

Title (en)  
TUBULAR SHELL HEAT EXCHANGER WITH CROSS FLOW

Title (de)  
QUERSTROM-ROHRBÜNDELWÄRMETAUSCHER

Title (fr)  
ÉCHANGEUR DE CHALEUR À FAISCEAU TUBULAIRE À ÉCOULEMENT TRANSVERSAL

Publication  
**EP 4136396 B1 20240410 (EN)**

Application  
**EP 20829310 A 20201201**

Priority  
CZ 2020000052 W 20201201

Abstract (en)  
[origin: WO2022117129A1] Tubular shell heat exchanger (1), comprising a shell (12) with a set of connecting tubes (8) which are mounted parallel to the axis between two tube plates (2, 3), wherein heating medium inlet (4) is located on the top of the shell (12) and the heating medium outlet (5) is arranged at the bottom and on the inlet tube plate side (2) is an inlet tube (6) for the heated medium and an outlet tube (7) is arranged on the side of the outlet tube plate (3), whereas the tubes (8) are provided with deflectors (9), which are fixed at regular mutual intervals and perpendicular to these tubes (8) by means of fixing sleeves (10), deflectors (9) consisting of a horizontal fastening strip (13) and an inclined wing (14), which is arranged obliquely at an angle  $\alpha = 120$  to  $140^\circ$  to the fastening strip 13 in its horizontal position, wherein deflectors (9) are in rows next to each other, at a distance (X) within one horizontal row of tubes (8), all of which are inclined in the same direction within such a formation and deflectors (9) on tubes (8) in a lower adjacent row are again arranged at a distance (X), but they are inclined in the opposite direction to those above them, and they are offset by half of the distance (X), wherein below this offset row the arrangement and inclination of deflectors (9) are again the same as in the row above, wherein inlet (4) is divided into branches (11) which entry into the shell (12) is in the position above deflectors (9) arranged on the tube (8) which is closest to the branches (11) and deflectors (9) in the place below each entry of the branch (11) form either an assembly of two deflectors (9) oriented to one side, or there is only one deflector (9) oriented to the opposite side and the height (H) of deflectors (9) is less than the distance (h) of the surfaces of two tubes (8) arranged above each other.

IPC 8 full level  
**F28D 7/16** (2006.01); **F28F 9/013** (2006.01); **F28F 9/22** (2006.01); **F28F 9/24** (2006.01); **F28F 19/00** (2006.01)

CPC (source: EP)  
**F28D 7/1607** (2013.01); **F28D 21/0001** (2013.01); **F28F 9/013** (2013.01); **F28F 9/0132** (2013.01); **F28F 9/0275** (2013.01); **F28F 9/22** (2013.01); **F28F 9/24** (2013.01); **F28D 7/0075** (2013.01); **F28F 19/00** (2013.01); **F28F 2009/228** (2013.01); **F28F 2250/106** (2013.01); **F28F 2265/28** (2013.01); **F28F 2265/30** (2013.01)

Designated contracting state (EPC)  
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

DOCDB simple family (publication)  
**WO 2022117129 A1 20220609**; EP 4136396 A1 20230222; EP 4136396 B1 20240410; EP 4136396 C0 20240410

DOCDB simple family (application)  
**CZ 2020000052 W 20201201**; EP 20829310 A 20201201