

Title (en)

Heat exchanger, more particularly for exhaust gases

Title (de)

Wärmeübertrager, insbesondere Abgaswärmeübertrager

Title (fr)

Echangeur de chaleur, en particulier pour gaz d'échappement

Publication

**EP 0851197 A3 19990519 (DE)**

Application

**EP 97120667 A 19971126**

Priority

DE 19654368 A 19961224

Abstract (en)

[origin: EP0851197A2] The heat-exchanger has a bundle of rectangular-section tubes, through which gas flows, enclosed in a casing. The latter forms a guide with an inlet and an outlet for liquid coolant. External protrusions (22) on the tubes determine their distance from each other and also from the inside surface of the casing (11). Each tube may be formed by two U-section half-shells, with bottoms in which the protrusions are embossed, these typically being situated in a central row. They may have oval bottom surfaces whose greatest dimension extends in the flow direction. At right angles to this direction their cross-section may be approximately semi-cylindrical.

IPC 1-7

**F28D 7/00**; **F28F 1/04**; **F28F 3/04**

IPC 8 full level

**F28D 7/00** (2006.01); **F28D 7/16** (2006.01); **F28F 1/04** (2006.01); **F28F 1/42** (2006.01); **F28F 3/04** (2006.01); **F28F 9/013** (2006.01); **F28F 9/02** (2006.01)

CPC (source: EP US)

**F28D 7/0041** (2013.01 - EP US); **F28D 7/1684** (2013.01 - EP US); **F28F 1/045** (2013.01 - EP US); **F28F 1/42** (2013.01 - EP US); **F28F 1/422** (2013.01 - EP US); **F28F 3/042** (2013.01 - EP US); **F28F 9/013** (2013.01 - EP US); **F28F 9/0221** (2013.01 - EP US); **F28D 21/0003** (2013.01 - EP US); **F28F 2001/027** (2013.01 - EP US); **F28F 2240/00** (2013.01 - EP US)

Citation (search report)

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- [XY] US 4206806 A 19800610 - TOGASHI AKIRA [JP]
- [Y] LU 39794 A1 19610418
- [Y] EP 0677715 A1 19951018 - BEHR GMBH & CO [DE]
- [X] AU 542505 B2 19850221 - RACECOURSE CO OPERATIVE SUGAR
- [X] FR 339401 A 19040609 - GOTTFRIED EGLOFF [CH]
- [A] GB 688638 A 19530311 - AIR PREHEATER

Cited by

EP2886999A1; DE102005058204A1; DE102005058204B4; FR2827372A1; FR2831252A1; FR2831253A1; US9919281B2; WO2015091442A1; EP2171386B1

Designated contracting state (EPC)

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DOCDB simple family (publication)

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DOCDB simple family (application)

**DE 19654368 A 19961224**; DE 59706551 T 19971126; EP 97120667 A 19971126; US 99672497 A 19971223