

Title (en)
REFRIGERATION CYCLE APPARATUS

Title (de)
KÄLTEKREISLAUFVORRICHTUNG

Title (fr)
APPAREIL À CYCLE FRIGORIFIQUE

Publication
EP 3875872 A4 20220105 (EN)

Application
EP 18938547 A 20181031

Priority
JP 2018040528 W 20181031

Abstract (en)
[origin: EP3875872A1] A refrigerant and a lubricant circulate in the order of a compressor (1), a first heat exchanger (2), a third heat exchanger (7), a first decompressor (3), and a second heat exchanger (4), and also circulates in the order of the compressor (1), the first heat exchanger (2), a second decompressor (5), the third heat exchanger (7), and a bypass unit (8). The bypass unit (8) includes a reservoir (81) extending in the direction of gravity. The refrigerant and the lubricant flow through the reservoir (81) against the direction of gravity. If the quantity of refrigerant that flows through the bypass unit (8) per unit time is a reference flow rate, the reservoir (81) has a diameter satisfying a relationship that the velocity of the refrigerant flowing through the reservoir (81) is slower than a critical velocity. When the relationship is satisfied, the quantity of lubricant flowing into the reservoir (81) is more than the quantity of lubricant flowing out of the reservoir (81). The critical velocity is determined from the gravitational acceleration, the diameter of the reservoir (81), the density of the lubricant, and the density of a gas of the refrigerant.

IPC 8 full level
F25B 1/00 (2006.01); **F25B 31/00** (2006.01); **F25B 40/00** (2006.01); **F25B 41/30** (2021.01); **F25B 43/02** (2006.01); **F25B 49/02** (2006.01)

CPC (source: EP)
F25B 31/002 (2013.01); **F25B 40/00** (2013.01); **F25B 41/30** (2021.01); **F25B 43/02** (2013.01); **F25B 49/02** (2013.01); **F25B 2400/0409** (2013.01); **F25B 2400/0411** (2013.01); **F25B 2400/13** (2013.01); **F25B 2400/24** (2013.01); **F25B 2500/16** (2013.01); **F25B 2500/19** (2013.01); **F25B 2600/025** (2013.01); **F25B 2600/2513** (2013.01)

Citation (search report)

- [IY] JP 2008039233 A 20080221 - DAIKIN IND LTD
- [Y] WO 2015198475 A1 20151230 - MITSUBISHI ELECTRIC CORP [JP]
- [A] GB 1387778 A 19750319 - VIRGINIA CHEMICALS INC
- [A] EP 0803688 A1 19971029 - MITSUBISHI ELECTRIC CORP [JP]
- See references of WO 2020090040A1

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

DOCDB simple family (publication)
EP 3875872 A1 20210908; **EP 3875872 A4 20220105**; CN 112888906 A 20210601; CN 112888906 B 20230303; JP 7150046 B2 20221007; JP WO2020090040 A1 20210902; WO 2020090040 A1 20200507

DOCDB simple family (application)
EP 18938547 A 20181031; CN 201880098843 A 20181031; JP 2018040528 W 20181031; JP 2020554671 A 20181031