

Title (en)

Gas turbine engine active clearance control system and corresponding method

Title (de)

System zur aktiven Spaltkontrolle für Gasturbinenriebwerke und entsprechendes Verfahren

Title (fr)

Système de contrôle de jeu actif pour moteur à turbine à gaz et procédé associé

Publication

EP 2551467 B1 20181010 (EN)

Application

EP 12177516 A 20120723

Priority

US 201113190674 A 20110726

Abstract (en)

[origin: EP2551467A1] An active clearance control system (30) utilizes a working fluid stream to control radial thermal growth and thereby a clearance between turbine blades (46) and a corresponding shroud (48) of a gas turbine engine (10). Conduits (38) disposed about a turbine case (28) and proximate to pads (44) defined within the turbine case include a flow surface (60) parallel to the pads (44). The pads (44) are an area of increased thickness in the turbine case (28) that receives impingement flow from the conduits (38). Grooves (66) within the pads (44) further increase impingement cooling flow effectiveness. The increased thickness of the pads (44) provides the thermal mass desired to effect thermal expansion and contraction responsive to the cooling airflow. A method of actively controlling clearances within a gas turbine engine is also provided.

IPC 8 full level

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CPC (source: EP US)

F01D 11/24 (2013.01 - EP US); **F05D 2260/201** (2013.01 - EP US); **F05D 2260/2214** (2013.01 - EP US); **F05D 2260/22141** (2013.01 - EP US)

Citation (examination)

- US 6612808 B2 20030902 - LEE CHING-PANG [US], et al
- US 4719748 A 19880119 - DAVIS JR LEWIS B [US], et al
- GB 2378730 A 20030219 - ROLLS ROYCE PLC [GB]

Cited by

FR3081911A1; FR3054000A1; EP3048263A1; US9874105B2; EP3153671A1; US10533449B2; EP3320186B1

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