

Title (en)
HEAT PUMP HOT WATER SUPPLY DEVICE

Title (de)
WÄRMEPUMPENVORRICHTUNG ZUR WARMWASSERVERSORGUNG

Title (fr)
DISPOSITIF D'ALIMENTATION EN EAU CHAUDE D'UNE POMPE À CHALEUR

Publication
EP 3594587 A4 20200226 (EN)

Application
EP 17899425 A 20170309

Priority
JP 2017009418 W 20170309

Abstract (en)
[origin: EP3594587A1] The present invention is to reduce the maximum high pressure, as high-pressure suppression, by storing refrigerant in a refrigerant amount adjusting device at the time of inflow of water at high temperature and to avoid liquid compression by storing liquid back at the time of transition into the refrigerant amount adjusting device, thereby the reliability of a compressor being ensured. At the time of boiling, the opening degree of an expansion valve is adjusted such that a difference between a hot water target temperature and an inlet refrigerant temperature is equal to a temperature difference set in advance. When the temperature of fluid sent from a hot water tank to a condenser is high, the temperature difference is changed to adjust the valve opening degree of the expansion valve in an opening direction, so that concentration of refrigerant on a high-pressure side can be reduced and high-pressure suppression can thus be achieved. In contrast, concentration of refrigerant on a low-pressure side increases, and excess liquid refrigerant is thus stored in the refrigerant amount adjusting device. Furthermore, after an operation stops, in the case where restarting is performed immediately after liquid refrigerant is stored in the evaporator, if no refrigerant amount adjusting device is provided, liquid back to the compressor may occur, resulting in liquid compression. Thus, due to storage of refrigerant in the refrigerant amount adjusting device, liquid compression can be avoided, and the reliability of the compressor can thus be ensured.

IPC 8 full level
F24D 17/02 (2006.01); **F24H 4/02** (2006.01); **F24H 4/04** (2006.01); **F25B 30/02** (2006.01); **F25B 40/00** (2006.01)

CPC (source: EP)
F24D 17/02 (2013.01); **F24H 4/04** (2013.01); **F25B 30/02** (2013.01); **F25B 40/00** (2013.01); **F25B 2339/047** (2013.01); **F25B 2500/12** (2013.01); **F25B 2600/2513** (2013.01); **F25B 2700/21161** (2013.01); **F25B 2700/21162** (2013.01)

Citation (search report)

- [A] JP 2002081768 A 20020322 - MATSUSHITA ELECTRIC IND CO LTD
- [A] JP 2009192160 A 20090827 - MITSUBISHI ELECTRIC CORP
- [A] EP 2196745 A1 20100616 - MITSUBISHI ELECTRIC CORP [JP]
- See references of WO 2018163345A1

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 3594587 A1 20200115; **EP 3594587 A4 20200226**; **EP 3594587 B1 20210421**; JP 6704505 B2 20200603; JP WO2018163345 A1 20190718; WO 2018163345 A1 20180913

DOCDB simple family (application)
EP 17899425 A 20170309; JP 2017009418 W 20170309; JP 2019504216 A 20170309