

Title (en)  
Flat tube for a heat exchanger

Title (de)  
Flaches Wärmetauscherrohr

Title (fr)  
Tube plat pour échangeur de chaleur

Publication  
**EP 1489372 B1 20160413 (DE)**

Application  
**EP 04009052 A 20040416**

Priority  
DE 10328001 A 20030621

Abstract (en)  
[origin: EP1489372A1] The flat heat exchange tube is produced from a single continuous thin aluminum strip, using rollers. It has two wide sides (1,2), spaced apart, and two opposing narrow sides (3,4), and a bond (5) between the wide sides to divide the tube into at least two chambers (6,7). The bent legs (10,11) of the bond are not wider than up to 50% of the gap between the side walls, with a bend to give an angle between the legs of  $\geq 20-100^\circ$ .

IPC 8 full level  
**F28F 1/02** (2006.01); **F28D 1/03** (2006.01)

CPC (source: EP US)  
**F28D 1/0391** (2013.01 - EP US); **F28F 1/022** (2013.01 - EP US); **Y10T 29/49391** (2015.01 - EP US)

Citation (opposition)  
Opponent : VALEO SYSTEMES THERMIQUES  
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• EP 1074807 A2 20010207 - FORD MOTOR CO [US]  
• US 5934365 A 19990810 - RHODES EUGENE E [US], et al  
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• JP 2002130969 A 20020509 - JAPAN CLIMATE SYSTEMS CORP  
• US 6513582 B2 20030204 - KRUPA ANDRZEJ [PL], et al  
• JP S5490750 U 19790627  
• W. BEITZ ET AL: "Taschenbuch für den Maschinenbau, 20. Auflage", 2001, ISBN: 3-540-67777-1, pages: B38, B39, G50 - G53, XP055342435

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US2018372412A1; DE102008051422A1; US10677530B2; WO2012007452A1; US10222145B2; DE102011076716B4

Designated contracting state (EPC)  
DE ES FR GB IT SE

DOCDB simple family (publication)  
**EP 1489372 A1 20041222; EP 1489372 B1 20160413**; DE 10328001 A1 20050105; US 2005006082 A1 20050113; US 7665512 B2 20100223

DOCDB simple family (application)  
**EP 04009052 A 20040416**; DE 10328001 A 20030621; US 86529104 A 20040609