

Title (en)
REFRIGERATION CYCLE DEVICE

Title (de)
KÄLTEKREISLAUFVORRICHTUNG

Title (fr)
DISPOSITIF À CYCLE FRIGORIFIQUE

Publication
EP 4184077 A4 20230913 (EN)

Application
EP 20945603 A 20200715

Priority
JP 2020027550 W 20200715

Abstract (en)
[origin: EP4184077A1] A refrigeration cycle apparatus (100) includes a first refrigerant circuit, the first refrigerant circuit including: a compressor (1); a condenser (2); a first expansion valve (3); and an evaporator (4), refrigerant circulating in the first refrigerant circuit in an order of the compressor, the condenser, the first expansion valve, and the evaporator. The compressor includes: a discharge port for discharging the refrigerant having a first pressure; a suction port for suctioning the refrigerant having a second pressure lower than the first pressure; and an intermediate pressure port into which the refrigerant having an intermediate pressure between the first pressure and the second pressure flows. The refrigeration cycle apparatus further includes an intermediate pressure injection flow path (13) including: a first end connected between the condenser and the first expansion valve in the first refrigerant circuit; and a second end connected to the intermediate pressure port of the compressor. The intermediate pressure injection flow path is configured to return, to the compressor, a part of the refrigerant flowing out of the condenser. The intermediate pressure injection flow path further includes: a second expansion valve (5); a bypass flow path (14) that bypasses the second expansion valve; and an adjustment valve (15) configured to adjust a flow rate of the refrigerant flowing in the bypass flow path.

IPC 8 full level
F25B 1/00 (2006.01); **F25B 1/10** (2006.01); **F25B 5/02** (2006.01); **F25B 31/00** (2006.01); **F25B 40/00** (2006.01); **F25B 40/02** (2006.01)

CPC (source: EP)
F25B 1/00 (2013.01); **F25B 1/10** (2013.01); **F25B 5/02** (2013.01); **F25B 31/006** (2013.01); **F25B 40/00** (2013.01); **F25B 40/02** (2013.01); **F25B 2400/0411** (2013.01); **F25B 2400/072** (2013.01); **F25B 2600/2501** (2013.01)

Citation (search report)
• [Y] WO 2018100711 A1 20180607 - MITSUBISHI ELECTRIC CORP [JP]
• [Y] EP 2518422 A1 20121031 - DAIKIN IND LTD [JP]
• [Y] DE 112014003888 T5 20160609 - SANDEN HOLDINGS CORP [JP]
• [Y] JP 2011133133 A 20110707 - DAIKIN IND LTD
• [Y] JP H0642825 A 19940218 - DAIKIN IND LTD
• See references of WO 2022013982A1

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 4184077 A1 20230524; EP 4184077 A4 20230913; CN 115867755 A 20230328; JP 7367222 B2 20231023; JP WO2022013982 A1 20220120; WO 2022013982 A1 20220120

DOCDB simple family (application)
EP 20945603 A 20200715; CN 202080102936 A 20200715; JP 2020027550 W 20200715; JP 2022536049 A 20200715