

Title (en)  
HEAT EXCHANGER AND TUBE FOR HEAT EXCHANGER

Title (de)  
WÄRMETAUSCHER UND ROHR FÜR WÄRMETAUSCHER

Title (fr)  
ECHANGEUR THERMIQUE ET TUBE POUR ECHANGEUR THERMIQUE

Publication  
**EP 1452814 A4 20080910 (EN)**

Application  
**EP 02802694 A 20020830**

Priority

- JP 0208846 W 20020830
- JP 2001343077 A 20011108

Abstract (en)  
[origin: EP1452814A1] A heat exchanger and its tubes, wherein the heat exchanger includes a core 300a, having a lamination of flat tubes 301 for flowing a refrigerant and corrugated fins 302, and tanks 310 having slots for insertion of the ends of tubes, the core is configured to have the flat surfaces of the tubes in parallel with the airflow direction, and the tubes have their ends 301a twisted in the width direction by 90 DEG with respect to the airflow direction. A heat exchanger for a supercritical refrigeration cycle has tanks 310a, 310c displaced in a direction orthogonal to the airflow direction on one side of plural cores 300a, 300b which are overlaid in the airflow direction, and an inlet 320 and an outlet 330 for the refrigerant are oriented toward the windward side or the downwind side of the airflow direction. <IMAGE>

IPC 1-7  
**F28D 1/053**; **F28F 9/18**

IPC 8 full level  
**F28D 1/04** (2006.01); **F28D 1/053** (2006.01); **F28F 1/02** (2006.01); **F28F 9/18** (2006.01); **F28F 9/26** (2006.01)

CPC (source: EP US)  
**F28D 1/0417** (2013.01 - EP US); **F28D 1/0435** (2013.01 - EP US); **F28D 1/05391** (2013.01 - EP US); **F28F 1/022** (2013.01 - EP US); **F28F 1/025** (2013.01 - EP US); **F28F 9/182** (2013.01 - EP US); **F28F 9/262** (2013.01 - EP US)

Citation (search report)

- [XY] WO 0006964 A1 20000210 - FORD WERKE AG [DE], et al
- [Y] EP 0654645 A2 19950524 - SHOWA ALUMINUM CORP [JP]
- [Y] FR 2793013 A1 20001103 - VALEO THERMIQUE MOTEUR SA [FR]
- [Y] EP 1070929 A2 20010124 - VALEO KLIMATECHNIK GMBH [DE]
- [Y] DE 19911334 A1 20000921 - BEHR GMBH & CO [DE]
- [A] DE 19729497 A1 19990114 - BEHR GMBH & CO [DE]
- See also references of WO 03040640A1

Cited by  
EP1460364A3; FR2898405A1; EP1762808A1; FR2890730A1; FR2887974A1; FR2876783A1; FR2899959A1; FR2952173A1; EP2565571A4; EP2372288A1; FR2958384A1; WO2006042957A1; WO2007101817A1; EP3009780B1; EP3009780B2

Designated contracting state (EPC)  
DE FR

DOCDB simple family (publication)  
**EP 1452814 A1 20040901**; **EP 1452814 A4 20080910**; JP WO2003040640 A1 20050303; US 2005011637 A1 20050120; WO 03040640 A1 20030515

DOCDB simple family (application)  
**EP 02802694 A 20020830**; JP 0208846 W 20020830; JP 2003542852 A 20020830; US 49526204 A 20040510