

Title (en)
Refrigeration apparatus

Title (de)
Kühlvorrichtung

Title (fr)
Appareil de réfrigération

Publication
EP 2284460 A1 20110216 (EN)

Application
EP 10172556 A 20100811

Priority
JP 2009187418 A 20090812

Abstract (en)
The present invention is proposed to ensure a desired refrigeration capacity while observing a regulation on a filling amount of a flammable refrigerant required for a refrigeration circuit. A refrigeration circuit 34 includes a compressor CM, a condenser CD, an expansion valve EV and an evaporator EP each of which is connected by refrigerant pipes 32, and a flammable refrigerant is circulated therethrough. In the refrigeration circuit 34, volume per circuit is set equal to or smaller than $2200 \times 10^{-6} \text{ m}^3$, and volume of the condenser CD is set equal to or smaller than $750 \times 10^{-6} \text{ m}^3$. Thus, a filling amount of the flammable refrigerant required for one refrigeration circuit 34 can be suppressed to or below a specified value.

IPC 8 full level
F25B 39/04 (2006.01); **F25C 1/14** (2006.01)

CPC (source: EP US)
F25B 39/04 (2013.01 - EP); **F25C 1/147** (2013.01 - EP US); **F25B 2400/06** (2013.01 - EP); **F25B 2400/12** (2013.01 - EP);
F25B 2500/01 (2013.01 - EP)

Citation (applicant)
JP 2004198062 A 20040715 - SANYO ELECTRIC CO

Citation (search report)
• [X] EP 1326057 A1 20030709 - DAIKIN IND LTD [JP]
• [X] JP 2004272587 A 20040930 - MATSUSHITA ELECTRIC IND CO LTD
• [X] EP 0732550 A2 19960918 - TOSHIBA KK [JP]
• [X] EP 1278026 A1 20030122 - DAIKIN IND LTD [JP]
• [A] "1998 ASHRAE Refrigeration Handbook, Chapter 2, System practices for halocarbon refrigerants", ASHRAE HANDBOOK, XX, XX, 1 January 1998 (1998-01-01), pages 2.1 - 2.9, XP002472727

Cited by
US11761703B2; US10670322B2; US9052130B2; CN108474605A; EP3394529A4; US2018335239A1; US10598419B2; WO2013106725A1; WO2017112758A1; US10502472B2; US10677505B2; US11231218B2

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 SE SI SK SM TR

Designated extension state (EPC)
BA ME RS

DOCDB simple family (publication)
EP 2284460 A1 20110216; **EP 2284460 B1 20140521**; DK 2284460 T3 20140623; JP 2011038729 A 20110224

DOCDB simple family (application)
EP 10172556 A 20100811; DK 10172556 T 20100811; JP 2009187418 A 20090812