

Title (en)  
Bi-thermal heat exchanger, method and plant for its manufacture

Title (de)  
Bithernaler Wärmetauscher und seine Herstellung

Title (fr)  
Echangeur thermique a double flux et son procédé de fabrication

Publication  
**EP 2151651 A1 20100210 (EN)**

Application  
**EP 08425548 A 20080807**

Priority  
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Abstract (en)  
A particularly compact bi-thermal gas-liquid heat exchanger (1) having a high heat exchange efficiency is described, preferably, but not exclusively used as a bi-thermal gas-water heat exchanger for water heating apparatuses. The heat exchanger (1) comprises at least one tube-in-tube tubular conduit (3) comprising a shaped inner tubular conduit (4) in which an inner liquid flowpath (5) for the circulation of a first heat carrier liquid is defined and an outer tubular conduit (6) mounted around the shaped inner tubular conduit (4) and defining, with the inner tubular conduit (4), at least one gap (7', 7"; 8', 8") in which an outer liquid flowpath for the circulation of a second heat carrier liquid is defined. According to the invention, the tube-in-tube tubular conduit (3) further comprises at least one flow rate splitting element (27) arranged in the at least one gap (7', 7"; 8', 8") defined between the shaped inner tubular conduit (4) and the outer tubular conduit (6) for splitting the flow rate of the second heat carrier liquid between a gas inlet side zone and a gas outlet side zone of the at least one gap (7', 7"; 8', 8").

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GB 2409261 A 20050622 - GIANNONI S P A [IT]

Citation (search report)  
• [DA] GB 2409261 A 20050622 - GIANNONI S P A [IT]  
• [A] DE 2912011 A1 19801002 - VISSMANN HANS  
• [A] JP S5837465 A 19830304 - NIPPON DENSO CO  
• [A] WO 0250478 A1 20020627 - MERLONI TERMOSANITARI SPA [IT], et al  
• [A] EP 0775876 A1 19970528 - LEBLANC SA E L M [FR]  
• [A] FR 2891480 A1 20070406 - AUTO CHASSIS INTERNAT SNC SNC [FR]  
• [A] US 4827590 A 19890509 - METZGER FREDERICK W [US]  
• [A] DE 102005007997 B3 20051208 - TOWER AUTOMOTIVE HYDROFORMING [DE]  
• [A] MACHINERY ENGINEERING AND PRODUCTION IN METALWORKING, vol. 60, no. 2, October 1962 (1962-10-01), pages 114 - 117, XP001334797

Cited by  
EP2487431A1; WO2012110494A1

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