

Title (en)

Integrated heat exchanger, more particularly for automotive vehicle

Title (de)

Integrierter Wärmetauscher, insbesondere für Kraftfahrzeug

Title (fr)

Echangeur de chaleur combiné, en particulier pour véhicule automobile

Publication

EP 1003005 B1 20040310 (FR)

Application

EP 99122374 A 19991110

Priority

FR 9814655 A 19981120

Abstract (en)

[origin: EP1003005A1] The combined motor vehicle oil and coolant heat exchanger comprises a tube bundle (10) connected to a manifold box (16,18). It is divided into a part (A) forming a gearbox oil cooler having tubes (12a) through which oil (H) passes and a part (B) forming a condenser with tubes (12b) through which a refrigerant flows. The same air flow cools both oil and refrigerant. The two sets of tubes have different hydraulic diameters (Dha,DHb) connected by the following inequality: $0.8 \text{ mm} < 2 \leq Dha \times DHb \leq 3.00 \text{ mm} < 2$. The hydraulic diameter of the oil cooler tubes is greater than the hydraulic diameter of the condenser tubes.

IPC 1-7

F28D 1/04

IPC 8 full level

F25B 39/04 (2006.01); **F28D 1/04** (2006.01); **F28F 1/02** (2006.01); **F28F 13/00** (2006.01)

CPC (source: EP US)

F25B 39/04 (2013.01 - EP US); **F28D 1/0443** (2013.01 - EP US); **F28D 1/05391** (2013.01 - EP US); **F28F 1/022** (2013.01 - EP US); **F28F 13/00** (2013.01 - EP US); **F25B 2500/01** (2013.01 - EP US); **F28D 2021/0084** (2013.01 - EP US); **F28D 2021/0089** (2013.01 - EP US); **F28F 2270/02** (2013.01 - EP US); **Y10S 165/916** (2013.01 - EP US)

Cited by

EP1816424A1; DE102006017434B4; EP2171387A4; US6883600B2; DE10158436A1; US7337832B2; US6904963B2; US7527087B2; WO2007014560A3; WO2008064247A1; WO2012059344A3; US8276651B2; US8196646B2; US8561681B2; US7059393B2; US6942023B2; US6793012B2; WO2011005986A3; WO03095918A3; EP1700077A1

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EP 1003005 A1 20000524; **EP 1003005 B1 20040310**; AT E261573 T1 20040315; BR 9905655 A 20000912; DE 69915431 D1 20040415; DE 69915431 T2 20040819; ES 2217672 T3 20041101; FR 2786259 A1 20000526; FR 2786259 B1 20010202; US 6394176 B1 20020528

DOCDB simple family (application)

EP 99122374 A 19991110; AT 99122374 T 19991110; BR 9905655 A 19991118; DE 69915431 T 19991110; ES 99122374 T 19991110; FR 9814655 A 19981120; US 44228199 A 19991119