

Title (en)

Heat exchanger tube with corrugated insert and manufacturing method therefore

Title (de)

Wärmetauscherrohr mit gewelltem Einsatz und sein Herstellungsverfahren

Title (fr)

Tube d'échangeur de chaleur comprenant un insert ondulé et son procédé de fabrication

Publication

EP 1445570 B1 20160427 (DE)

Application

EP 04000378 A 20040110

Priority

DE 10304692 A 20030206

Abstract (en)

[origin: EP1445570A2] The insert has corrugation apexes and corrugation troughs, with set wave height (3) and wave length (4). there may be breaks in the flanks. The one-piece insert is formed of sectors (A1, A2, A3) of small and great wave lengths. Each sector consists of several corrugations of the same length, the troughs being of greater length (7) than the apexes.

IPC 8 full level

F28F 3/02 (2006.01); **B21D 13/02** (2006.01); **B21D 53/04** (2006.01); **F28D 9/00** (2006.01)

CPC (source: EP US)

B21D 13/02 (2013.01 - EP US); **B21D 53/04** (2013.01 - EP US); **F28D 9/005** (2013.01 - EP US); **F28F 3/025** (2013.01 - EP US); **F28F 2215/04** (2013.01 - EP US); **Y10S 165/916** (2013.01 - EP US)

Citation (opposition)

Opponent : MAHLE International GmbH

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EP2770289A4; EP1512930A3; ES2315056A1

Designated contracting state (EPC)

DE ES FR GB IT

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EP 1445570 A2 20040811; **EP 1445570 A3 20070124**; **EP 1445570 B1 20160427**; DE 10304692 A1 20040819; US 2004177668 A1 20040916; US 7255159 B2 20070814

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