

Title (en)
OUTDOOR UNIT AND REFRIGERATION CYCLE DEVICE

Title (de)
AUSSENEINHEIT UND KÜHLZYKLUSVORRICHTUNG

Title (fr)
UNITÉ EXTERNE ET DISPOSITIF FRIGORIFIQUE

Publication
EP 4030115 A4 20220907 (EN)

Application
EP 19944675 A 20190909

Priority
JP 2019035371 W 20190909

Abstract (en)
[origin: EP4030115A1] An injection circuit is configured to return part of refrigerant on an outlet side of a condenser (20) to a compressor (10) without passing through a load unit (3). An expansion valve (70) is provided on a pipe branched from the outlet side of the condenser (20). A receiver (71) is provided on a low-pressure side of the expansion valve (70) and configured to accumulate refrigerant in a gas-liquid two-phase state. A flow control valve (72) is provided downstream of the receiver (71). When a pressure of the refrigerant output from the compressor (10) exceeds a threshold value, a controller (100) increases a degree of opening of the expansion valve (70) and increases a gas-flow ratio of refrigerant returned from the receiver (71) to the compressor (10) by adjusting a degree of opening of the flow control valve (72), more than when the pressure is equal to or less than the threshold value.

IPC 8 full level
F25B 1/00 (2006.01); **F25B 45/00** (2006.01); **F25B 49/00** (2006.01); **F25B 49/02** (2006.01)

CPC (source: EP)
F25B 45/00 (2013.01); **F25B 49/005** (2013.01); **F25B 49/02** (2013.01); **F25B 2500/07** (2013.01); **F25B 2600/2523** (2013.01); **F25B 2700/1931** (2013.01); **F25B 2700/1933** (2013.01); **F25B 2700/21152** (2013.01); **F25B 2700/21163** (2013.01)

Citation (search report)

- [IA] US 2018306491 A1 20181025 - SAUNDERS MICHAEL A [US], et al
- [A] WO 2011112411 A1 20110915 - CARRIER CORP [US], et al
- [A] EP 3203163 A1 20170809 - MITSUBISHI ELECTRIC CORP [JP]
- See also references of WO 2021048899A1

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 4030115 A1 20220720; EP 4030115 A4 20220907; EP 4030115 B1 20231025; CN 114341568 A 20220412; CN 114341568 B 20230718; DK 4030115 T3 20231127; ES 2964740 T3 20240409; FI 4030115 T3 20231120; JP 7154426 B2 20221017; JP WO2021048899 A1 20210318; WO 2021048899 A1 20210318

DOCDB simple family (application)
EP 19944675 A 20190909; CN 201980099966 A 20190909; DK 19944675 T 20190909; ES 19944675 T 20190909; FI 19944675 T 20190909; JP 2019035371 W 20190909; JP 2021544988 A 20190909