

Title (en)

HEAT EXCHANGER, REFRIGERATING CYCLE APPARATUS, AND AIR CONDITIONING APPARATUS

Title (de)

WÄRMETAUSCHER, KÜHLKREISLAUFVORRICHTUNG UND KLIMAAANLAGENVORRICHTUNG

Title (fr)

ÉCHANGEUR DE CHALEUR, APPAREIL A CYCLE DE RÉFRIGÉRATION ET APPAREIL DE CLIMATISATION

Publication

EP 2317269 A1 20110504 (EN)

Application

EP 09804999 A 20090805

Priority

- JP 2009063859 W 20090805
- JP 2008205073 A 20080808

Abstract (en)

To obtain a heat transfer tube for a heat exchanger or the like which can obtain predetermined heat transfer performance without increasing in-tube pressure loss. High ridges 22A having 10 to 20 rows with a predetermined height and low ridges 22B with a height lower than the high ridges 22A having 2 to 6 rows between the high ridges 22A and the high ridges 22A are provided on an inner face helically with respect to a tube axial direction.

IPC 8 full level

F28F 1/40 (2006.01); **F25B 1/00** (2006.01); **F25B 13/00** (2006.01); **F25B 39/00** (2006.01); **F25B 39/02** (2006.01); **F25B 39/04** (2006.01); **F28D 1/047** (2006.01); **F28D 21/00** (2006.01); **F28F 1/32** (2006.01); **F28F 1/42** (2006.01); **F28F 13/18** (2006.01)

CPC (source: EP US)

F25B 39/00 (2013.01 - EP US); **F25B 39/022** (2013.01 - EP US); **F28D 1/0477** (2013.01 - EP US); **F28F 1/32** (2013.01 - EP US); **F28F 1/40** (2013.01 - EP US); **F28F 1/42** (2013.01 - EP US); **F28F 1/422** (2013.01 - EP US); **F28F 13/187** (2013.01 - EP US); **F25B 13/00** (2013.01 - EP US); **F25B 2309/06** (2013.01 - EP US); **F25B 2500/01** (2013.01 - EP US); **F28D 2021/007** (2013.01 - EP US); **F28D 2021/0071** (2013.01 - EP US); **F28F 2275/125** (2013.01 - EP US)

Cited by

EP2796822A4; EP3115730A4

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 SM TR

Designated extension state (EPC)

AL BA RS

DOCDB simple family (publication)

EP 2317269 A1 20110504; **EP 2317269 A4 20140402**; **EP 2317269 B1 20180606**; CN 102112838 A 20110629; CN 102112838 B 20130417; ES 2677347 T3 20180801; JP 2010038502 A 20100218; US 2011113820 A1 20110519; WO 2010016516 A1 20100211

DOCDB simple family (application)

EP 09804999 A 20090805; CN 200980129462 A 20090805; ES 09804999 T 20090805; JP 2008205073 A 20080808; JP 2009063859 W 20090805; US 200913003719 A 20090805