

Title (en)
AIR COOLED TURBINE STATOR VANES

Title (de)
LUFTGEKÜHLTE TURBINENLEITSCHAUFELN

Title (fr)
AUBES DE STATOR DE TURBINE REFROIDIE PAR AIR

Publication
EP 3423680 A1 20190109 (EN)

Application
EP 16710066 A 20160304

Priority
US 2016020945 W 20160304

Abstract (en)
[origin: WO2017151146A1] An air cooled turbine stator vane with an impingement cooling insert (12,13) secured within a cavity, where a forward and an aft seal slot are formed between a backside surface of an airfoil and the impingement cooling insert in which flexible seals (14) are located, and where the backside surface of the airfoil and the insert include chordwise (19, 22, 24, 26) and sideways bumper surfaces (18, 21, 23, 25) each having a gap to allow for relative movement of the insert within the cavity from thermal gradients while maintaining a seal between the airfoil and the impingement cooling insert. Each flexible seal has an X-shaped cross-section having four points that each makes contact with a surface of the respective seal slot so that a high relative movement of the impingement cooling insert within the cavity can occur while still maintaining a tight seal. The impingement cooling insert includes a number of crossover tubes (27) connecting return air holes on a pressure side to impingement holes on a suction side of the impingement cooling insert.

IPC 8 full level
F01D 9/06 (2006.01); **B22F 5/04** (2006.01); **F01D 5/18** (2006.01); **F01D 11/00** (2006.01)

CPC (source: EP US)
F01D 5/189 (2013.01 - EP); **F01D 9/065** (2013.01 - EP US); **F01D 11/005** (2013.01 - EP); **B22F 5/04** (2013.01 - EP);
B22F 10/28 (2021.01 - EP US); **B33Y 80/00** (2014.12 - EP); **F05D 2240/57** (2013.01 - EP); **F05D 2250/75** (2013.01 - EP);
Y02P 10/25 (2015.11 - EP)

Citation (search report)
See references of WO 2017151146A1

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

Designated extension state (EPC)
BA ME

DOCDB simple family (publication)
WO 2017151146 A1 20170908; EP 3423680 A1 20190109

DOCDB simple family (application)
US 2016020945 W 20160304; EP 16710066 A 20160304