

Title (en)
HEAT EXCHANGER UNIT, AND REFRIGERATION CYCLE DEVICE

Title (de)
WÄRMETAUSCHER UND KÄLTEKREISLAUFVORRICHTUNG

Title (fr)
ENSEMBLE ÉCHANGEUR DE CHALEUR ET DISPOSITIF À CYCLE FRIGORIFIQUE

Publication
EP 3842698 A4 20211103 (EN)

Application
EP 18930520 A 20180823

Priority
JP 2018031151 W 20180823

Abstract (en)
[origin: EP3842698A1] An object is to provide a heat-exchanger unit and a refrigeration cycle apparatus that make a flow of air passing through portions of a heat exchanger uniform to improve heat exchange performance. The heat-exchanger unit includes an air-sending device configured to send outside air into a casing, and a heat exchanger laterally surrounding a rotation center axis of the air-sending device. The heat exchanger includes a plurality of flat tubes arranged in parallel and surrounding the rotation center axis of the air-sending device, the plurality of flat tubes each having a pipe axis extending in a vertical direction, and a header connecting the plurality of flat tubes. The plurality of flat tubes include a first flat tube, a second flat tube, and a third flat tube, and each of the second flat tube and the third flat tube is placed adjacent to the first flat tube. Where a radial direction through each of the first flat tube, the second flat tube, and the third flat tube has the rotation center axis of the air-sending device as a center of the radial direction, each of the first flat tube, the second flat tube, and the third flat tube has, among two ends of a longitudinal axis of a section perpendicular to the pipe axis, a first end positioned closer to the center of the radial direction than is the other end, and the first ends are arranged on a virtual annular line surrounding the rotation center axis. The first end of the first flat tube is placed further away from the center of the radial direction than is a virtual straight line connecting the first end of the second flat tube and the first end of the third flat tube.

IPC 8 full level
F24F 1/14 (2011.01); **F24F 1/00** (2019.01); **F24F 1/0067** (2019.01); **F24F 1/18** (2011.01); **F24F 13/30** (2006.01)

CPC (source: EP)
F24F 1/0047 (2019.02); **F24F 1/0063** (2019.02); **F24F 1/0067** (2019.02); **F28D 1/024** (2013.01); **F28D 1/0426** (2013.01); **F28D 1/05383** (2013.01); **F28F 1/022** (2013.01); **F28F 1/14** (2013.01); **F28F 13/06** (2013.01); **F24F 1/0059** (2013.01); **F28D 2021/0068** (2013.01)

Citation (search report)

- [Y] JP 2013139971 A 20130718 - MITSUBISHI ELECTRIC CORP
- [Y] KR 20030028590 A 20030410 - LG ELECTRONICS INC [KR]
- [A] JP 2004108647 A 20040408 - MITSUBISHI ELECTRIC CORP
- [A] WO 2018020552 A1 20180201 - MITSUBISHI ELECTRIC CORP [JP]
- [A] JP 2016176646 A 20161006 - JOHNSON CONTROLS HITACHI AIR CONDITIONING TECH (HONGKONG) LTD
- [A] JP 2015218907 A 20151207 - PANASONIC IP MAN CORP
- See also references of WO 2020039547A1

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)
BA ME

DOCDB simple family (publication)
EP 3842698 A1 20210630; **EP 3842698 A4 20211103**; CN 112567178 A 20210326; CN 112567178 B 20220408; JP 7023366 B2 20220221; JP WO2020039547 A1 20210513; WO 2020039547 A1 20200227

DOCDB simple family (application)
EP 18930520 A 20180823; CN 201880096112 A 20180823; JP 2018031151 W 20180823; JP 2020537961 A 20180823