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Review of Modern Gas turbine Blade Cooling Technologies used in Aircraft

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Abstract : The turbine Inlet Temperature is an important parameter which determines the efficiency of a gas turbine engine. The increase in this parameter is limited by material constraints of the turbine blade.The modern Gas turbine blade has undergone a drastic change from a simple solid blade to a modern multi-pass blade with internal and external cooling techniques. This paper aims to introduce the reader the concept of turbine blade cooling, the classification of techniques and further explain some of the important internal cooling technologies used in a modern gas turbine blade along with the various factors that affect the cooling effectiveness.

Keywords : gas turbine blade, cooling technologies, internal cooling, pin-fin cooling, jet impingement cooling, rib turbulated cooling, metallic foam cooling
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