

Title (en)  
REFRIGERATION CYCLE DEVICE

Title (de)  
KÄLTEKREISLAUFVORRICHTUNG

Title (fr)  
DISPOSITIF À CYCLE FRIGORIFIQUE

Publication  
**EP 3348939 A4 20190417 (EN)**

Application  
**EP 16843748 A 20160810**

Priority  
• JP 2015178773 A 20150910  
• IB 2016054799 W 20160810

Abstract (en)  
[origin: EP3348939A1] A refrigeration cycle device, provided with: a compressor (14); a condenser (11); an evaporator (21); a pressure reducer (23); a subcooler (16) performing subcooling on a refrigerant passing through the condenser (11); a subcooling degree calculation unit (114) estimating a suitable subcooling degree of the refrigerant of an outlet of the subcooler (16) on the basis of a refrigerant cycle amount of a portion from the compressor (14) via the condenser (11) and the subcooler (16), and calculating, on the basis of the estimated suitable subcooling degree, a determination threshold value used for determining a refrigeration measurement; a refrigerant determination unit (115) comparing a measured subcooling degree and the determination threshold value, and thereby determining a refrigerant amount.

IPC 8 full level  
**F25B 49/02** (2006.01); **F24F 11/36** (2018.01); **F24F 11/52** (2018.01); **F24F 11/64** (2018.01); **F25B 40/02** (2006.01)

CPC (source: EP)  
**F24F 11/36** (2017.12); **F24F 11/52** (2017.12); **F24F 11/64** (2017.12); **F25B 40/02** (2013.01); **F25B 49/02** (2013.01); **F25B 2500/05** (2013.01); **F25B 2500/19** (2013.01); **F25B 2500/24** (2013.01); **F25B 2700/21163** (2013.01)

Citation (search report)  
• [XAYI] WO 2015056704 A1 20150423 - TOSHIBA CARRIER CORP [JP]  
• [XAYI] WO 2015053178 A1 20150416 - DAIKIN IND LTD [JP]  
• [Y] EP 2264379 A1 20101222 - DAIKIN IND LTD [JP]  
• See references of WO 2017042649A1

Cited by  
EP4130475A4; US2019323917A1; US11079300B2; EP4030122A4; US11260728B2; US11971203B2; US11549735B2; US11959677B2

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 3348939 A1 20180718**; **EP 3348939 A4 20190417**; **EP 3348939 B1 20220323**; CN 108027188 A 20180511; CN 108027188 B 20200814; JP 2017053566 A 20170316; JP 6475346 B2 20190227; JP WO2017042649 A1 20180628; WO 2017042649 A1 20170316

DOCDB simple family (application)  
**EP 16843748 A 20160810**; CN 201680052142 A 20160810; IB 2016054799 W 20160810; JP 2015178773 A 20150910; JP 2017538476 A 20160810