

Title (en)  
HEAT EXCHANGER

Title (de)  
WÄRMETAUSCHER

Title (fr)  
ECHANGEUR THERMIQUE

Publication  
**EP 1370818 A1 20031217 (EN)**

Application  
**EP 02700591 A 20020218**

Priority  
• JP 0201343 W 20020218  
• JP 2001041449 A 20010219  
• US 30237101 P 20010703

Abstract (en)  
[origin: WO02066918A1] The invention relates to heat exchangers for use in motor vehicles or for industrial use, for example, to heat exchangers for use as evaporators, condensers, oil coolers, intercoolers, heater cores, etc. The invention provides a heat exchanger comprising pairs of plates with each plate of the pair having formed on one side thereof a peripheral ridge, central ridge and channel dividing U-shaped ridges which are formed by forging or cutting. Each pair of plates are fitted together and joined, with channel recesses thereof opposed to each other to form a flat tube and a plurality of U-shaped divided fluid passageways in a U-shaped fluid channel inside the tube. Each pair of adjacent flat tubes are joined by spectacle-shaped header members interposed between the upper ends of the tubes and each comprising a front and a rear fluid passing tube portion and a connecting portion therebetween to provide a front and a rear header in communication with the upper ends of the flat tubes. The flat tubes have a reduced front-to-rear width, diminished wall thickness (thinner layers) and increased heat transfer efficiency to provide a heat exchanger which achieves a higher heat transfer efficiency and greatly improved heat exchange performance.  
[origin: WO02066918A1] The invention relates to heat exchangers for use in motor vehicles or for industrial use, for example, to heat exchangers for use as evaporators, condensers, oil coolers, intercoolers, heater cores, etc. The invention provides a heat exchanger comprising pairs of plates with each plate of the pair having formed on one side thereof a peripheral ridge, central ridge and channel dividing U-shaped ridges which are formed by forging or cutting. Each pair of plates are fitted together and joined, with channel recesses thereof opposed to each other to form a flat tube and a plurality of U-shaped divided fluid passageways in a U-shaped fluid channel inside the tube. Each pair of adjacent flat tubes are joined by spectacle-shaped header members interposed between the upper ends of the tubes and each comprising a front and a rear fluid passing tube portion and a connecting portion therebetween to provide a front and a rear header in communication with the upper ends of the flat tubes. The flat tubes have a reduced front-to-rear width, diminished wall thickness (thinner layers) and increased heat transfer efficiency to provide a heat exchanger which achieves a higher heat transfer efficiency and greatly improved heat exchange performance.

IPC 1-7  
**F28F 3/08**; **F28F 3/04**

IPC 8 full level  
**F28F 3/08** (2006.01); **F25B 39/02** (2006.01); **F28D 1/03** (2006.01); **F28D 9/00** (2006.01); **F28F 1/02** (2006.01); **F28F 9/22** (2006.01)

CPC (source: EP KR US)  
**F28D 1/0333** (2013.01 - EP US); **F28D 1/035** (2013.01 - EP US); **F28D 1/0375** (2013.01 - EP US); **F28F 1/022** (2013.01 - EP US); **F28F 3/04** (2013.01 - KR); **Y02P 80/10** (2015.11 - EP US)

Designated contracting state (EPC)  
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE TR

DOCDB simple family (publication)  
**WO 02066918 A1 20020829**; CN 1500198 A 20040526; EP 1370818 A1 20031217; EP 1370818 A4 20060426; JP 2004530092 A 20040930; JP 4065781 B2 20080326; KR 20030080004 A 20031010; US 2005269066 A1 20051208

DOCDB simple family (application)  
**JP 0201343 W 20020218**; CN 02807223 A 20020218; EP 02700591 A 20020218; JP 2002566196 A 20020218; KR 20037010848 A 20030819; US 20315305 A 20050815