

Title (en)
HEAT EXCHANGER AND HEAT PUMP DEVICE

Title (de)
WÄRMETAUSCHER UND WÄRMEPUMPVORRICHTUNG

Title (fr)
ÉCHANGEUR DE CHALEUR ET DISPOSITIF DE POMPE À CHALEUR

Publication
EP 3054258 A1 20160810 (EN)

Application
EP 14844568 A 20140910

Priority
• JP 2013074639 W 20130912
• JP 2014073998 W 20140910

Abstract (en)
In a stacking type header 10, in a state in which flat tubes 20 are inserted into openings 12A in a bare member 12 and in which ends 20A of the flat tubes 20 are in contact with stoppers 12B, spaces 30 are formed at positions surrounded by the flat tubes 20, a clad member 11, and the bare member 12. The spaces 30 each include a first space 30a formed in a vicinity of a contact boundary surface between the flat tube 20 and the clad member 11, a second space 30b smaller than, at least, the first space 30a and formed in a vicinity of a contact boundary surface between the bare member 12 and the clad member 11, and a third space 30c smaller than, at least, the first space 30a and formed in a vicinity of a contact boundary surface between the bare member 12 and the flat tube 20.

IPC 8 full level
B23K 1/00 (2006.01); **F28D 1/053** (2006.01); **F28F 9/02** (2006.01); **F28F 9/18** (2006.01)

CPC (source: EP)
F28D 1/05366 (2013.01); **F28F 9/0221** (2013.01); **F28F 9/182** (2013.01); **F28D 2021/0061** (2013.01); **F28F 2275/04** (2013.01)

Cited by
CN114174753A; US10859327B2; JPWO2021124390A1; EP4080150A4

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 3054258 A1 20160810; **EP 3054258 A4 20170719**; **EP 3054258 B1 20200226**; JP 6116696 B2 20170419; JP WO2015037641 A1 20170302; WO 2015037097 A1 20150319; WO 2015037641 A1 20150319

DOCDB simple family (application)
EP 14844568 A 20140910; JP 2013074639 W 20130912; JP 2014073998 W 20140910; JP 2015536609 A 20140910