

Title (en)
ENGINE HEAT PUMP

Title (de)
MOTORWÄRMEPUMPE

Title (fr)
POMPE THERMIQUE À MOTEUR

Publication
EP 1762792 A4 20080507 (EN)

Application
EP 05730684 A 20050418

Priority
• JP 2005007411 W 20050418
• JP 2004150371 A 20040520

Abstract (en)
[origin: EP1762792A1] An object of the invention is to provide an engine heat pump whose compression work is reduced without increase of consumed electric power, thereby improving its driving efficiency (energy efficiency). An engine heat pump comprises: an engine (4); a main compressor (2) driven by the engine (4); a sub compressor (3) delivering a refrigerant to be joined to a refrigerant delivered from the main compressor (2); an indoor heat exchanger (8); an outdoor heat exchanger (5); an expansion valve (23) for the indoor heat exchanger; an expansion valve (21) for the outdoor heat exchanger; and a supercooling heat exchanger (15) disposed on a liquid refrigerant passage (main passage 26) of a connection passage between the indoor heat exchanger (8) and the outdoor heat exchanger (5). In the supercooling heat exchanger (15), a supercooling liquid refrigerant branched into a branching passage (27(27a, 27b)) supercools a liquid refrigerant before being branched. The sub compressor (3) is driven by the engine (4) so as to compress the supercooling liquid refrigerant. A ratio (R) of a capacity of the sub compressor (3) to a total capacity of the main compressor (2) and the sub compressor (3) ranges between 20% and 29%.

IPC 8 full level
F25B 1/00 (2006.01); **F25B 27/00** (2006.01); **F25B 31/00** (2006.01); **F25B 41/00** (2006.01); **F25B 1/10** (2006.01)

CPC (source: EP US)
F25B 27/00 (2013.01 - EP US); **F25B 41/00** (2013.01 - EP US); **F25B 1/10** (2013.01 - EP US); **F25B 2400/0751** (2013.01 - EP US); **F25B 2400/13** (2013.01 - EP US)

Citation (search report)
• [PX] JP 2005061784 A 20050310 - YANMAR CO LTD
• [A] JP S62293066 A 19871219 - YANMAR DIESEL ENGINE CO
• See references of WO 2005114064A1

Cited by
EP2450647A3; FR2956190A1; EP3080527A4; US10704810B2

Designated contracting state (EPC)
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU MC NL PL PT RO SE SI SK TR

DOCDB simple family (publication)
EP 1762792 A1 20070314; **EP 1762792 A4 20080507**; CN 100470165 C 20090318; CN 1957211 A 20070502; JP 2005331177 A 20051202; JP 4336619 B2 20090930; US 2007295025 A1 20071227; WO 2005114064 A1 20051201

DOCDB simple family (application)
EP 05730684 A 20050418; CN 200580016138 A 20050418; JP 2004150371 A 20040520; JP 2005007411 W 20050418; US 56942905 A 20050418