

Title (en)  
HEAT PUMP TYPE CHILLER

Title (de)  
WÄRMEPUMPENARTIGE KÄLTEANLAGE

Title (fr)  
REFROIDISSEUR DE TYPE POMPE À CHALEUR

Publication  
**EP 3163218 A4 20170628 (EN)**

Application  
**EP 15811007 A 20150518**

Priority  
• JP 2014129484 A 20140624  
• JP 2015064166 W 20150518

Abstract (en)  
[origin: EP3163218A1] A heat pump type chiller (100) includes a compressor (10), a refrigerant-air heat exchanger (20), an expansion valve (40), and a refrigerant-circulating liquid heat exchanger (50) and cools a circulating liquid by heat exchange between the circulating liquid and a refrigerant. Temperature sensors (TWR, TWL, TWS) are provided respectively at a circulating liquid inlet port, at a circulating liquid outlet port, and on a surface portion of the refrigerant-circulating liquid heat exchanger (50). A pressure sensor (PL) is provided in a refrigerant suction path of the compressor (10). If it is detected that any one of temperatures detected by the three temperature sensors (TWR, TWL, TWS) and a refrigerant evaporation temperature calculated by converting a pressure detected by the pressure sensor (PL) is less than or equal to a predetermined temperature, the compressor (10) is stopped, and a circulation pump (300) for circulating the circulating liquid is activated.

IPC 8 full level  
**F25B 1/00** (2006.01); **F25B 13/00** (2006.01); **F25B 25/00** (2006.01); **F25B 49/00** (2006.01)

CPC (source: EP KR)  
**F25B 1/00** (2013.01 - EP); **F25B 13/00** (2013.01 - EP); **F25B 25/005** (2013.01 - EP); **F25B 49/005** (2013.01 - EP); **F25B 49/022** (2013.01 - KR); **F25D 29/00** (2013.01 - KR); **F25D 31/002** (2013.01 - KR); **F25B 2500/26** (2013.01 - EP); **F25B 2700/1933** (2013.01 - EP KR); **F25B 2700/21172** (2013.01 - KR); **F25B 2700/21173** (2013.01 - KR); **F25D 2700/16** (2013.01 - KR)

Citation (search report)  
• [IA] JP 2009041860 A 20090226 - TOSHIBA CARRIER CORP  
• [YA] JP 2014052122 A 20140320 - YANMAR CO LTD & EP 2918950 A1 20150916 - YANMAR CO LTD [JP]  
• [YA] EP 2725305 A2 20140430 - TOSHIBA CARRIER CORP [JP]  
• [YA] WO 2013072969 A1 20130523 - MITSUBISHI ELECTRIC CORP [JP], et al & EP 2781854 A1 20140924 - MITSUBISHI ELECTRIC CORP [JP]  
• [A] JP 2009036485 A 20090219 - TOSHIBA CARRIER CORP, et al  
• See references of WO 2015198750A1

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 3163218 A1 20170503; EP 3163218 A4 20170628; EP 3163218 B1 20200909; EP 3163218 B8 20201021**; AU 2015282158 A1 20170112; AU 2015282158 B2 20181129; CN 106471319 A 20170301; CN 106471319 B 20190423; JP 2016008771 A 20160118; JP 6318021 B2 20180425; KR 101902675 B1 20180928; KR 20160146968 A 20161221; WO 2015198750 A1 20151230

DOCDB simple family (application)  
**EP 15811007 A 20150518**; AU 2015282158 A 20150518; CN 201580033631 A 20150518; JP 2014129484 A 20140624; JP 2015064166 W 20150518; KR 20167032898 A 20150518