

Title (en)

Cooled rotor blade with leading edge impingement cooling

Title (de)

Gekühlte Rotorschaukel mit Prallkühlung im Bereich der Eintrittskante

Title (fr)

Aube de rotor refroidie ayant un refroidissement par impact au niveau du bord d'attaque

Publication

EP 1605138 A3 20071003 (EN)

Application

EP 05253261 A 20050527

Priority

US 85507604 A 20040527

Abstract (en)

[origin: EP1605138A2] A rotor blade (14) is provided having a hollow airfoil (22) and a root (20). The hollow airfoil (22) has a cavity defined by a suction side wall (38), a pressure side wall (36), a leading edge (32), a trailing edge (34), a base (28), and a tip (30). An internal passage configuration (40) is disposed within the cavity. The configuration includes a first radial passage (48), a second radial passage (50), and a rib (53) disposed between and separating the first radial passage (48) and second radial passage (50). A plurality of crossover apertures (52) are disposed within the rib (53). A portion of the plurality of crossover apertures (52) are oblong having a length (70) extending through the rib (53), and a height (74) and a width (72). The height (74) of each oblong aperture (52) is greater than the width (72). In some embodiments, the oblong crossover apertures (52) are aligned heightwise along the rib (53). The root (20) includes a conduit (42) that is operable to permit airflow through the root (20) and into the first radial passage (48).

IPC 8 full level

F01D 5/18 (2006.01); **B63H 1/14** (2006.01); **F02C 7/18** (2006.01)

CPC (source: EP US)

F01D 5/187 (2013.01 - EP US); **F05D 2260/201** (2013.01 - EP US); **F05D 2260/202** (2013.01 - EP US)

Citation (search report)

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