

Title (en)

CONDENSER TUBES WITH ADDITIONAL FLANK STRUCTURE

Title (de)

VERFLÜSSIGERROHRE MIT ZUSÄTZLICHER FLANKENSTRUKTUR

Title (fr)

TUYAUX POUR CONDENSEUR AVEC STRUCTURE DE FLANC COMPLÉMENTAIRE

Publication

**EP 2791609 B1 20171011 (DE)**

Application

**EP 12791425 A 20121113**

Priority

- DE 102011121436 A 20111216
- EP 2012004706 W 20121113

Abstract (en)

[origin: WO2013087140A1] The invention relates to a heat exchanger tube (1) with a tube axis, a tube wall (2) and with ribs (3) extending around on the tube outer side (21). The ribs (3) have a rib foot (31), rib flanks (32) and a rib tip (33), wherein the rib foot (31) projects substantially radially from the tube wall (2). The rib flanks (32) are provided with additional structural elements which are arranged laterally on the rib flank (32). First material projections (41), which extend substantially in the axial and radial direction, adjoin second material projections (42) which extend substantially in the axial and circumferential direction of the tube (1), wherein the first and second material projections (41, 42) have a common boundary line (43). According to the invention, the axial extent of the first material projections (41) along this boundary line (43) is less than the axial extent of the second material projections (42). A further aspect of the invention is that the first material projections (41) adjoin in each case a point (44) on second material projections (42) and that the axial extent of the first material projections (41) at this point (44) is equal to zero. Furthermore, a further aspect of the invention is that the first material projections (41) are arranged at a distance from the second material projections (42).

IPC 8 full level

**F28F 1/24** (2006.01); **F28F 1/26** (2006.01); **F28F 1/36** (2006.01)

CPC (source: EP US)

**B21J 5/068** (2020.08 - EP US); **F28F 1/12** (2013.01 - US); **F28F 1/24** (2013.01 - EP US); **F28F 1/26** (2013.01 - EP US);  
**F28F 1/36** (2013.01 - EP US); **F28F 21/08** (2013.01 - US); **F28D 2021/0063** (2013.01 - EP US); **F28F 1/34** (2013.01 - US);  
**F28F 1/422** (2013.01 - US); **F28F 2215/10** (2013.01 - EP US)

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

DOCDB simple family (publication)

**WO 2013087140 A1 20130620**; DE 102011121436 A1 20130620; EP 2791609 A1 20141022; EP 2791609 B1 20171011;  
JP 2015500455 A 20150105; JP 5961279 B2 20160802; MX 2014005862 A 20140827; MX 364717 B 20190506; PT 2791609 T 20180102;  
TW 201333409 A 20130816; TW I586933 B 20170611; US 10094625 B2 20181009; US 10974309 B2 20210413; US 2014284036 A1 20140925;  
US 2019033010 A1 20190131

DOCDB simple family (application)

**EP 2012004706 W 20121113**; DE 102011121436 A 20111216; EP 12791425 A 20121113; JP 2014546339 A 20121113;  
MX 2014005862 A 20121113; PT 12791425 T 20121113; TW 101139946 A 20121029; US 201214357969 A 20121113;  
US 201816151828 A 20181004