

Title (en)
TUBE BUNDLE HEAT EXCHANGER

Publication
EP 0417428 B1 19930929 (DE)

Application
EP 90113566 A 19900716

Priority
DE 3930205 A 19890909

Abstract (en)
[origin: JPH03113295A] PURPOSE: To control a temperature of a gas in a nested-tube heat exchanger even at a high temperature of 1,000 deg.C or more, by providing a tube plate equipped with cooling channels disposed at the gas-intake side of the heat exchanger and tubes arranged in rows, each row of the tubes extending through each cooling channel, which tube plate has a base of uniform thickness at the side where the gas is flowing, so that cooling medium is uniformly dispersed. CONSTITUTION: A tube plate 3 has large-diameter bores 15 in a thicker bottom portion 9, and the large-diameter bores 15 open into the interior of a jacket 2 and also they open into cooling channels 7 to be perpendicular to the longitudinal extension thereof. Nested tubes 1 are respectively inserted into the large- diameter bores 15 each with an annular gap around it. Tubes 1 arranged in a row pass through each cooling channel 7 and are welded to a thinner bottom portion 8 of the tube plate 3 with no play therebetween by way of completely welded welding seams. Each width of the cooling channels 7 thus formed is substantially equal to one to two times of diameter of each tube 1.

IPC 1-7
F28D 7/16; F28F 9/02

IPC 8 full level
F28D 7/00 (2006.01); **F28D 7/16** (2006.01); **F28F 9/00** (2006.01); **F28F 9/02** (2006.01)

CPC (source: EP KR US)
F28D 7/00 (2013.01 - KR); **F28D 7/16** (2013.01 - EP US); **F28F 9/0229** (2013.01 - EP US); **F28D 2021/0075** (2013.01 - EP US)

Cited by
DE102014018261A1; EP2273119A1; WO2013122528A3; EP3032209A1; US10190829B2

Designated contracting state (EPC)
AT DE FR GB IT NL

DOCDB simple family (publication)
EP 0417428 A2 19910320; EP 0417428 A3 19911106; EP 0417428 B1 19930929; AT E95303 T1 19931015; AU 6025590 A 19910314; AU 632607 B2 19930107; BR 9004567 A 19910910; CA 2024900 A1 19910310; CA 2024900 C 19990824; CN 1018024 B 19920826; CN 1050928 A 19910424; DD 297697 A5 19920116; DE 3930205 A1 19910314; DE 59002909 D1 19931104; JP 3129727 B2 20010131; JP H03113295 A 19910514; KR 0145700 B1 19980817; KR 910006683 A 19910429; RU 2011942 C1 19940430; US 5035283 A 19910730

DOCDB simple family (application)
EP 90113566 A 19900716; AT 90113566 T 19900716; AU 6025590 A 19900808; BR 9004567 A 19900906; CA 2024900 A 19900907; CN 90107544 A 19900908; DD 34389890 A 19900907; DE 3930205 A 19890909; DE 59002909 T 19900716; JP 21564890 A 19900814; KR 900013860 A 19900903; SU 4830858 A 19900905; US 44698989 A 19891206