

Title (en)
PARALLEL FLOW EVAPORATOR WITH SHAPED MANIFOLDS

Title (de)
PARALLELFUSSVERDAMPFER MIT GEFORMTEN VERTEILERN

Title (fr)
EVAPORATEUR A FLUX PARALLELES DOTE DE COLLECTEURS FAÇONNES

Publication
EP 1809968 A4 20110420 (EN)

Application
EP 05821090 A 20051114

Priority

- US 2005041249 W 20051114
- US 98796104 A 20041112

Abstract (en)
[origin: WO2006053311A2] In a parallel flow evaporator, the inlet manifold construction consists of alternating expansion and contraction chambers to promote homogeneous conditions of the refrigerant, as it flows longitudinally through the inlet manifold, as a result of partial evaporation (throttling) and mixing and jetting effects (due to velocity augmentation). In a preferred embodiment, the parallel channels are fluidly connected to the expansion chambers so as to receive a homogeneous refrigerant mixture therefrom. In one embodiment, the expansion and contraction chambers are progressively smaller in size toward a downstream end, so as to accommodate the diminishing refrigerant flow as it progresses longitudinally along the inlet manifold. In another embodiment, the outlet manifold also consists of a repetitive pattern of alternating expansion and contraction chambers, so as to balance the impedances of the inlet manifold. In still another embodiment, these chambers are progressively larger in size toward a downstream end of the outlet manifold. In yet another embodiment, the flow-mixing inserts are introduced into the contraction chambers to further promote homogeneous conditions within the manifold. As a result, maldistribution in the heat exchanger is avoided, resulting in system performance augmentation and compressor reliability enhancement.

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

CPC (source: EP US)
F25B 39/028 (2013.01 - EP US); **F28D 1/05366** (2013.01 - EP US); **F28F 9/02** (2013.01 - EP US); **F28F 9/028** (2013.01 - EP US)

Citation (search report)

- [XYI] JP H08136182 A 19960531 - TOSHIBA CORP
- [XY] DE 19515527 A1 19961031 - THERMAL WERKE BETEILIGUNGEN GM [DE]
- [XYI] FR 1291617 A 19620427 - CONST MECANIQUE ET AERONAUTIQ
- [X] JP 2001241806 A 20010907 - SANDEN CORP
- [XY] US 5329990 A 19940719 - CHIGIRA HITOSHI [JP]
- [X] EP 1471323 A2 20041027 - CALSONIC KANSEI CORP [JP]
- [IY] DE 19719261 A1 19981112 - VALEO KLIMATECH GMBH & CO KG [DE]
- [YA] FR 2712077 A1 19950512 - VALEO THERMIQUE MOTEUR SA [FR]
- [A] EP 1065453 A2 20010103 - DENSO CORP [JP]
- See references of WO 2006053311A2

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

DOCDB simple family (publication)
WO 2006053311 A2 20060518; WO 2006053311 A3 20090409; EP 1809968 A2 20070725; EP 1809968 A4 20110420; US 2006101850 A1 20060518; US 2010071392 A1 20100325

DOCDB simple family (application)
US 2005041249 W 20051114; EP 05821090 A 20051114; US 62945809 A 20091202; US 98796104 A 20041112