

Title (en)

Ultra low temperature heat pump system with secondary refrigerant injection mechanism

Title (de)

Ultratieftemperatur-Wärmepumpensystem mit sekundärem Kühlmittelinjektionsmechanismus

Title (fr)

Système de pompe à chaleur à ultra basse température avec mécanisme d'injection de réfrigérant secondaire

Publication

EP 2426437 A3 20150311 (EN)

Application

EP 11005781 A 20110714

Priority

CN 201010270325 A 20100902

Abstract (en)

[origin: EP2426437A2] An ultra low temperature heat pump system with secondary refrigerant injection mechanism is disclosed which comprising a compressor, a condenser, a reservoir tank, a thermal expansion valve, a vaporizer and a separator, sequentially connected to form a circulation loop, an air refill device I provided between the compressor and the reservoir tank, which is constructed of an injection valve, an economizer, a first solenoid valve and a second solenoid valve. The two solenoid valves are arranged in parallel with the first solenoid valve connected directly to the compressor and the second solenoid valve connects sequentially to the injection valve and the economizer. The economizer is then connected to the compressor.

IPC 8 full level

F25B 13/00 (2006.01)

CPC (source: EP)

F25B 13/00 (2013.01); **F25B 1/10** (2013.01); **F25B 2400/13** (2013.01)

Citation (search report)

- [X] EP 1992887 A1 20081119 - DAIKIN IND LTD [JP]
- [X] WO 2008150284 A1 20081211 - CARRIER CORP [US], et al
- [X] WO 2008152760 A1 20081218 - DAIKIN IND LTD [JP], et al
- [X] WO 2006118573 A1 20061109 - CARRIER CORP [US], et al
- [X] WO 2008054380 A2 20080508 - CARRIER CORP [US], et al
- [X] WO 2008140454 A1 20081120 - CARRIER CORP [US], et al
- [X] US 6571576 B1 20030603 - LIFSON ALEXANDER [US], et al
- [X] US 5157933 A 19921027 - BRENDDEL THOMAS E [US]

Cited by

CN111426101A; CN112665226A

Designated contracting state (EPC)

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