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Calculus of Turbojet Performances for Ideal Case

Authors : S. Bennoud, S. Hocine, H. Slme

Abstract : Developments in turbine cooling technology play an important role in increasing the thermal efficiency and the power output of recent gas turbines, in particular the turbojets. Advanced turbojets operate at high temperatures to improve thermal efficiency and power output. These temperatures are far above the permissible metal temperatures. Therefore, there is a critical need to cool the blades in order to give theirs a maximum life period for safe operation. The focused objective of this work is to calculate the turbojet performances, as well as the calculation of turbine blades cooling. The developed application able the calculation of turbojet performances to different altitudes in order to find a point of optimal use making possible to maintain the turbine blades at an acceptable maximum temperature and to limit the local variations in temperatures in order to guarantee their integrity during all the lifespan of the engine.

Keywords : brayton cycle, turbine blades cooling, turbojet cycle, turbojet performances
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