

Title (en)
REFRIGERATION MACHINE

Title (de)
KÄLTEMASCHINE

Title (fr)
MACHINE FRIGORIFIQUE

Publication
EP 4198416 A4 20240110 (EN)

Application
EP 21875130 A 20210909

Priority
• JP 2021033176 W 20210909
• JP 2020163122 A 20200929

Abstract (en)
[origin: EP4198416A1] This refrigeration machine comprises: a low temperature cycle having an evaporator which performs heat exchange between air inside a refrigeration chamber and a first refrigerant, a first compressor which compresses the first refrigerant and supplies the compressed first refrigerant to the evaporator, and a low temperature-side expansion valve which lowers the pressure of the first refrigerant that has passed through the first compressor; a high temperature cycle having a heat dissipator which performs heat exchange between outside air and a second refrigerant, a second compressor which compresses a second refrigerant and supplies the compressed second refrigerant to the heat dissipator, and a high temperature-side expansion valve which lowers the pressure of the second refrigerant that has passed through the heat sink; an intermediate heat exchanger which performs heat exchange between the first refrigerant flowing from the first compressor and the second refrigerant flowing from the high-temperature side expansion valve; and a gas injection circuit which is provided to at least one of the low temperature cycle and the high temperature cycle, and which supplies the refrigerant before compression to at least one of the first compressor and the second compressor, wherein the first refrigerant is a mixed refrigerant containing carbon dioxide and R32 refrigerant, and the second refrigerant is carbon dioxide.

IPC 8 full level
F25B 29/00 (2006.01); **F25B 1/00** (2006.01); **F25B 1/04** (2006.01); **F25B 1/10** (2006.01); **F25B 7/00** (2006.01); **F25B 9/00** (2006.01); **F25B 31/02** (2006.01); **F25B 43/00** (2006.01)

CPC (source: EP)
F25B 1/04 (2013.01); **F25B 1/10** (2013.01); **F25B 7/00** (2013.01); **F25B 9/008** (2013.01); **F25B 31/026** (2013.01); **F25B 2309/06** (2013.01); **F25B 2400/13** (2013.01); **F25B 2400/23** (2013.01)

Citation (search report)
• [XY] WO 2014080436 A1 20140530 - MITSUBISHI ELECTRIC CORP [JP], et al
• [XY] WO 2017221382 A1 20171228 - MITSUBISHI ELECTRIC CORP [JP]
• [Y] US 2011120179 A1 20110526 - CHIN SIM WON [KR], et al
• [Y] EP 3136020 A1 20170301 - MITSUBISHI HEAVY IND LTD [JP]
• [X] WO 2020071294 A1 20200409 - DAIKIN IND LTD [JP]
• [X] WO 2020071293 A1 20200409 - DAIKIN IND LTD [JP]
• [X] EP 3643988 A1 20200429 - DAIKIN IND LTD [JP], et al
• See also references of WO 2022070828A1

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

DOCDB simple family (publication)
EP 4198416 A1 20230621; **EP 4198416 A4 20240110**; JP 2022055607 A 20220408; JP 7391811 B2 20231205; WO 2022070828 A1 20220407

DOCDB simple family (application)
EP 21875130 A 20210909; JP 2020163122 A 20200929; JP 2021033176 W 20210909