

MICROCIRCUIT COOLING FOR A TURBINE BLADE

ABSTRACT

A turbine blade is provided comprising an internal cavity into which cooling air is flowable, an external wall and a first, second and third cooling circuits embedded with the wall. The cooling circuits include inlets that connect each respective cooling circuit with cavity to provide a cooling air flow path into the respective cooling circuit. The cooling circuits also include an exit aperture that provides a cooling air flow path out of the respective cooling circuits. The cooling circuits are configured to increase the temperature of the cooling air as it travels from the inlet to the exit aperture. In the exemplary embodiment, the inlets are aligned with the direction of counter-rotating flow circulations experienced by the inner surface of the wall caused by Coriolis flow effects on the cooling air flowing inside the cavity.