapor, less enthalpy supplement of superheated vapor ,and high pressure ratio for spraying liquid boost pressure(SLBP). Besides, the low carbon technology is used as a green energy source and thus the TVHP is widely applied to many fields.

IPC 8 full level

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