Title (en)

HEAT PUMP SYSTEM, AND HEAT PUMP WATER HEATER

Title (de)

WÄRMEPUMPENSYSTEM UND WÄRMEPUMPENWASSERERHITZER

Title (fr)

SYSTÈME DE POMPE À CHALEUR, ET CHAUFFE-EAU À POMPE À CHALEUR

Publication

EP 3040643 A1 20160706 (EN)

Application

EP 14847548 A 20140731

Priority

- JP 2013203187 A 20130930
- JP 2013243573 A 20131126
- JP 2014004029 W 20140731

Abstract (en)

Provided is a two-stage compression heat pump with which the amount of refrigerant oil in the two compressors is easily kept uniform. The system is provided with: a compression mechanism (10) provided with a lower stage-side compressor (10a) and a higher stage-side compressor (10b), for compressing and discharging a refrigerant; a water-refrigerant heat exchanger (11) for heat exchange between a target to undergo heat exchange and the refrigerant compressed by the compression mechanism (10); an expansion valve (12) for decompression and expansion of the refrigerant outflowing from the water-refrigerant heat exchanger (11); a heat source-side heat exchanger (13) for heat exchange between a target to undergo heat exchange and the refrigerant decompressed and expanded by the expansion valve (12); an oil equalizing mechanism (20) connecting the lower stage-side compressor (10a) and the higher stage-side compressor (10b), through which a refrigerant oil flows; and a four-way switching valve (14) for selectively switching between a two-stage compression path in which the refrigerant flows in order to the lower stage-side compressor (10a) and the higher stage-side compressor (10b), and a one-stage compression path in which it flows either to the lower stage-side compressor (10a) or the higher stage-side compressor (10b) only.

IPC 8 full level

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CPC (source: CN EP US)

F24H 9/2007 (2013.01 - CN EP US); **F25B 1/10** (2013.01 - CN EP); **F25B 30/02** (2013.01 - CN EP); **F25B 31/004** (2013.01 - CN EP); **F25B 41/20** (2021.01 - CN); **F25B 41/31** (2021.01 - CN); **F25B 47/025** (2013.01 - CN EP); **F25B 49/02** (2013.01 - CN); F24F 3/001 (2013.01 - CN EP); F24H 4/04 (2013.01 - CN EP); F25B 2339/047 (2013.01 - EP); F25B 2400/13 (2013.01 - EP); F25B 2600/02 (2013.01 - EP); F25B 2600/25 (2013.01 - CN); F25B 2700/2105 (2013.01 - CN)

Cited by

EP4215845A4; US11460224B2; WO2020092744A3; US11953246B2

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)

BA ME

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DOCDB simple family (application)

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