

Title (en)  
Heat exchanger

Title (de)  
Wärmetauscher

Title (fr)  
Echangeur de chaleur

Publication  
**EP 1519134 A3 20080220 (EN)**

Application  
**EP 04022410 A 20040921**

Priority  
IT MI20031826 A 20030924

Abstract (en)  
[origin: EP1519134A2] A tube-nest heat exchanger with bypass for process fluid output temperature control comprises a chamber (14) traversed by an exchange fluid and closed at opposite ends by a pair of tube plates (12,13) with a tube nest (11) between them. The tube-nest tubes are traversed by the process fluid and are in contact externally with the exchange fluid in the chamber. Between the tube plates (12,13) is at least one bypass tube (17) made up of an external shell (18) in contact with the exchange fluid and a thermally insulating layer (19) on the inner wall to surround an internal passage (20) traversed by the process fluid. The material of the external shell of the bypass tube and the material of the tube-nest tubes are mutually different and chosen with different thermal expansion coefficients such that the functions  $\#L_t(T)$  and  $\#L_b(T)$  of the lengthening starting from the length under assembly conditions as a function of temperature and respectively of the tube-nest tubes and the bypass tube shell identify at said respective mean operating temperatures  $T_{et}$  and  $T_{eb}$ , values  $\#L_t(T_{et})$  and  $\#L_b(T_{eb})$  such that  $|1-\#L_t(T_{et})/\#L_b(T_{eb})| \leq 0.15$ . This produces reduced stress on the welds between tubes and tube plates and allows realization of more economical and stronger exchangers.

IPC 8 full level  
**F28D 7/16** (2006.01); **F28F 21/08** (2006.01); **F28F 27/02** (2006.01)

CPC (source: EP)  
**F28D 7/16** (2013.01); **F28F 21/087** (2013.01); **F28F 27/02** (2013.01); **F28F 2250/06** (2013.01); **F28F 2270/00** (2013.01)

Citation (search report)

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- [Y] DE 2846455 B1 19791031 - BORSIG GMBH
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**EP 04022410 A 20040921; IT MI20031826 A 20030924**