

Title (en)  
REFRIGERATION CYCLE

Title (de)  
KÜHLKREISLAUF

Title (fr)  
CYCLE DE RÉFRIGÉRATION

Publication  
**EP 2309208 A4 20110706 (EN)**

Application  
**EP 09750463 A 20090428**

Priority  
• JP 2009058336 W 20090428  
• JP 2008131981 A 20080520

Abstract (en)  
[origin: EP2309208A1] A refrigeration cycle provided with a compressor, a condenser, a pressure reduction and expansion means, an evaporator, and an internal heat exchanger for exchanging heat between the refrigerant at the exit side of the condenser and the refrigerant at the exit side of the evaporator, wherein the refrigeration cycle uses R1234yf as the refrigerant and the amount of heat exchange by the internal heat exchanger is greater than or equal to a specific value that has been determined beforehand by a simulation or an experiment. When a currently used refrigerant is changed to a new refrigerant R1234yf, the refrigeration cycle can be operated with a refrigeration ability as same as or greater than that of refrigeration cycles using a conventional refrigerant R134a.

IPC 8 full level  
**F25B 1/00** (2006.01)

CPC (source: EP US)  
**F25B 9/002** (2013.01 - EP US); **F25B 40/00** (2013.01 - EP US); **F25B 2400/121** (2013.01 - EP US); **F25B 2400/18** (2013.01 - EP US)

Citation (search report)  
• [Y] EP 1862749 A2 20071205 - SANDEN CORP [JP]  
• [Y] FR 2905633 A1 20080314 - VALEO SYSTEMES THERMIQUES [FR]  
• [Y] EP 1632733 A2 20060308 - MATSUSHITA ELECTRIC IND CO LTD [JP] & JP 2006077998 A 20060323 - MATSUSHITA ELECTRIC IND CO LTD  
• [A] US 2005233934 A1 20051020 - SINGH RAJIV R [US], et al  
• See references of WO 2009142101A1

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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

DOCDB simple family (publication)  
**EP 2309208 A1 20110413; EP 2309208 A4 20110706; EP 2309208 B1 20140416**; CN 102037292 A 20110427; JP 2009281610 A 20091203; JP 5180680 B2 20130410; US 2011067435 A1 20110324; WO 2009142101 A1 20091126

DOCDB simple family (application)  
**EP 09750463 A 20090428**; CN 200980118912 A 20090428; JP 2008131981 A 20080520; JP 2009058336 W 20090428; US 99345809 A 20090428