

Title (en)
REFRIGERANT SYSTEM PROVIDED WITH DIRECT CONTACT HEAT EXCHANGER, AND CONTROL METHOD OF REFRIGERANT SYSTEM

Title (de)
MIT DIREKTKONTAKTWÄRMETAUSCHER AUSGESTATTETES KÜHLSYSTEM UND STEUERUNGSVERFAHREN DES KÜHLSYSTEMS

Title (fr)
SYSTÈME DE FLUIDE FRIGORIGÈNE POURVU D'UN ÉCHANGEUR DE CHALEUR À CONTACT DIRECT, ET PROCÉDÉ DE COMMANDE DE SYSTÈME DE FLUIDE FRIGORIGÈNE

Publication
EP 3502587 A4 20200212 (EN)

Application
EP 18757015 A 20180119

Priority
• JP 2017029854 A 20170221
• JP 2018001539 W 20180119

Abstract (en)
[origin: EP3502587A1] In this system, while heat exchange is efficiently carried out through direct contact of multiple types of refrigerant, the refrigeration cycle function is made to function adequately without the problem of contamination of the refrigeration cycle refrigerant by a dissimilar refrigerant. This refrigerant system (1) is provided with: a heat source cycle (10) comprising a compressor (11), a heat exchanger (12) and a decompression unit (13); a heat transport loop (20) which circulates a liquid-phase transport refrigerant that transports heat towards a heat load; and a direct contact heat exchanger (30) which allows direct contact between the transport refrigerant and a heat source refrigerant sealed in the heat source cycle (10). As a heat source refrigerant, a second refrigerant is sealed in the heat source cycle (10) in addition to the first refrigerant. Of the first refrigerant and the second refrigerant, which has a higher boiling point than that of the first refrigerant, at least the first refrigerant boils in the direct contact heat exchanger (30), into which the heat source refrigerant passing through the decompression unit (13) flows, and the density of the liquid phase of the second refrigerant is lower than the density of the transport refrigerant.

IPC 8 full level
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Citation (search report)
• [Y] JP 2015068541 A 20150413 - MITSUBISHI HEAVY IND LTD
• [Y] EP 3121240 A1 20170125 - IDEAS HUB S L [ES]
• [A] EP 3106783 A1 20161221 - PANASONIC IP MAN CO LTD [JP]
• See references of WO 2018155028A1

Cited by
EP4198418A1; WO2023110141A1

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

Designated extension state (EPC)
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