

Title (en)
HEAT EXCHANGER, ESPECIALLY A CHARGE-AIR COOLER FOR MOTOR VEHICLES

Title (de)
WÄRMEÜBERTRÄGER, INSbesondere LADELUFTKÜHLER FÜR KRAFTFAHRZEUGE

Title (fr)
ECHANGEUR THERMIQUE, EN PARTICULIER REFROIDISSEUR D'AIR DE SURALIMENTATION POUR VÉHICULES AUTOMOBILES

Publication
EP 1616143 B1 20110511 (DE)

Application
EP 04722246 A 20040322

Priority

- EP 2004002967 W 20040322
- DE 10316756 A 20030410

Abstract (en)
[origin: WO2004090454A1] The invention relates to a heat exchanger, especially a charge-air cooler for motor vehicles, comprising flat tubes (9) with tube ends (9a), and collecting tanks (1) which are connected to tube plates (4), said tube plates (4) comprising openings (8) provided with long sides (8a) and short sides (8b) for receiving the tube ends (9a), in addition to edge strips (5, 6) and transition regions (12, 13) which are embodied in a groove-type manner and located between the short sides (8b) and the edge strips (5, 6), the tube ends (9a) being soldered in the openings (8). According to the invention, the transition regions (12, 13) comprise a reinforcing element.

IPC 8 full level
F28F 9/02 (2006.01); **F28D 1/053** (2006.01)

CPC (source: EP US)
F28D 1/0535 (2013.01 - EP US); **F28F 9/0224** (2013.01 - EP US); **F28D 2021/0082** (2013.01 - EP US); **F28F 2225/08** (2013.01 - EP US)

Cited by
DE102011005236A1

Designated contracting state (EPC)
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LU MC NL PL PT RO SE SI SK TR

DOCDB simple family (publication)
WO 2004090454 A1 20041021; AT E509250 T1 20110515; BR PI0409219 A 20060328; CN 1771424 A 20060510; DE 10316756 A1 20041028;
EP 1616143 A1 20060118; EP 1616143 B1 20110511; JP 2006523295 A 20061012; JP 4533374 B2 20100901; US 2006118285 A1 20060608

DOCDB simple family (application)
EP 2004002967 W 20040322; AT 04722246 T 20040322; BR PI0409219 A 20040322; CN 200480009475 A 20040322;
DE 10316756 A 20030410; EP 04722246 A 20040322; JP 2006504780 A 20040322; US 55272005 A 20051011