

Title (en)
Heat exchange tube structured on both sides and process for making same

Title (de)
Beidseitig strukturiertes Wärmeaustauscherrrohr und Verfahren zu dessen Herstellung

Title (fr)
Tube d'échangeur de chaleur structuré des deux cotés et son procédé de fabrication

Publication
EP 1113237 B1 20060301 (DE)

Application
EP 00126816 A 20001207

Priority
DE 19963353 A 19991228

Abstract (en)
[origin: EP1113237A2] The tube has smooth ends (1a), a structured area (2) on inside and outside and smooth intermediate areas. The outer diameter of the structured area is not larger than that of the smooth ends or intermediate areas. Lines of depressions (3) with trapezoid cross-sections run on the outside at an angle (γ) of 0 degrees -70 degrees to the tube axis (33). Ribs (5) 0.15-0.6 mm high run inside the tube at an angle (ϵ) of 10 degrees -50 degrees to the tube axis. The pitch of the recesses is 0.25-2.2 mm, measured perpendicular to the symmetry surface. The width of the depressions is 0.6-0.8 times the pitch, measured at the half-depth of the depressions. The flank angle of the depressions is 7 degrees -25 degrees , measured against the symmetry surfaces. An Independent claim is included for a method for manufacturing a heat exchanger tube.

IPC 8 full level
F28F 1/42 (2006.01); **B21C 37/20** (2006.01)

CPC (source: EP US)
B21C 37/207 (2013.01 - EP US); **F28F 1/42** (2013.01 - EP US); **F28F 1/422** (2013.01 - EP US); **Y10T 29/49378** (2015.01 - EP US); **Y10T 29/49391** (2015.01 - EP US)

Cited by
US9149847B2; DE102008001435A1; WO2005068101A1; WO2011043779A1

Designated contracting state (EPC)
DE FR GB IT PT

DOCDB simple family (publication)
EP 1113237 A2 20010704; EP 1113237 A3 20031008; EP 1113237 B1 20060301; DE 19963353 A1 20010726; DE 19963353 B4 20040527; DE 50012297 D1 20060427; PT 1113237 E 20060630; US 2001006106 A1 20010705; US 6488078 B2 20021203

DOCDB simple family (application)
EP 00126816 A 20001207; DE 19963353 A 19991228; DE 50012297 T 20001207; PT 00126816 T 20001207; US 74035800 A 20001219