

Title (en)

AIR CONDITIONER AND METHOD FOR DETERMINING THE AMOUNT OF REFRIGERANT THEREIN

Title (de)

KLIMAANLAGE UND VERFAHREN ZUR BESTIMMUNG DER DARIN ENTHALTENEN KÄLTEMITTELMENGE

Title (fr)

CLIMATISEUR ET PROCÉDÉ POUR DÉTERMINER LA QUANTITÉ D AGENT FRIGORIGÈNE DANS CELUI-CI

Publication

**EP 2320169 A1 20110511 (EN)**

Application

**EP 09769901 A 20090624**

Priority

- JP 2009002888 W 20090624
- JP 2008169595 A 20080627

Abstract (en)

It is a problem of the present invention to provide an air conditioning apparatus that reduces refrigerant quantity adequacy determination errors while realizing high-pressure protection, high-low differential pressure securement, and production cost control. An air conditioning apparatus (1) refrigerant quantity determination method of the present invention is a refrigerant quantity determination method of determining, in an air conditioning apparatus having a refrigerant circuit (10) that includes a heat source unit (2) having a compressor (21), a heat source-side heat exchanger (23), and cooling heat source adjusting means (27), a utilization unit (4) having a utilization-side heat exchanger (41), an expansion mechanism (33), and a liquid refrigerant connection pipe (6) and a gas refrigerant connection pipe (7), with the refrigerant circuit being capable of performing at least cooling operation, the adequacy of the quantity of refrigerant in the refrigerant circuit, the refrigerant quantity determination method comprising performing, as a refrigerant quantity adequacy determination, a determination of the adequacy of the quantity of the refrigerant with which the inside of the refrigerant circuit is charged on the basis of a first degree of supercooling corrected value derived by correcting a degree of supercooling or an operating state quantity by at least one of outside air temperature, condensation temperature, and a value obtained by numericizing cooling action.

IPC 8 full level

**F25B 49/02** (2006.01); **F25B 1/00** (2006.01); **F25B 39/04** (2006.01); **F25B 49/00** (2006.01)

CPC (source: EP US)

**F25B 49/005** (2013.01 - EP US); **F25B 2313/0312** (2013.01 - EP US); **F25B 2313/0313** (2013.01 - EP US); **F25B 2313/0315** (2013.01 - EP US); **F25B 2600/19** (2013.01 - EP US); **F25B 2600/21** (2013.01 - EP US); **F25B 2700/04** (2013.01 - EP US); **F25B 2700/2104** (2013.01 - EP US); **F25B 2700/2106** (2013.01 - EP US); **F25B 2700/21151** (2013.01 - EP US)

Cited by

CN108800634A

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)

**EP 2320169 A1 20110511**; **EP 2320169 A4 20141126**; **EP 2320169 B1 20201021**; AU 2009263631 A1 20091230; AU 2009263631 A8 20130228; AU 2009263631 B2 20130207; AU 2009263631 B8 20130228; CN 102077041 A 20110525; CN 102077041 B 20130626; ES 2833226 T3 20210614; JP 2010007994 A 20100114; US 2011107780 A1 20110512; WO 2009157191 A1 20091230

DOCDB simple family (application)

**EP 09769901 A 20090624**; AU 2009263631 A 20090624; CN 200980124808 A 20090624; ES 09769901 T 20090624; JP 2008169595 A 20080627; JP 2009002888 W 20090624; US 99967709 A 20090624