

Title (en)  
REFRIGERATION CYCLE DEVICE

Title (de)  
KÄLTEKREISLAUFVORRICHTUNG

Title (fr)  
DISPOSITIF À CYCLE FRIGORIFIQUE

Publication  
**EP 4343229 A4 20240717 (EN)**

Application  
**EP 21940715 A 20210518**

Priority  
JP 2021018771 W 20210518

Abstract (en)  
[origin: WO2022244098A1] This refrigeration cycle device comprises: an upstream circuit in which an upstream compressor, an upstream condenser, an upstream expansion valve, and an upstream flow path of a cascade heat exchanger are connected by piping to circulate an upstream refrigerant; a downstream circuit in which a downstream compressor, an intermediate cooler, a downstream flow path of the cascade heat exchanger, a downstream expansion valve, and a downstream evaporator are connected by piping to circulate a downstream refrigerant; and a control device that controls the operation of the upstream circuit and the downstream circuit. Upon determining that liquid refrigerant in a liquid state is flowing into the upstream compressor, the control device causes high-temperature, downstream refrigerant discharged from the downstream compressor to flow into the downstream flow path of the cascade heat exchanger.

IPC 8 full level  
**F25B 7/00** (2006.01); **F25B 1/00** (2006.01)

CPC (source: EP)  
**F25B 7/00** (2013.01); **F25B 49/005** (2013.01); **F25B 49/02** (2013.01); **F25B 40/02** (2013.01); **F25B 2400/0403** (2013.01); **F25B 2400/054** (2013.01); **F25B 2500/06** (2013.01); **F25B 2500/28** (2013.01); **F25B 2600/2501** (2013.01); **F25B 2700/1931** (2013.01); **F25B 2700/1933** (2013.01); **F25B 2700/21151** (2013.01); **F25B 2700/21152** (2013.01); **F25B 2700/21163** (2013.01)

Citation (search report)

- [X] GB 2518559 A 20150325 - MITSUBISHI ELECTRIC CORP [JP]
- [A] GB 2566381 A 20190313 - MITSUBISHI ELECTRIC CORP [JP]
- See also references of WO 2022244098A1

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 4343229 A1 20240327**; **EP 4343229 A4 20240717**; CN 117321354 A 20231229; JP 7399354 B2 20231215; JP WO2022244098 A1 20221124; WO 2022244098 A1 20221124

DOCDB simple family (application)  
**EP 21940715 A 20210518**; CN 202180098122 A 20210518; JP 2021018771 W 20210518; JP 2023522041 A 20210518