

Title (en)  
HEAT EXCHANGER

Title (de)  
WÄRMETAUSCHER

Title (fr)  
ÉCHANGEUR DE CHALEUR

Publication  
**EP 2998687 B1 20180404 (EN)**

Application  
**EP 13884903 A 20130517**

Priority  
JP 2013063859 W 20130517

Abstract (en)  
[origin: EP2998687A1] Provided is a heat exchanger having improved heat transfer performance. A heat exchanger (100) according to the present invention includes a heat transfer unit (102) configured to perform heat exchange by contact with gas (112), and a contact surface (102a) of the heat transfer unit (102) to be in contact with the gas (112) is provided with a fine structure body (102b) which has a height of 10 µm or less and a surface area of 10 times or more of a smooth surface. The gas (112) desirably has a Reynolds number of 30,000 or more, and the fine structure body (102b) is desirably formed of the same material as that of a base material forming the contact surface (102a). Moreover, the fine structure body (102b) desirably has heat conductivity equal to or larger than the base material forming the contact surface (102a).

IPC 8 full level  
**F28F 9/24** (2006.01); **C23C 22/63** (2006.01); **C23F 1/18** (2006.01); **C23G 1/10** (2006.01); **F25B 39/00** (2006.01); **F28F 1/32** (2006.01);  
**F28F 1/40** (2006.01); **F28F 13/02** (2006.01); **F28F 13/12** (2006.01); **F28F 13/18** (2006.01); **F28F 21/08** (2006.01)

CPC (source: EP US)  
**C23C 22/63** (2013.01 - EP US); **C23F 1/18** (2013.01 - EP US); **C23G 1/103** (2013.01 - EP US); **F28D 9/0093** (2013.01 - US);  
**F28F 13/12** (2013.01 - EP US); **F28F 13/187** (2013.01 - EP US); **F28F 21/085** (2013.01 - EP US); **F28F 21/089** (2013.01 - EP US);  
**F28F 13/02** (2013.01 - EP US); **F28F 2245/00** (2013.01 - EP US); **F28F 2260/00** (2013.01 - EP US)

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)  
**EP 2998687 A1 20160323; EP 2998687 A4 20170201; EP 2998687 B1 20180404;** JP WO2014184964 A1 20170223;  
US 2016091254 A1 20160331; WO 2014184964 A1 20141120

DOCDB simple family (application)  
**EP 13884903 A 20130517;** JP 2013063859 W 20130517; JP 2015516870 A 20130517; US 201314890826 A 20130517