

Title (en)
REFRIGERATION DEVICE

Title (de)
KÜHLVORRICHTUNG

Title (fr)
DISPOSITIF DE RÉFRIGÉRATION

Publication
EP 2306127 A1 20110406 (EN)

Application
EP 09733732 A 20090420

Priority
• JP 2009057824 W 20090420
• JP 2008111543 A 20080422

Abstract (en)
An air-conditioning apparatus (1) uses carbon dioxide as a refrigerant, and has a two-stage compression-type compression mechanism (2), a heat source-side heat exchanger (4), an expansion mechanism (5), a usage-side heat exchanger (6), a switching mechanism (3), an intermediate heat exchanger (7) which functions as a cooler of refrigerant discharged from a first-stage compression element and drawn into a second-stage compression element, and an intermediate heat exchanger bypass tube (9). In the air-conditioning apparatus (1), the intermediate heat exchanger (7) is disposed above the heat source-side heat exchanger (4), and when a reverse cycle defrosting operation is performed for defrosting the heat source-side heat exchanger (4) by switching the switching mechanism (3) to a cooling operation state, the intermediate heat exchanger bypass tube (9) is used to ensure that refrigerant does not flow to the intermediate heat exchanger (7).

IPC 8 full level
F25B 47/02 (2006.01); **F25B 1/00** (2006.01); **F25B 1/10** (2006.01); **F25B 13/00** (2006.01)

CPC (source: EP US)
F25B 1/10 (2013.01 - EP US); **F25B 9/008** (2013.01 - EP US); **F25B 47/025** (2013.01 - EP US); **F25B 13/00** (2013.01 - EP US); **F25B 2309/061** (2013.01 - EP US); **F25B 2313/0272** (2013.01 - EP US); **F25B 2313/02741** (2013.01 - EP US); **F25B 2313/0315** (2013.01 - EP US); **F25B 2400/04** (2013.01 - EP US); **F25B 2400/072** (2013.01 - EP US); **F25B 2400/13** (2013.01 - EP US); **F25B 2400/23** (2013.01 - EP US); **F25B 2700/2106** (2013.01 - EP US)

Citation (search report)
See references of WO 2009131083A1

Designated contracting state (EPC)
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 SE SI SK TR

Designated extension state (EPC)
AL BA RS

DOCDB simple family (publication)
US 2011030409 A1 20110210; AU 2009239038 A1 20091029; AU 2009239038 B2 20120517; CN 102016456 A 20110413; CN 102016456 B 20130828; EP 2306127 A1 20110406; JP 2009264605 A 20091112; KR 101214310 B1 20121220; KR 20100135925 A 20101227; WO 2009131083 A1 20091029

DOCDB simple family (application)
US 98803109 A 20090420; AU 2009239038 A 20090420; CN 200980114701 A 20090420; EP 09733732 A 20090420; JP 2008111543 A 20080422; JP 2009057824 W 20090420; KR 20107026016 A 20090420