

Title (en)
REFRIGERATION CYCLE DEVICE

Title (de)
KÄLTEKREISLAUFVORRICHTUNG

Title (fr)
DISPOSITIF À CYCLE FRIGORIFIQUE

Publication
EP 4350246 A4 20240710 (EN)

Application
EP 21942944 A 20210525

Priority
JP 2021019830 W 20210525

Abstract (en)
[origin: EP4350246A1] A refrigeration cycle apparatus includes a controller, a compressor configured to compress refrigerant to cause a pressure of the refrigerant to rise from a first pressure to a second pressure higher than the first pressure, a condenser configured to cause heat exchange to be performed between air and the refrigerant discharged from the compressor, an INJ branch unit configured to cause the refrigerant that flows out of the condenser to branch into first refrigerant and second refrigerant, an expansion valve configured to expand the first refrigerant that flows out of the INJ branch unit to reduce a pressure of the first refrigerant to the first pressure, an evaporator configured to cause heat exchange to be performed between air and the first refrigerant that flows out of the expansion valve, and cause the first refrigerant having the first pressure to flow to the compressor, and an injection circuit connected between the INJ branch unit and the compressor, and configured to cause the second refrigerant that flows out of the INJ branch unit to flow to the compressor. The injection circuit includes an INJ expansion valve configured to expand the second refrigerant to reduce a pressure of the second refrigerant to an intermediate pressure that is higher than the first pressure and lower than the second pressure, and a receiver configured to store the second refrigerant that flows out of the INJ expansion valve, and cause the second refrigerant having the intermediate pressure to flow to the compressor. The controller is configured to control at least one of a rotating speed of the compressor and an opening degree of the INJ expansion valve such that the intermediate pressure, which corresponds to an internal pressure of the receiver, falls to or below a first threshold or is kept constant within a first range.

IPC 8 full level
F25B 1/00 (2006.01); **F25B 1/10** (2006.01); **F25B 49/02** (2006.01)

CPC (source: EP)
F25B 1/10 (2013.01); **F25B 49/02** (2013.01); **F25B 2400/13** (2013.01); **F25B 2400/23** (2013.01); **F25B 2600/2509** (2013.01)

Citation (search report)

- [I] WO 2021048899 A1 20210318 - MITSUBISHI ELECTRIC CORP [JP]
- [A] JP 2018036016 A 20180308 - DAIKIN IND LTD
- [A] JP 2018009767 A 20180118 - DAIKIN IND LTD
- See references of WO 2022249289A1

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

Designated validation state (EPC)
KH MA MD TN

DOCDB simple family (publication)
EP 4350246 A1 20240410; **EP 4350246 A4 20240710**; CN 117321351 A 20231229; JP WO2022249289 A1 20221201;
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DOCDB simple family (application)
EP 21942944 A 20210525; CN 202180098272 A 20210525; JP 2021019830 W 20210525; JP 2023523767 A 20210525