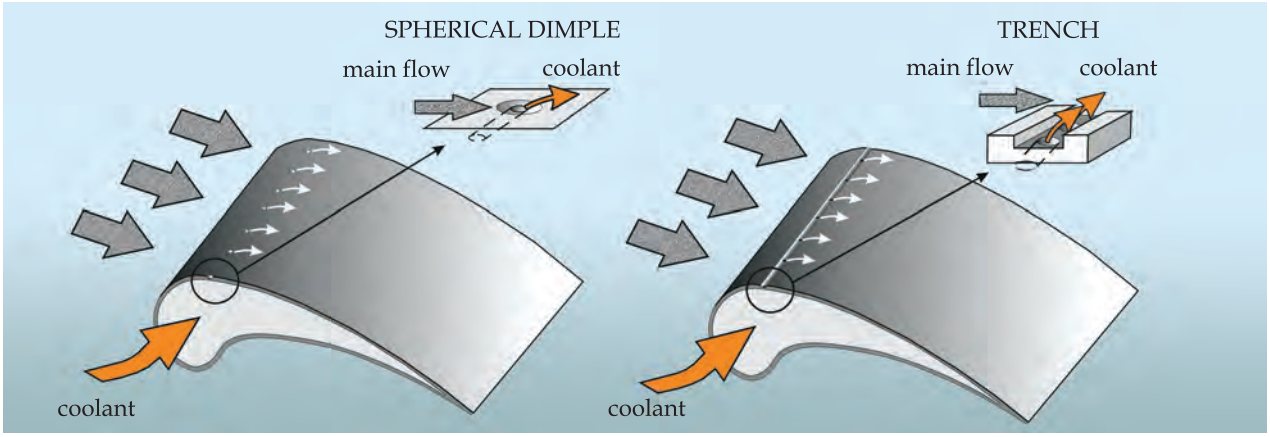
TECHNOLOGY FOR COOLING GAS TURBINE BLADES WITH COOLANT SUPPLY INTO VARIOUSLY SHAPED INDENTATIONS



The scheme of turbine blade film cooling with air supply into spherical dimples and trench

Areas of Application

Applies in power engineering.
Reduction in the coolant mass rate at the film cooling of gas turbine blades

Specification

The technologies are based on the coolant supply into surface indentations of different shape (spherical, cylindrical, triangle, trenched) with low depth to diameter ratio (0.5…1.0). This provides increase in the film cooling efficiency by 1.5…2.5 times in comparison with traditional cooling scheme, or reduction by 10…15% in the coolant flow rate

Advantages

The technology provides the uniformity of protective cooling film, decreases the flow from cooled surface separation and minimizes the negative effect of secondary vortex structures. It is characterized by more simple production technology compared with innovative foreign analogs

Stage of Development. Suggestions for Commercialization

IRL3, TRL3
In case of interest the calculations and optimizations of gas turbine blade cooling system can be developed

IPR Protection

IPR3

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